



SERVICE MANUAL

RI09C2M1

RI12C2M1

RI18C2M1

RI24C2M1

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1. Precaution.

1.1 Safety Precaution

- **To prevent injury to the user or other people and property damage, the following instructions must be followed.**

- **Incorrect operation due to ignoring instruction will cause harm or damage.**

Before service unit, be sure to read this service manual at first.

1.2 Warning

Installation

- **Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.**

There is risk of fire or electric shock.

- **For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.**

Do not disassemble or repair the product, there is risk of fire or electric shock.

- **Always ground the product.**

There is risk of fire or electric shock.

- **Install the panel and the cover of control box securely.**

There is risk of fire of electric shock.

- **Always install a dedicated circuit and breaker.**

Improper wiring or installation may cause fore or electric shock.

- **Use the correctly rated breaker of fuse.**

There is risk of fire or electric shock.

- **Do not modify or extend the power cable.**

There is risk of fire or electric shock.

- **Do not install, remove, or reinstall the unit by yourself(customer).**

There is risk of fire, electric shock, explosion, or injury.

- **Be caution when unpacking and installing the product.**

Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.

- **For installation, always contact the dealer or an Authorized service center.**

There is risk of fire, electric shock, explosion, or injury.

- **Do not install the product on a defective installation stand.**

It may cause injury, accident, or damage to the product.

- **Be sure the installation area does not deteriorate with age.**

If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

- **Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.**

Moisture may condense and wet or damage furniture.

- **Take care to ensure that power cable could not be pulled out or damaged during operation.**

There is risk of fire or electric shock.

- **Do not place anything on the power cable.**

There is risk of fire or electric shock.

- **Do not plug or unplug the power supply plug during operation.**

There is risk of fire or electric shock.

- **Do not touch (operation) the product with wet hands.**

There is risk of fire or electric shock.

- **Do not place a heater or other appliance near the power cable.**

There is risk of fire and electric shock.

- **Do not allow water to run into electric parts.**

It may cause fire, failure of the product, or electric shock.

- **Do not store or use flammable gas or combustible near the product.**

There is risk of fire or failure of product.

- **Do not use the product in a tightly closed space for a long time.**

Oxygen deficiency could occur.

- **When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.**

Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

- **If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.**

There is risk of electric shock or fire.

- **Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.**

There is risk of property damage, failure of product, or electric shock.

- **Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)**

There is risk of physical injury, electric shock, or product failure.

- **When the product is soaked (flooded or submerged), contact an Authorized service center.**

There is risk of fire or electric shock.

- **Be caution that water could not enter the product.**

There is risk of fire, electric shock, or product damage.

- **Ventilate the product from time to time when operating it together with a stove, etc.**

There is risk of fire or electric shock.

- **Turn the main power off when cleaning or maintaining the product.**

There is risk of electric shock.

- **When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.**

There is risk of product damage or failure, or unintended operation.

- **Take care to ensure that nobody could step on or fall onto the outdoor unit.**

This could result in personal injury and product damage.

Caution

- **Always check for gas (refrigerant) leakage after installation or repair of product.**

Low refrigerant levels may cause failure of product.

- **Install the drain hose to ensure that water is drained away properly.**

A bad connection may cause water leakage.

- **Keep level even when installing the product.**

To avoid vibration of water leakage

- **Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.**

It may cause a problem for your neighbors.

- **Use two or more people to lift and transport the product.**

Avoid personal injury.

- **Do not install the product where it will be exposed to sea wind (salt spray) directly.**

It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

Operational

- **Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).**

This could harm to your health.

- **Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system**

There is risk of damage or loss of property.

- **Do not block the inlet or outlet of air flow.**

It may cause product failure.

- **Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.**

There is risk of fire, electric shock, or damage to the plastic parts of the product.

- **Do not touch the metal parts of the product when removing the air filter. They are very sharp.**

There is risk of personal injury.

- **Do not step on or put anything on the product. (outdoor units)**

There is risk of personal injury and failure of product.

- **Always insert the filter securely. Clean the filter every two weeks or more often if necessary.**

A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.

- **Do not insert hands or other object through air inlet or outlet while the product is operated.**

There are sharp and moving parts that could cause personal injury.

- **Do not drink the water drained from the product.**

It is not sanitary could cause serious health issues.

- **Use a firm stool or ladder when cleaning or maintaining the product.**

Be careful and avoid personal injury.

- **Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.**

There is risk of fire or explosion.

- **Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.**

They may burn or explode.

- **If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.**

The chemical in batteries could cause burns or other health hazards.

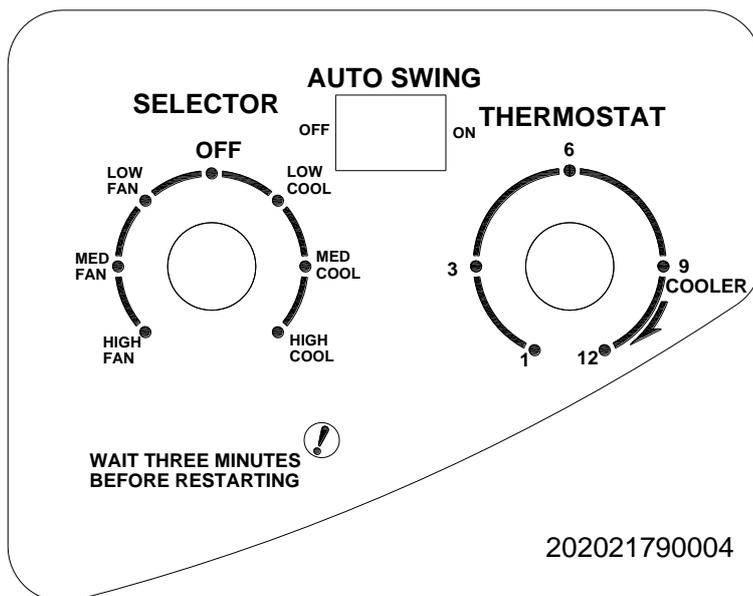
2. Function and control panel.

2.1 Functions

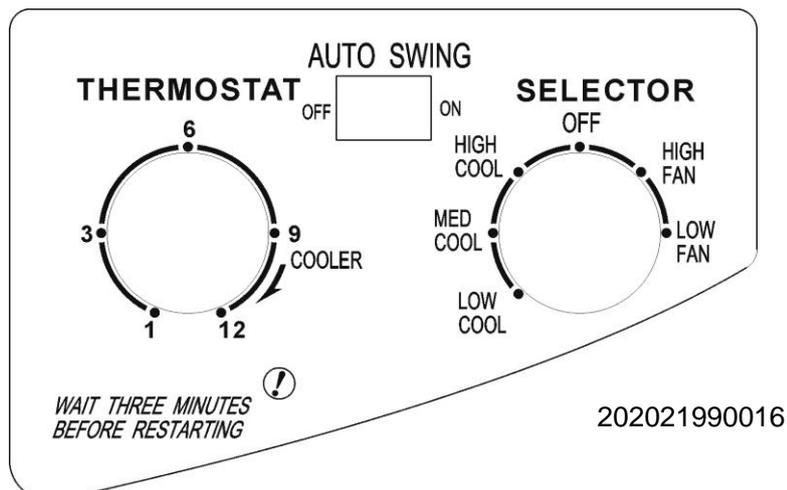
- ※Operation mode: Cooling, Fan.
- ※Optional mode: Dry and Auto.
- ※Fresh air switch.
- ※Swing function.
- ※Auto defrosting.
- ※Anti-freezing control in cooling mode or drying mode. Prevent the water being froze on evaporator by sensing the evaporator pipe temperature in cooling mode.
- ※Time Delay Safety. Restarting is for approx. 3 minutes.
- ※Auto-restart. When the power supply is interrupted and then restore, the air conditioners automatically restore the previous function setting.

2.2 Control panel

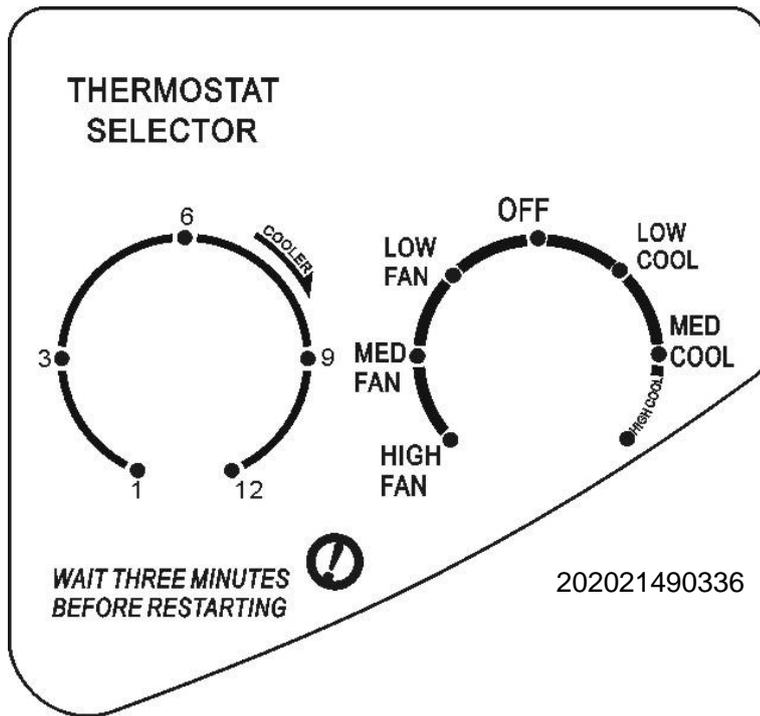
(1) RI12C2M1



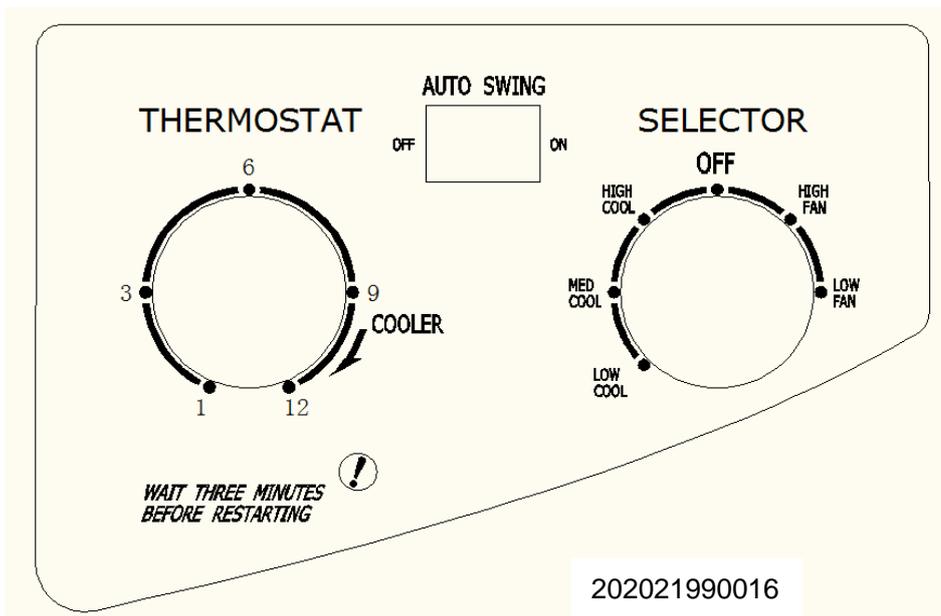
(2) RI18C2M1



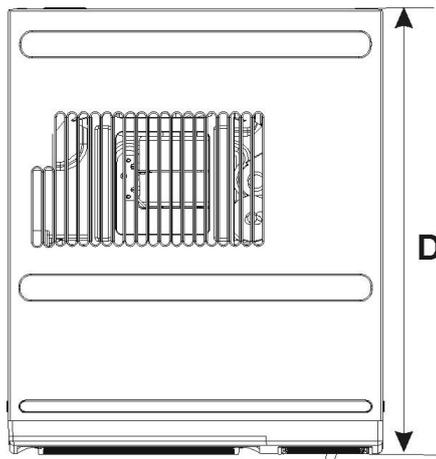
(3) RI09C2M1



(4) RI24C2M1

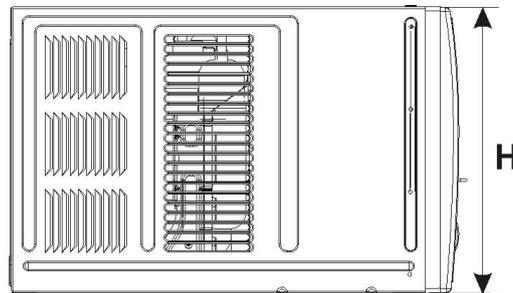
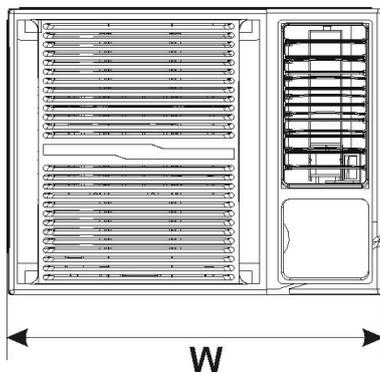


3. Dimension.



Note:

This unit is suitable for panel F series and panel E series

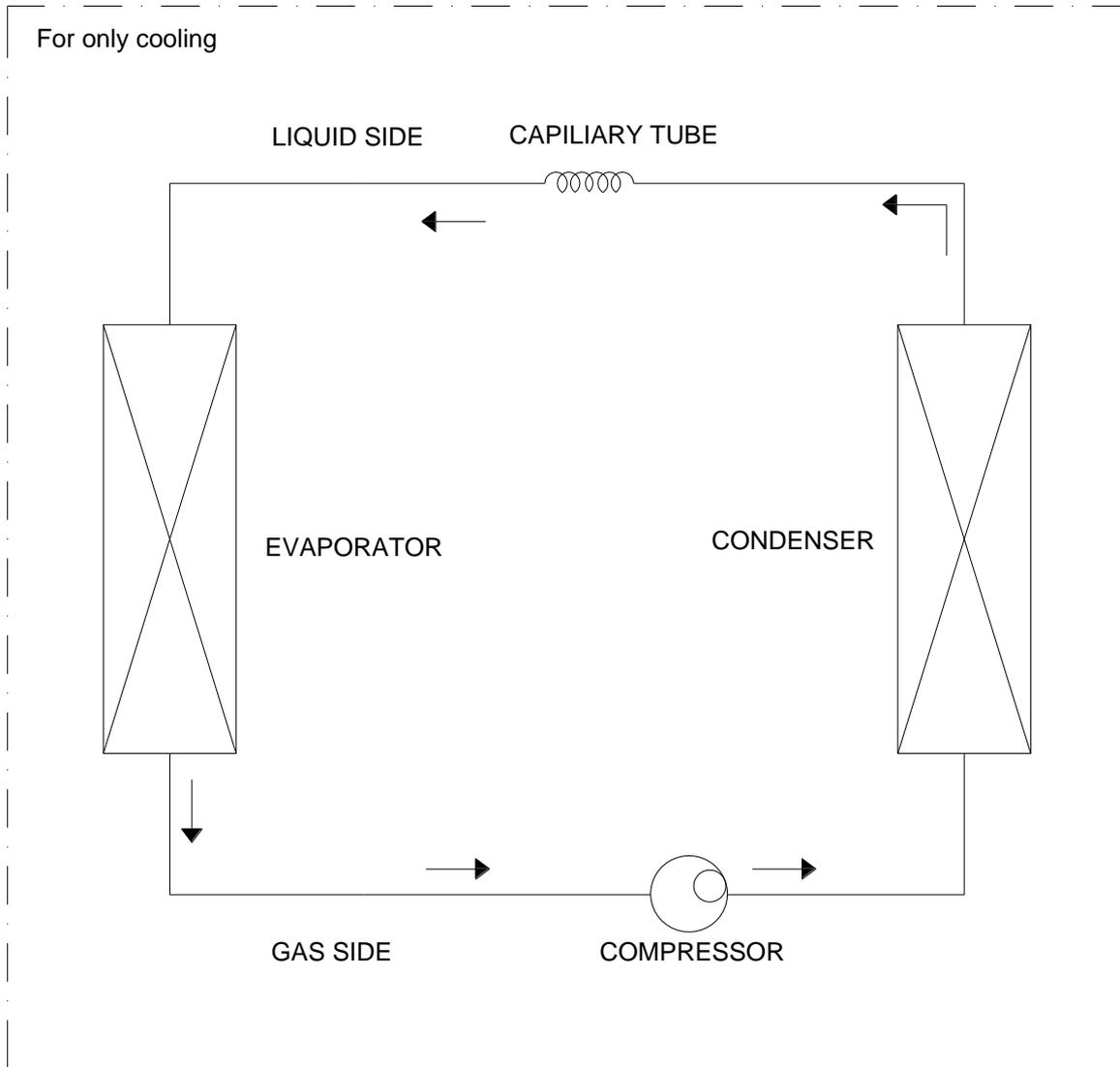


Dimension Mode	W(mm)	H(mm)	D(mm)
RI09C2M1	450	346	535
RI12C2M1	600	380	560
RI18C2M1, RI24C2M1	660	428	680

4. Refrigerant Cycle Diagram.

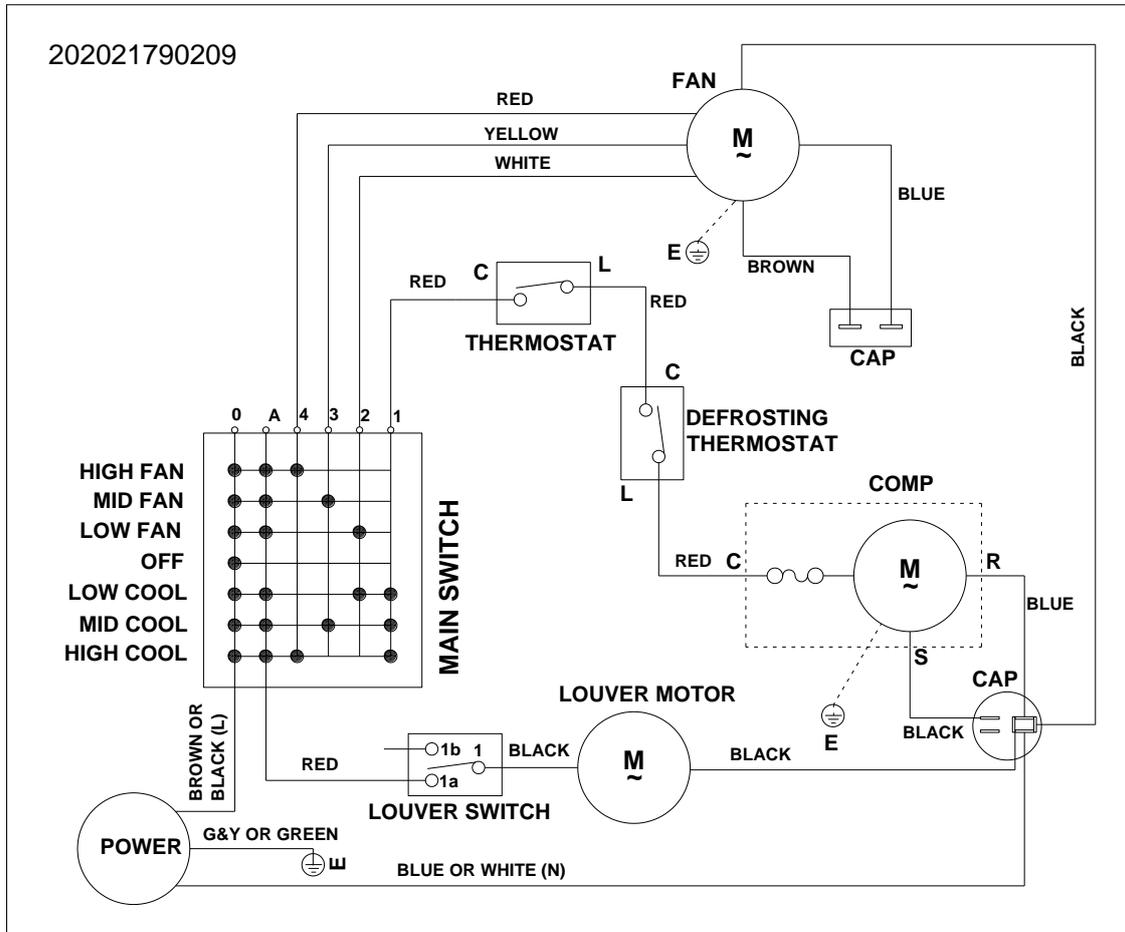
The figure below is a brief description of the important components and their function in what is called the refrigeration system.

This will help to understand the refrigeration cycle and the flow of the refrigerant in the cooling cycle.

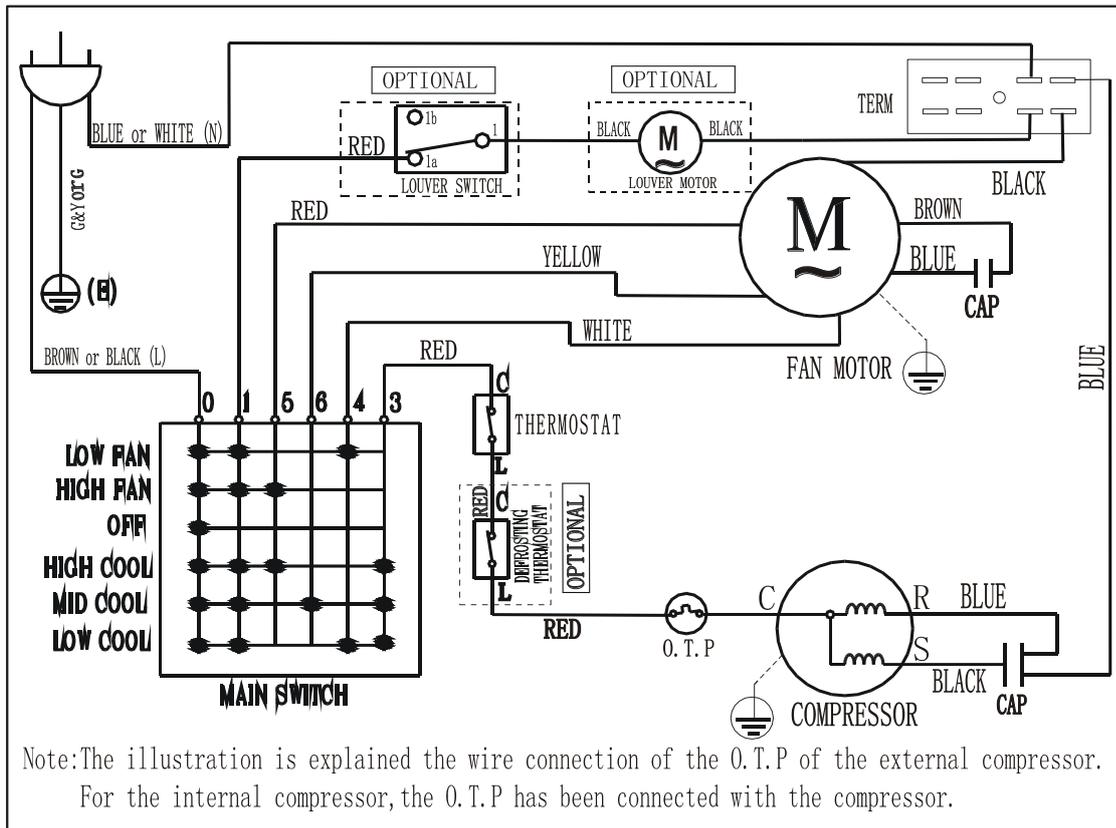


5. Wiring Diagram.

(1) RI09C2M1, RI12C2M1



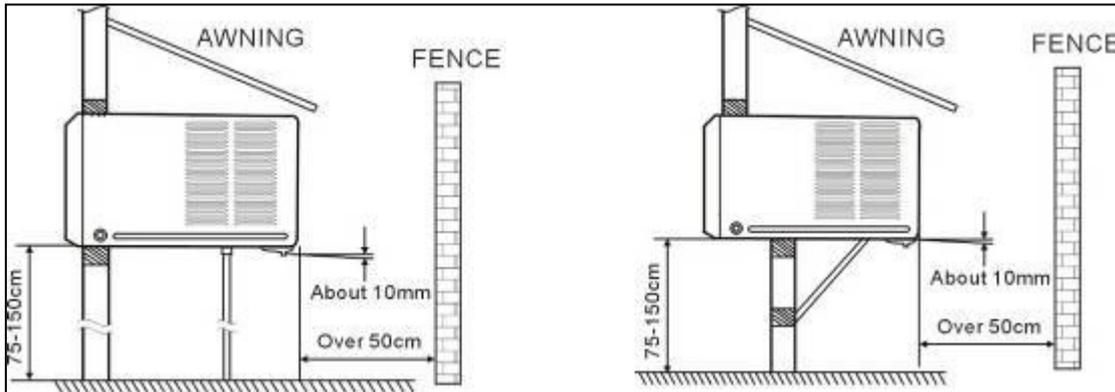
(2) RI18C2M1, RI24C2M1



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6 Installation details.

6.1 Select the best location



1. To avoid vibration and noise, make sure the unit is installed securely and firmly.
2. Install the unit where the sunlight does not shine directly on the unit. If the unit receives direct sunlight, build an awning to shade the cabinet.
3. There should be no obstacle, such as a fence or wall, within 50cm from the back of the ambient because it will prevent heat radiation of the condenser.
4. Restriction of outside air will greatly reduce the cooling and heating efficiency of the air Conditioner.
5. Install the unit on a slight angle so that an condensate formed will not enter the room (about 10mm or 1/4 bubble with level).
6. Install the unit with its bottom portion 75~150cm above the floor level.
7. The power cord must be connected to an independent circuit. The yellow/green wire must be grounded.

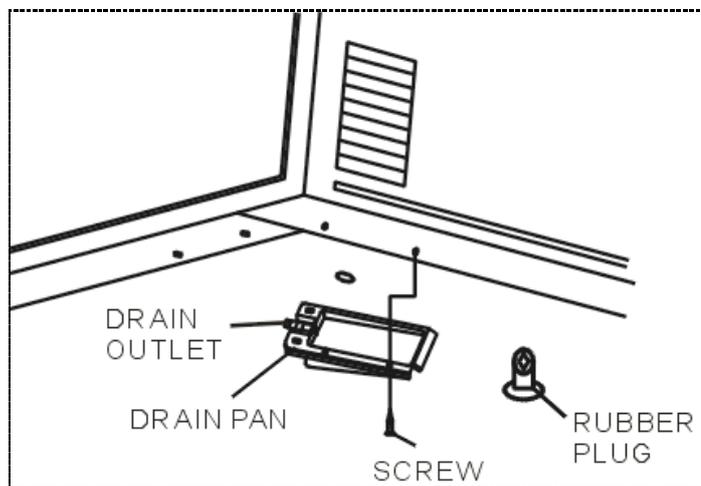
CAUTION

All side louvres of the cabinet must remain exposed to the outside of the structure.

6.2 Check off installation.

- The setting conditions must be checked prior to initial starting. The under mentioned items are especially important checking points when the installation is finished.
- Grounding wire (yellow/Green) is provided in the power cord. The wire must be grounded.
- Ensure that the unit is connected to a suitably rated and dedicated circuit.
- To avoid vibration or noise, make sure the air conditioner is installed securely.
- Avoid placing furniture or draperies in front of the air inlet and outlet.

6.3 How to drain.

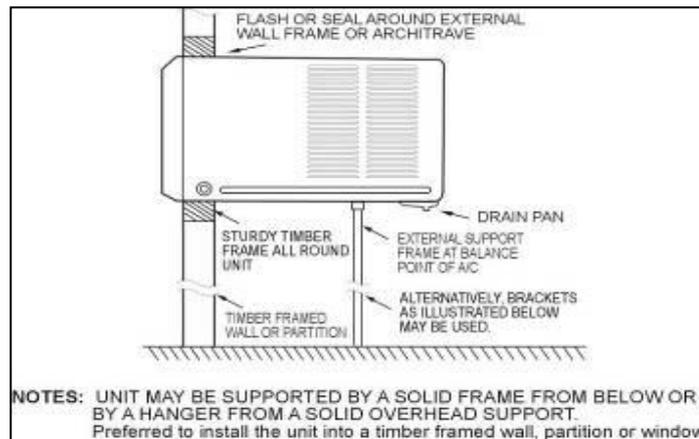


You can choose bottom drainage. See the following procedures to perform bottom drainage:

1. Remove the rubber plug from the bottom of the cabinet and attach to the back drain hole. For the units without the bottom rubber plug, just install the drain tray.
2. Take out the drain pan and screws (which provided with your air conditioner accessory).
3. Install the drain pan at the bottom of the unit and secure with screws provide.
4. Connect the drain hose to the outlet located at one side of the drain pan. You can purchase the drain hose or tubing locally to satisfy your particular needs (Drain hose is not supplied)

6.4 How to install.

6.4.1 Installation of the housing



Step1

.Remove the air conditioner from it's packaging, remove fixing screws and slide the air conditioner out of it's housing (Refer to Installation Steps)

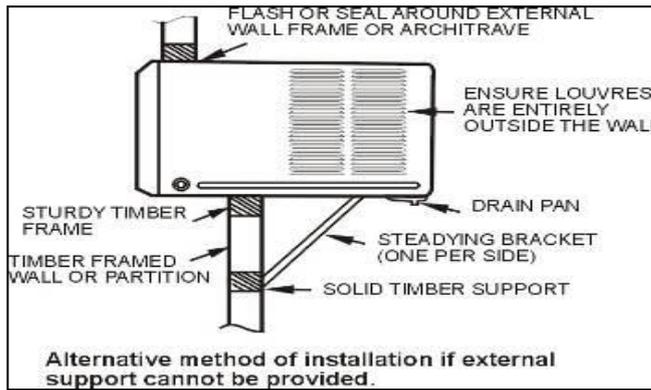
Step2

.Prepare the hole in the wall so that the bottom of the housing is well supported, the top has minimum clearance and the air inlet louvers have clearance as shown below in options A and B (see below 6.4.3). Holes from the outside through to the cavity should be sealed. The housing should slope down towards the rear by about 5mm to allow water formed during operation to drain.

Step3

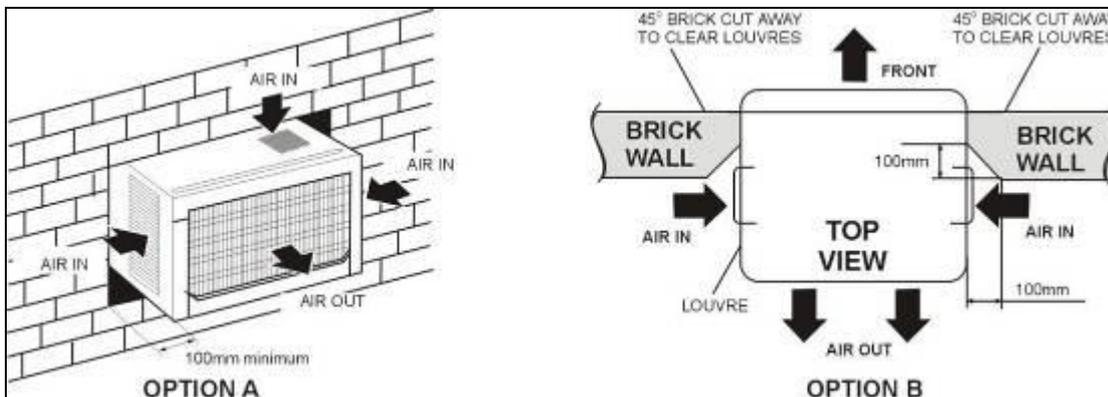
. Install the housing into the wall and secure. Ensure the foam seals are not damaged. Flash, seal or fill gaps around the inside and outside to provide satisfactory appearance and protection against the weather, insects and rodents.

6.4.2 Installation of the unit into the housing.



- ✳️ Slide the unit into the housing until it is firmly against the rear of the housing. Care is required to ensure the foam sealing strips on the housing remain in position.
- ✳️ Connect the air conditioner to the power and position excess cord length beneath the air conditioner base.
- ✳️ Engage the chassis fixing brackets into the bottom housing rail and secure to the base with the screw provided.
- ✳️ Remove the front panel from its carton and plastic bag and fit as per the installation instruction. Switch unit on. Check for operation of the unit and check for vibration in the installation.
- ✳️ Fit the drain pan to the housing and run a drain line to a suitable location if required.

6.4.3 Installation of the unit into the wall



6.4.4 Installation steps.

Step 1 Remove the front panel and the air filter.

.Hold the slot under the front panel, then uplift it outwards, and remove the front panel

(See Fig. 1).

.Pinch the handle under the air filter and make the air filter arched, remove it from the slot from underside to upside (See Fig.2).

Step 2 Remove the frame.

.Remove the two fixing screws from the frame (See Fig.3).

.Grasp the left corner of the frame's underside, release the coupler plugs, then loosen the frame. (See Fig. 4).

Step 3 Installation

. Remove the two fixing screws on the chassis fixing brackets. Then remove the chassis fixing brackets (See Fig.5)

.Grasp the handle on the chassis and carefully slide the air conditioner out of the cabinet (See Fig. 6)

. When need to drain off water, install the drain plug on the chassis board. Then fix the cabinet on the supporter (provide for yourself or contact the dealer)(see Fig.7).

.Push the unit chassis into the cabinet (See Fig. 8)

. Fix the chassis and cabinet. (see Fig.5)

Step 4 Install the frame.

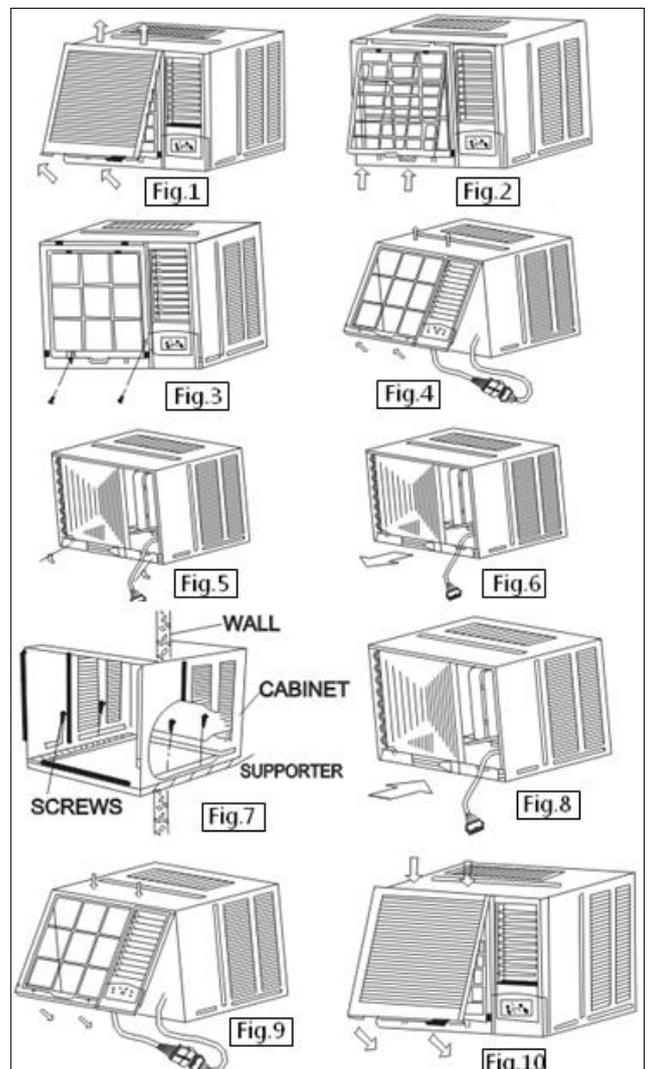
.Install the frame and connect the coupler plugs, making sure not to interfere with the temperature sensor cable (See Fig.9)

.Fix the screws on the frame (See Fig.3)

Step 5 Install the air filter and front panel.

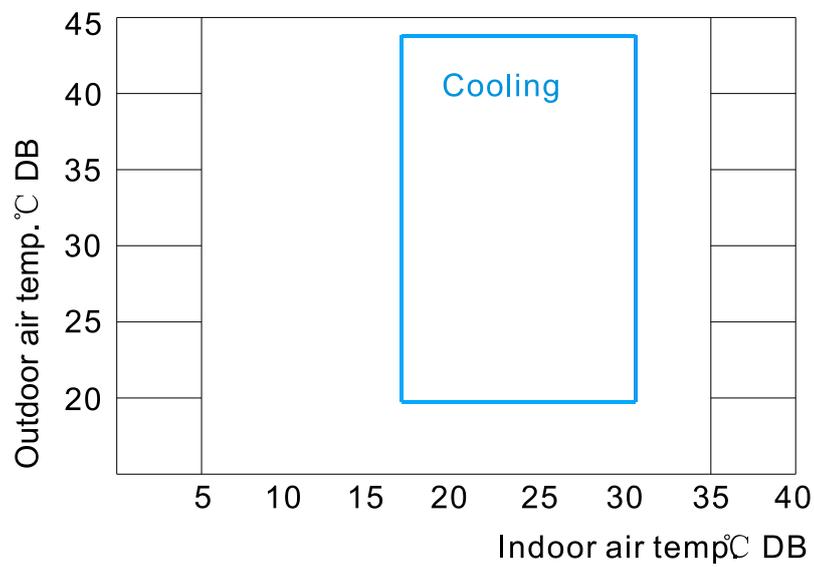
.Install the air filter into the frame's slot from upside to underside (See Fig.2)

.Hang the front panel on the frame's buckle, then press the front panel into the frame's slot until you hear a click (See Fig10).

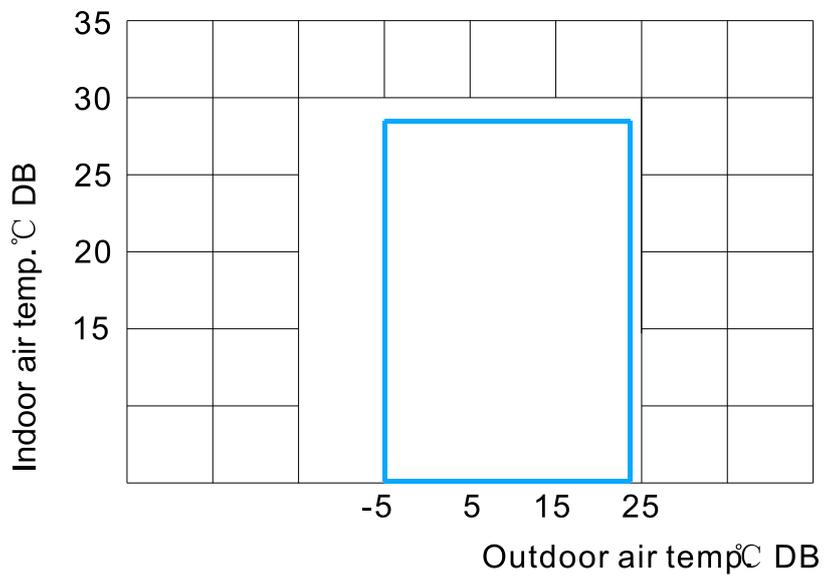


7 Operation characteristics.

7.1 Cooling operation



7.2 Heating operation



7.3 Characteristic of temperature sensor.

Temp. °C	Resistance KΩ	Temp. °C	Resistance KΩ	Temp. °C	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.830
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469

8 Troubleshooting

In general, possible trouble is classified in three kinds. One is called **Starting Failure** which is caused from an electrical defect, another is **ineffective Air Conditioning** caused by a defect in the refrigeration circuit and improper application, and the other is called the **Structure Damage**.

Problem	Solution
Air conditioner does not start	Wall plug disconnected. Push plug firmly into wall outlet.
	House fuse blown or circuit breaker tripped. Replace fuse with time delay type or reset circuit breaker.
	Selector Control in OFF position. Turn selector to the desired FAN or COOL setting.
	Unit turned off by moving thermostat to a higher number and then immediately turning back to a colder number. Wait approximately 3 minutes. Listen for compressor to start.
	Unit turned off and then on too quickly. Turn unit off and wait 3 minutes before restarting.
	Thermostat set too low. Adjust thermostat to higher number for cooling.
Air from unit does not feel cold enough	Turn selector to a higher COOL position.
	Thermostat set too warm. Set thermostat to colder temperature.
	Room temperature below 18°C (64°F). Cooling may not occur until room temperature rises above 18°C (64°F).
	Temperature sensing tube touching cold coil, located behind air filter. Straighten tube away from coil.
Air conditioner cooling, but room is too warm- ice forming on cooling coil behind decorative front.	Outdoor temperature below 18°C (64°F). To defrost the coil, set selector to FAN position. Then, set thermostat to warmer position.
	Air filter may be dirty. Clean filter. Refer to Care and Cleaning section. To defrost, set selector to FAN.
	Thermostat set too cold for night-time cooling. To defrost the coil, set selector to a FAN position. Then, set thermostat to a warmer position.
Air conditioner cooling, but room is too warm- NO ice forming on cooling coil behind decorative front.	Dirty air filter- air restricted. Clean air filter. Refer to Care and Cleaning section.
	Thermostat set too warm. Turn thermostat clockwise to a colder setting.
	Air directional louvers positioned improperly. Position louvers for better air distribution.
	Front of units is blocked by drapes, blinds, furniture, etc. - restricts air distribution. Clear blockage in front of unit.
	Doors/windows/registers, etc. Open- cold air escapes. Close doors, windows, registers.
	Unit recently turned on in hot room. Allow additional time to remove. Stored heat from walls, ceiling, floor and furniture.
Air conditioner turns on and off rapidly	Dirty air filter- air restricted. Clean air filter.
	Outside temperature extremely hot. Set to high cool to bring air past cooling coils more frequently.
Noise when unit is cooling	Air movement sound. This is normal. If too loud, turn selector to lower FAN setting.
	Sound of fan hitting water-moisture removal system. This is normal when humidity is high. Close doors, windows and registers.
	Window vibration - poor installation. Refer to installation instructions or check with installer.
Water dripping INSIDE when unit is cooling.	Improper installation. Tilt air conditioner slightly to the outside to allow water drainage. Refer to installation instructions - check with installer.
	Unit removing large quantity of moisture from humid room. This is normal during excessively humid days.

