

INSTALLATION MANUAL



Mini-Split Air Conditioner

TVHC09-18DSAAAR



Read this manual before installation and operation
Make sure that it is well kept for later reference



Please read this installation manual carefully before starting the installation. It will tell you necessary information.

CONTENTS

Safety precautions	3
Part names	4
Manual operation.....	5
How the air conditioner works	6
Optimal operation.....	6
Adjusting air flow direction	7
Preparation before installation.....	8
Installation procedure.....	10
Wiring Diagram.....	14
Air Purging.....	16
Maintenance.....	18
Operation tips	19
Troubleshooting guide.....	20

Quality POLICY

We will continuously strive to satisfy our customers with consistent reliability in product, service and support through superior quality, service culture and distinctive technology.





REQUIRED TOOLS

1. Screw driver
2. Hexagonal wrench
3. Torque wrench
4. Spanner
5. Reamer
6. Hole core drill
7. Tape measure
8. Thermometer
9. Manifold gauge
10. Gas leak detector
11. Vacuum pump
12. Pipe clamp
13. Pipe cutter
14. Flare tool set
15. Electrical circuit tester

EXTENDED PARTS

1. Refrigerant Pipe

Models	09	12	18
Liquid size	Ø 6.35	Ø 6.35	Ø 6.35
Gas size	Ø 9.53	Ø 12.7	Ø 12.7

2. Pipe insulation material (Polyethylene foam 9 mm thick)
3. Vinyl tape
4. Putty

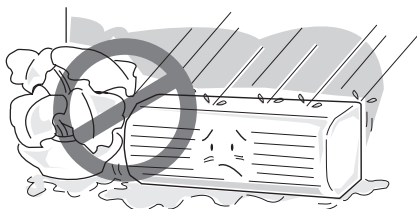
SAFETY PRECAUTIONS

- Please read this installation manual carefully before starting installation of the unit.
- This air conditioning system contains refrigerant under pressure, rotating parts and electrical connection which may be dangerous and can cause injury. Installation and maintenance of this air conditioning system should only be carried out by trained and qualified personnel.
- After unpacking, please check the unit carefully for possible damage.
- Before undertaking any work on the unit, make sure that the power supply has been disconnected.

WARNING & CAUTION

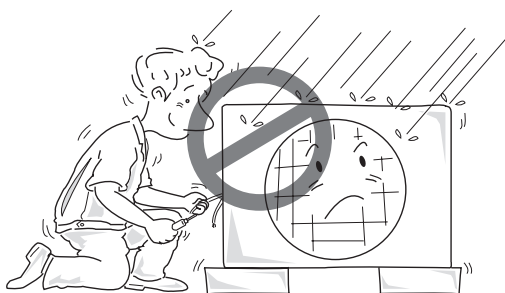
INSTALLATION

Do not store or unpack the unit in a wet area or expose to rain or water.



It may cause the unit to short circuit and may result electric shocks or fire.

Do not conduct installation in wet area or in the rain.



It is a high risk to cause the electrical shocks.

Do not install in a place where flammable gas may leak.



It may cause fire.

This system is designed for domestic or residential use only.



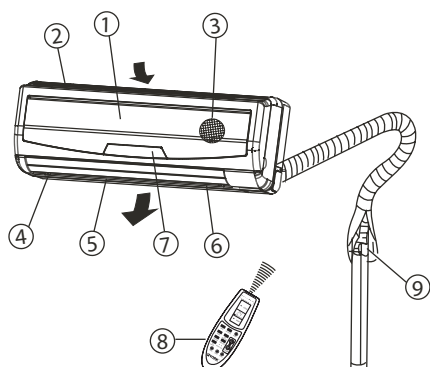
If used in certain environments, such as a manufacturing workplace, the equipment may not function efficiently.

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PART NAMES

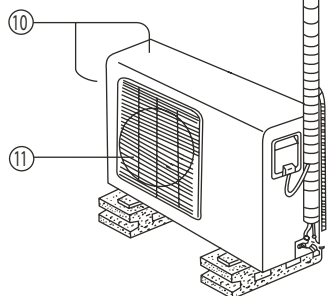
INDOOR UNIT



INDOOR UNIT

1. Front panel
2. Air inlet
3. Air filter
4. Air outlet
5. Horizontal air flow grille
6. Vertical air flow louver
7. Display panel
8. Remote controller

OUTDOOR UNIT



OUTDOOR UNIT

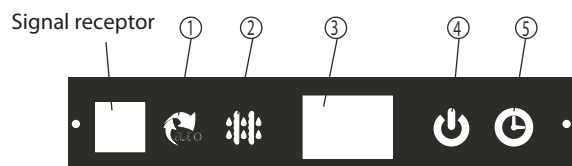
9. Connecting pipe, drain hose
10. Air inlet (side and rear)
11. Air outlet

NOTE:

All the pictures in this manual are for explanation purpose only. Your air conditioner may be slightly different.
The actual shape shall prevail.

Indicator Lights on Display panel

The display panel on the indoor unit would look like one of the following:
For cooling only models (f 21000Btu/h unit), 2 indicator light is FAN ONLY.



- 1 AUTO indicator:
This indicator illuminates when the air conditioner is in AUTO operation.
- 2 DEFROST Indicator
(For cooling & heating model only):
This indicator illuminates when the air conditioner starts defrosting automatically or when the warm air control feature is activated in heating operation.
- 3 DIGITAL DISPLAY:
Displays the current setting temperature when the air conditioner is in operation.
- 4 OPERATION indicator:
The indicator flashes once every second after power is on and illuminates when the air conditioner is in operation.
- 5 TIMER indicator:
The indicator illuminates when TIMER is set ON/OFF.



OPERATING TEMPERATURE

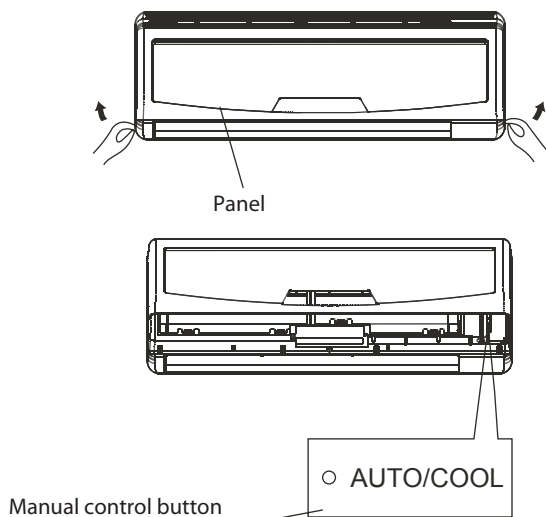
Mode	Cooling operation	Heating operation	Drying operation
Room temperature	$\geq 17^{\circ}\text{C}$	$\geq 30^{\circ}\text{C}$	$\geq 10^{\circ}\text{C}$
Outdoor temperature	$18^{\circ}\text{C} \sim 50^{\circ}\text{C}$	$-15^{\circ}\text{C} \sim 34^{\circ}\text{C}$	$10^{\circ}\text{C} \sim 50^{\circ}\text{C}$
	($-15^{\circ}\text{C} \sim 50^{\circ}\text{C}$: For the models with low temperature cooling system)		

CAUTION

1. If air conditioner is used outside of the above conditions, certain safety protection features may come into operation and cause the unit to function abnormally.
2. Room relative humidity less than 80%. If the air conditioner operates in excess of this figure, the surface of the air conditioner may attract condensation. Please sets the vertical air flow louver to its maximum angle (vertically to the floor), and set HIGH fan mode.
3. Optimum performance will be achieved within these operating temperature.

MANUAL OPERATION

Manual operation can be used temporarily in case you cannot find the remote controller or its batteries are exhausted.



- 1 Open and lift the front panel up to an angle until it remains fixed with a clicking sound.
- 2 One press of the manual control button will lead to the forced AUTO operation.
- 3 Close the panel firmly to its original position.

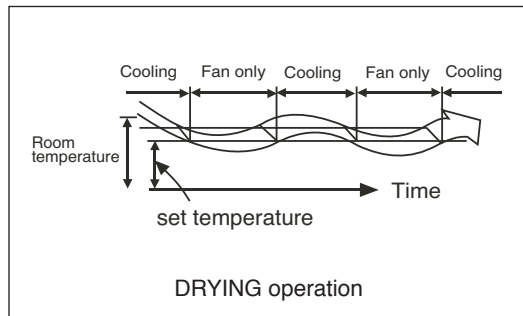
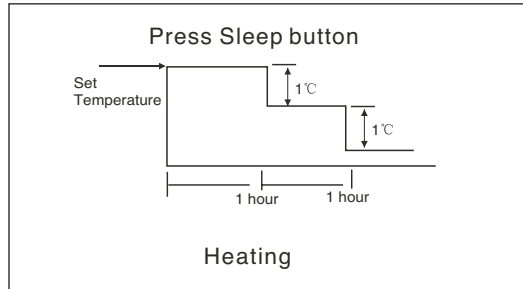
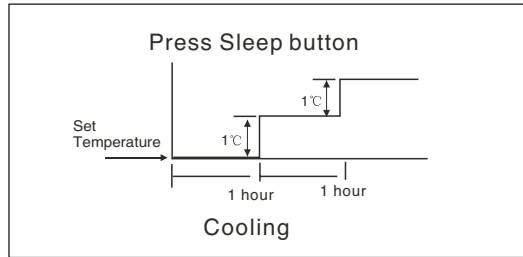
CAUTION

- Once you push the manual button, the operation mode is shifted in an order as: AUTO, COOL, OFF.
- Push the button twice, the unit will operate in forced COOL mode. This is used for testing purposes only.
- Third press will stop the operation and turn off the air conditioner operation.
- To restore the remote controller operation, use the remote controller directly.

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HOW THE AIR CONDITIONER WORKS



■ AUTOMATIC OPERATION

- When you set the air conditioner in AUTO mode, it will automatically select cooling, heating (cooling/heating models only), or fan only operation depending on what temperature you have selected and the room temperature.
- The air conditioner will control room temperature automatically round the temperature point set by you.
- If the AUTO mode is uncomfortable, you can select desired conditions manually.

■ ECONOMIC OPERATION

- When you push SLEEP button during cooling, heating (cooling/heating models only), or AUTO operation, the air conditioner will automatically increase (cooling) or decrease (heating) 1°C per hour. The set temperature will be steady 2 hours later.
- The fan speed will be automatically controlled.

■ DRYING OPERATION

- The dry mode will automatically select the drying operation based on the difference between the set temperature and the actual room temperature.
- The temperature is regulated while dehumidifying by repeating turning on and off of the cooling operation or fan only. The fan speed is LOW.

OPTIMAL OPERATION

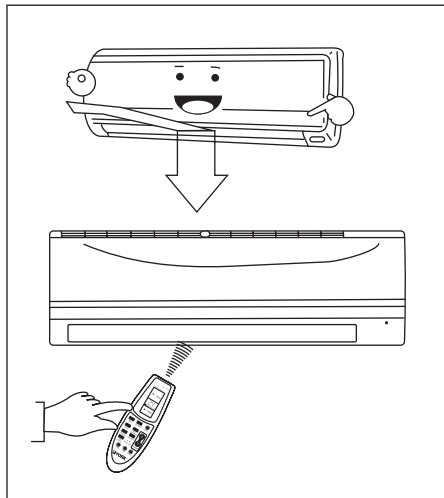
To achieve optimal performance, please note the following:

- Adjust the air flow direction correctly so that it is not directed on people.
- Adjust the temperature to achieve the highest comfort level. Do not adjust the unit to excessive temperature levels.
- Close doors and windows on COOL or HEAT modes, or performance may be reduced.
- Use TIMER ON button on the remote controller to select a time you want to start your air conditioner.
- Do not put any object near air inlet or air outlet, as the efficiency of the air conditioner may be reduced and the air conditioner may stop running.
- Clean the air filter periodically, otherwise cooling or heating performance may be reduced.
- Do not operate unit with horizontal louver in closed position.





ADJUSTING AIR FLOW DIRECTION



- Adjust the air flow direction properly, otherwise it might cause discomfort or cause uneven room temperatures.
- Adjust the horizontal louver using the remote controller.
- Adjust the vertical louver manually.

Adjusting the Vertical Air Flow Direction (up - down)

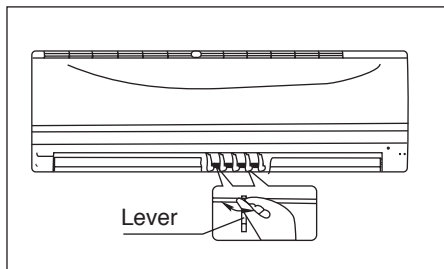
The air conditioner automatically adjusts the vertical air flow direction in accordance with the operating mode.

To set the vertical air flow direction

Perform this function while the unit is in operation.

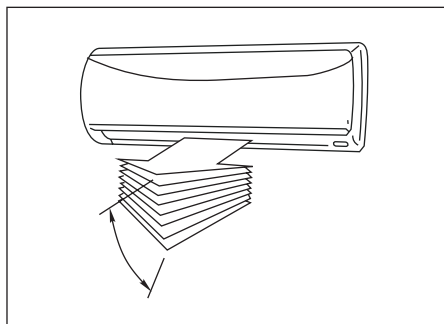
Keep pressing the AIR DIRECTION button on the remote controller to move the louver to the desired direction.

- Adjust the vertical air flow direction to the desired direction.
- In subsequent operations, the vertical air flow is automatically set in the direction to which you adjusted the louver by pressing the AIR DIRECTION button.



To set the horizontal air flow direction (left - right)

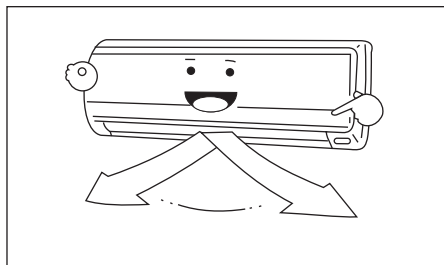
Adjust the vertical louver manually using the lever on the left or right side of the vertical louver arm (depending on model). Take care not to catch fingers on the fan, horizontal louver or to damage vertical louvers. When the air conditioner is in operation and the horizontal louver is in a specific position, move the lever at left (or right, depending on model) end of the air outlet to the desired position.



To automatically swing the air flow direction (up - down)

Perform this function while the air conditioner is in operation.

- Press the SWING button on the remote controller.
 - To stop the function, press the SWING button again.
- Press AIR DIRECTION button to lock louver in desired position.



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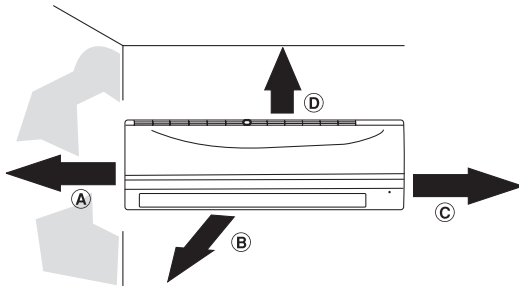
PREPARATION BEFORE INSTALLATION

- Before doing any work, check the interior power supply cord and the main breaker capacity are sufficient and the installation area is sufficient and complies with the requirements.
- Check that the power supply available agrees with nameplate voltage.
- Electrical work, wiring and cables must be performed in compliance with national and local wiring codes and standard.
- Do not use the extension cables. In the case extended cables are needed, use the terminal block.

SELECTION OF THE LOCATION

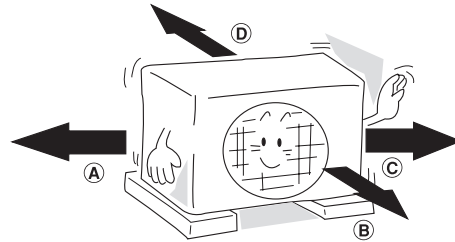
- Select a place which provides the space around the units as shown in the diagram below.

INDOOR UNIT



Models	09	12	18
A	12 cm	12 cm	12 cm
B	230 cm	230 cm	230 cm
C	12 cm	12 cm	12 cm
D	15 cm	15 cm	15 cm

OUTDOOR UNIT

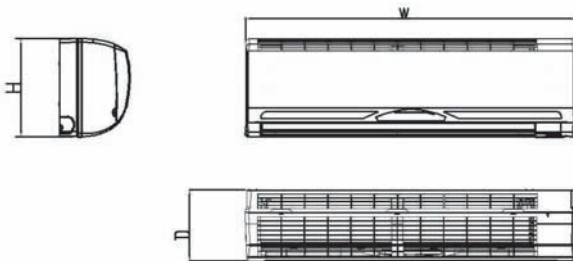


Models	09	12	18
A	30 cm	30 cm	30 cm
B	200 cm	200 cm	200 cm
C	60 cm	60 cm	60 cm
D	30 cm	30 cm	30 cm

CAUTION

- Do not install in a place that cannot bear the weight of the unit.

INDOOR UNIT PICTURES



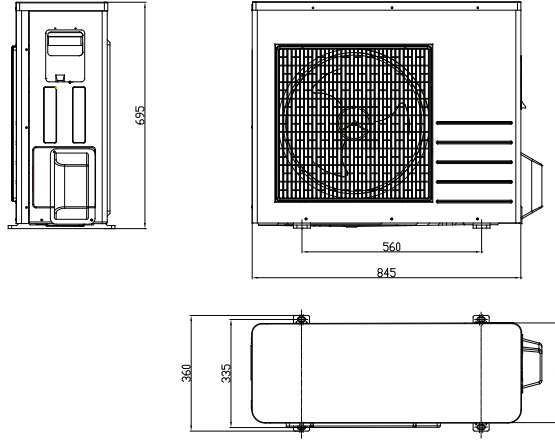
TVHC09-18

Models	Dimension		
	W	H	D
09 - 12	790	275	190
18	940	275	198





OUTDOOR UNIT PICTURES



TVHC09-18

Models	W	H	D	L1	L2	L3
07-09	685	430	276	460	300	445
12	700	522	250	458	275	537
18	780	530	275	549	290	545

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PARTS INSTALLATION

Number	Name of Accessories	Q'ty	
1	Installation plate	1	
2	Clip anchor	8	
3	Self-tapping screw AST3.9X25	8	
4	Seal	1	
5	Drain joint	1	
6	Connecting pipe Assembly	Liquid side ϕ 6.35 (7000-18000 Btu/h)	Parts you must purchase
		Gas side ϕ 9.53 (7000-9000 Btu/h)	
		ϕ 12.7 (12000-18000 Btu/h)	
7	Remote controller	1	
8	Self-tapping screw B ST3.9X10	2	
9	Remote Controller holder	1	

NOTES

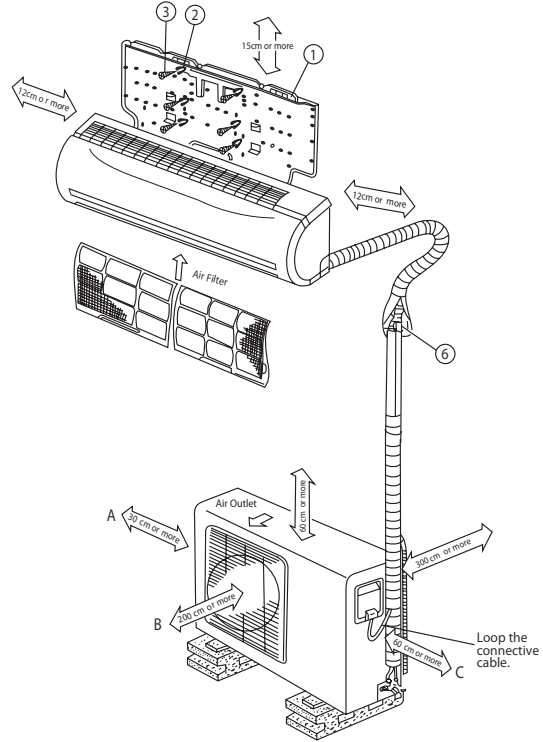
Except the above parts provided, the other parts needed during installation you must purchase.

CAUTIONS

- Ensure that the space around the left and right of the indoor unit is more than 12cm.
- The indoor unit should be installed allowing a minimum clearance of 15cm from the ceiling.
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.
- A minimum pipe run of 3 metres is required to minimise vibration & excessive noise.
- The indoor unit should be installed on the wall at a height of 1.7 metres or more from the floor but less than 2.3 metres from the floor.
- Directions A, B and C should be free from obstructions.

NOTES

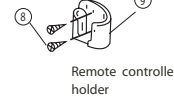
- This illustration is for explanation purposes only.
- Copper lines must be insulated independently.



Remote Controller



Mounting screw B
ST3.9x10-C-H



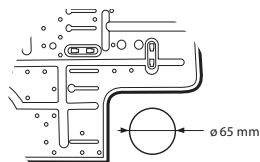
Remote controller holder

INSTALLATION PROCEDURE

INDOOR UNIT

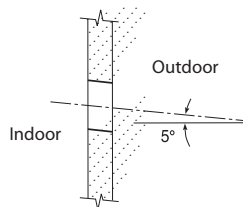
■ Fixing

- Place the installation guide pattern on the designated installation place and mark the hole position.
- Drill a hole and mount installation plate.



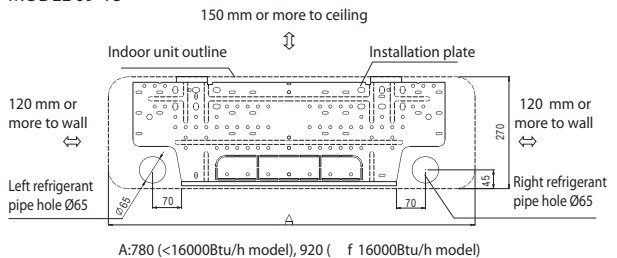
- After determining the pipe hole position. Drill the hole at a slight downward slant towards the outdoor side.

Note: When installing the refrigerant pipes from others side. A hole must be place to allow fall towards the outdoor unit.



- Make 6 mm 4-6 holes, in the wall at the four corners of mounting plate (bracket) then insert appropriate mounting devices.
- Install the mounting plate using 4-6 pieces of mounting screw securely at four corners and tighten the screw completely. Do not over tighten the screws and deform the back plate.

MODEL 09-18



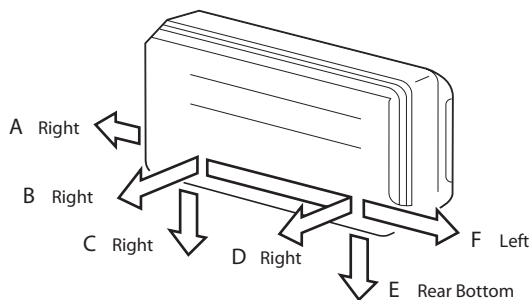


■ Wiring

- This indoor unit is ready for connection to the outdoor unit.

CAUTION

- Never modify the unit by removing any of the safety guards or by passing any of the safety interlock switches.
- Connect the interconnecting cable correctly and connect the connecting cable to terminal as identified with their respective marking.
- Do not damage the conductor core or inner insulation of power supply cables and do not deform or crush the cables.



■ Piping

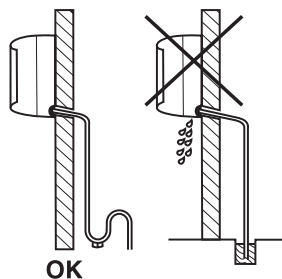
The auxiliary piping can be connected in the directions shown the above diagram. To connect in the D , E and F direction, pipes will need to be extended.

CAUTION

- Bend pipes carefully to avoid flattening or obstructing them if the pipes are bent incorrectly, the indoor unit may be unstable on the wall.
- Carefully arrange pipes so that pipes do not stick out of the rear plate of the indoor unit.

■ Drain hose

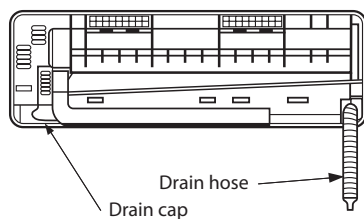
- Drain hose is flexible and can be routed to suit various piping arrangements. The drain line must include elbow trap (U bend). Connect a plastic condensate pipe with an internal diameter of 12 mm.



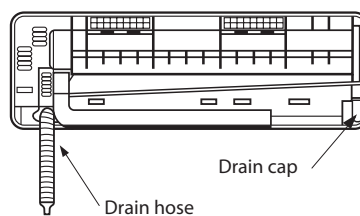
Note: Do not put the drain hose end into water.

- The drain hose can be connected to the left or the right side.

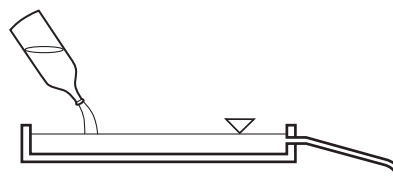
For left and left rear piping (Factory standard)



For right connection



Verification of condensate water drainage:
Fill the drain pan with water and observe evacuation.

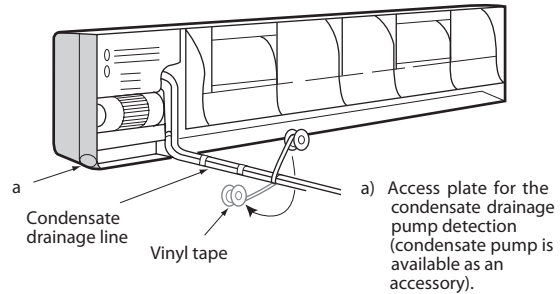
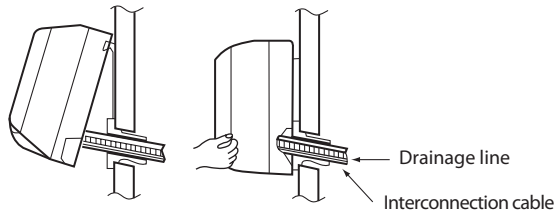


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■ Indoor Unit Fixing

- Thread the indoor unit piping and cable through the hole.
- Hang the top of the unit onto the upper ridge of them in mounting plate.
- Make sure that the unit is correctly hung in place by sliding it to the left, then to the right.
- Press the bottom left and bottom right hand corners of the unit against the mounting plate until the fixing prongs click into place in the retainers provided to that effect.



Note: The condensate evacuation line should be taped to the refrigerant lines with vinyl tape.

OUTDOOR UNIT

■ Fixing and Piping

- Piping must be performed by qualified personnel according to good refrigeration systems practices.
- Piping materials and insulation materials must be of refrigerant quality.
- Select the pipe diameters according to the size of unit and cut the pipe to design length by using pipe cutter.
- Install the flare nuts and flare the end of the pipes.
- Check that no foreign bodies are inside the piping.
- Align the central of the connecting pipes and tighten the flare nut.
- Fix piping with pipe clamps and check that any pipe vibrations cannot be transmitted to the building structure.

The suction line must have a 2% gradient up to the compressor on horizontal sections. Where piping lengths are unusually long and include a large number of oil traps, it may be necessary to adjust to compressor charge.

Refrigerant charge to be added per extra meter of piping length when more than 7 meters.

Unit size	MODELS		
	09	12	18
g/m	30	30	30

NOTES

- Connect the pipe correctly.
- Do not apply the excessive torque.
- Use an appropriate bending tool to form curves and avoid over-tightening the refrigerant tubes.
- To prevent heat loss, the two lines must be insulated separately.

■ Maximum Piping Length

Unit size		09	12	18
Max. refrigerant pipe length	m	20	20	25
Max. difference in level	m	8	8	10

Note: Where the difference in elevation between the indoor unit and the outdoor unit is greater than 5 meters, install an oil trap every 5 meters.

■ Refrigerant piping connections (FLARE connections)

To avoid alteration of unit capacities, check that piping lengths and changes in elevation are kept to a strict minimum.

Before connecting the refrigerant lines, follow the procedures below (if pre-charged connection lines are not supplied):

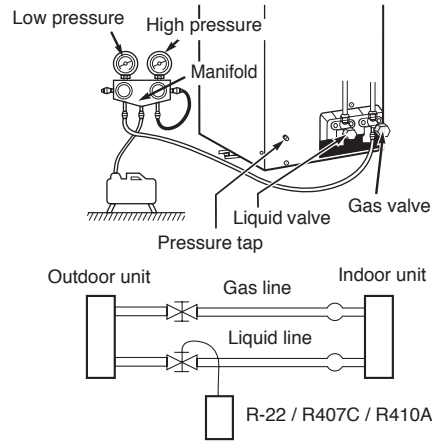
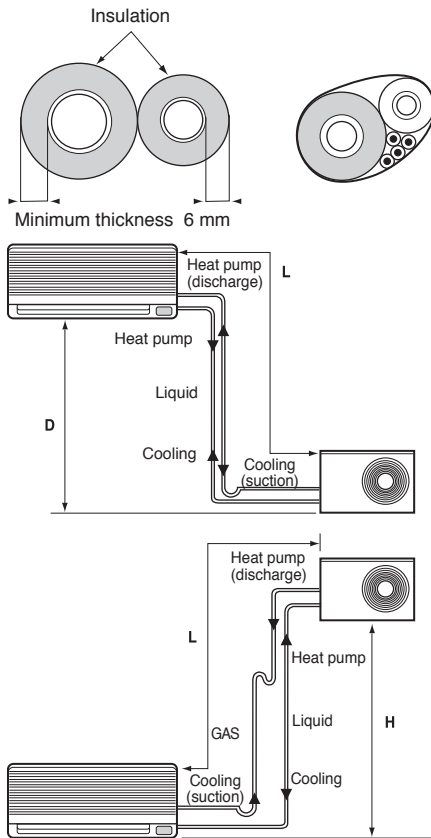
- Select copper pipe diameters according to the size of unit to be installed.
- Install the refrigeration lines, checking that no foreign bodies get inside the piping.
- Install the flare connectors and flare the ends of the pipes.
- Evacuate the piping. This operation, which should last at least 15 minutes if there are large piping lengths and changes in elevation, should be followed by a leak test.





To this effect, when the piping has been evacuated, close the pressure gauge tap, note the value on the gauge, then wait for 15 minutes. If the needle moves, there is a leak in the system. Make the necessary adjustments or repairs and repeat this procedure until the needle no longer moves.

- Open the service valves and top up the refrigerant charge if necessary.

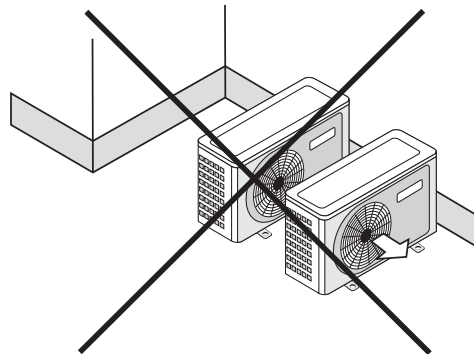
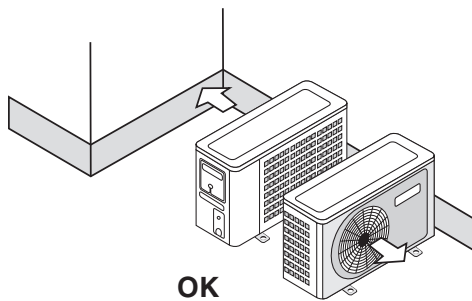


This unit is shipped complete with a charge of R-22 / R407C / R410A refrigerant that will be sufficient for an interconnecting piping length of 7 meters.

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COLD AREA RECOMMENDATION

- Outdoor heat pump unit : install the unit at least 10 cm above ground level to facilitate drainage of defrost water and prevent accumulation of ice. In effect, defrost water can cause accumulation of ice under the unit during subfreezing outdoor temperatures.
- In areas with heavy snowfall it is best to install the unit on wall supports.
- In some regions, it is necessary to heat the bottom of the condensate drainage pan and the condensate drainage piping to avoid ice formation, and resulting ice build-up in the fan compartment (heater strip must be at least 25 W/m).





■ Wiring

Prepare the power source for exclusive with the air conditioner.

The supply voltage must comply with the rated voltage of the air conditioner: The plug socket shall be accessible after installation.

Remark: All the wiring must be based on the wiring nameplate which is shown on the model.

CAUTIONS

- Perform the wiring with sufficient capacity. Installation places legally require a short circuit isolator to be attached to prevent electrical shock.
- Do not extend the power cable code by cutting.
- Power voltage should be in the range of 90%~110% of rated voltage.
- The plug of the air conditioner takes a grounding leg, and clients should use a grounding socket so that the air conditioner can be grounded efficiently.
- If the power cord is damaged, replacement should be conducted by qualified technician or a serviceman.

NOTE Remark per EMC Directive 89/336/EEC

To prevent flicker impressions during the start of the compressor (technical process), following installation conditions do apply.

1. The power connection for the air conditioner has to be done at the main power distribution.

The distribution has to be of a low impedance, normally the required impedance reaches at a 32 A fusing point.

2. No other equipment has to be connected with this power line.

3. For detailed installation acceptance, please refer to your contract with the power supplier if restrictions do apply for products like washing machines, air conditioner or electrical ovens.

4. For power details of the air conditioner, refer to the rating plate of the product.

5. For any question, contact your local dealer.

CAUTIONS

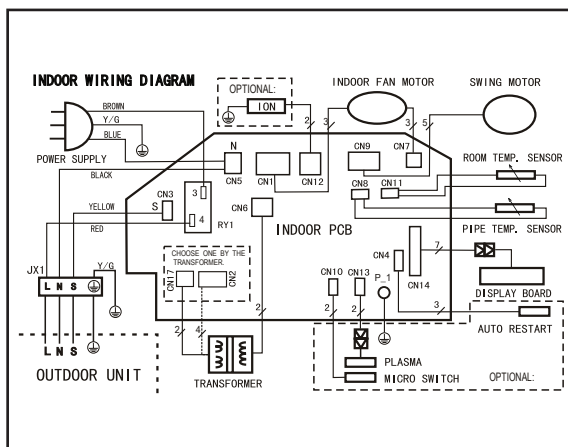
- Never modify the unit by removing any of the safety guards or by bypassing any of the safety interlock switches.
- Connect the connecting cable correctly and connect the connecting cable to terminal as identified with their respective marks.
- Do not scratch the conductive core & inner insulator of power supply cables and do not deform or smash on the surface of cables.

■ Electrical Connections

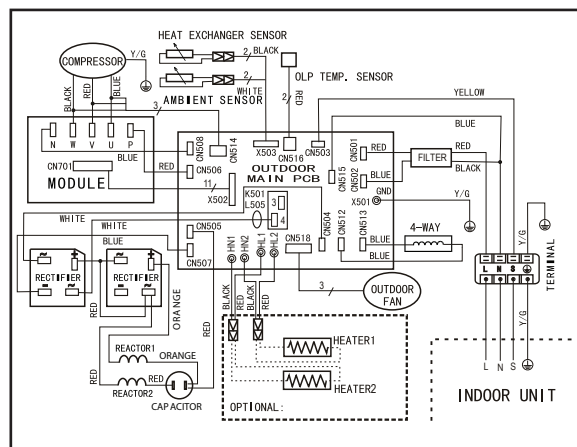
All electrical wiring and connections must comply with local codes and standards. Power supply cord and interconnection cord used must not be lighter than Polychloroprene sheathed cord (245 IEC 57 or H05RN-F).

Disconnecting device must have a contact separation of at least 3 mm.

Indoor Unit : TVHC09DSAAAR

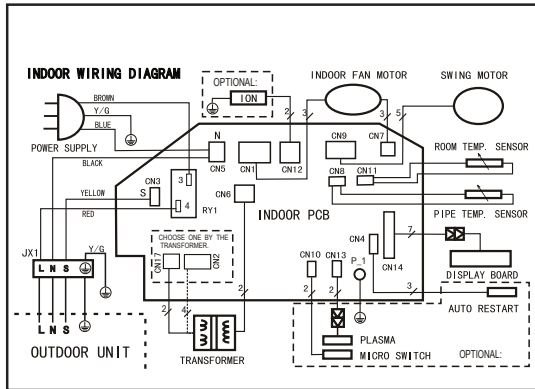


Outdoor Unit : TVHC09DSAAAR

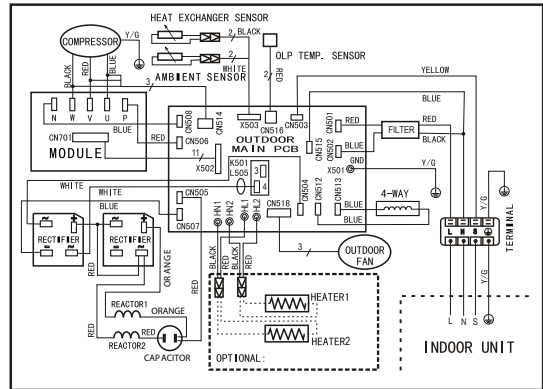




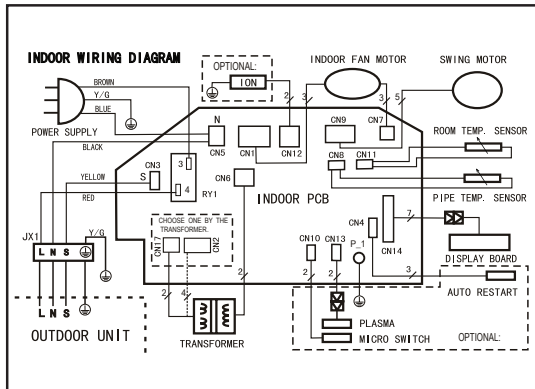
Indoor Unit : TVHC12DSAAR



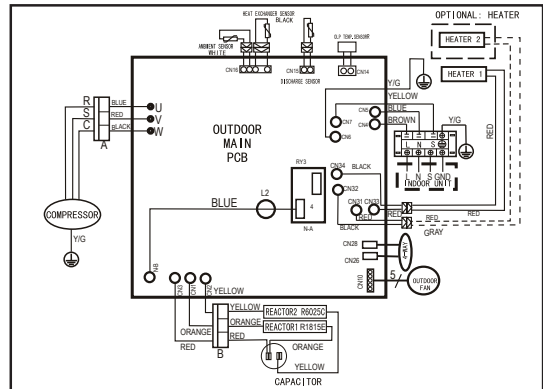
Outdoor Unit : TVHC12DSAAR



Indoor Unit : TVHC18DSAAR



Outdoor Unit : TVHC18DSAAR



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CAUTIONS

After the confirmation of the above conditions, prepare the wiring as follows:

- 1) Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 2) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)
- 3) Specification of power source.
- 4) Confirm that electrical capacity is sufficient.
- 5) See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the nameplate.
- 6) Confirm that the cable thickness is as specified in the power source specification.
- 7) Always install an earth leakage circuit breaker in a wet or moist area.
- 8) The following would be caused by voltage drop.
Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
- 9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3 mm in each active (phase) conductors.

AIR PURGING

Air and moisture in the refrigerant system have undesirable effects as indicated below:

- Pressure in the system rises.
- Operating current rises.
- Cooling or heating efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system.

Air purging with vacuum pump

■ Preparation

Check that each tube (both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

■ Pipe length and refrigerant amount:

Connective pipe length	Air purging method	Additional amount of refrigerant to be charged
Less than 7 m	Use vacuum pump.	_____
5~10 m	Use vacuum pump.	Liquid side: $\phi 6.35$ (Pipe length-7) x 30 g

- When relocate the unit to another place, perform evacuation using vacuum pump.
- Make sure the refrigerant added into the air conditioner is liquid form in any case.





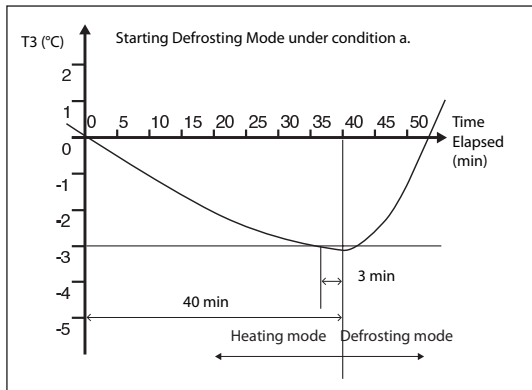
■ Electrical Work

Model	Power supply	Input Rated Amp (Switch/Fuse)	Power Cord Size
a 12000Btu/h	220-230V ~ 60Hz 220-240V ~ 50Hz	10A/15A	f 1.0/1.5mm ²
f 12000Btu/h		16A	f 1.5mm ²

NOTE: The supply voltage cannot be less than the rate voltage of the air conditioner.

■ Defrosting operation (Available for heating only)

- Condition to start defrosting: Units will switch to defrosting mode when either of the following conditions is met.
 - Unit has been running under $T_3 < 0\text{ }^\circ\text{C}$ for 40 minutes and $T_3 < -3\text{ }^\circ\text{C}$ for 3 minutes.



- Unit has been running at high temperature protection mode* for 90 minutes. (*High temperature protection mode: when coil temperature of indoor unit reaches 55°C, outdoor unit will turn off external unit fan but still keep compressor running).

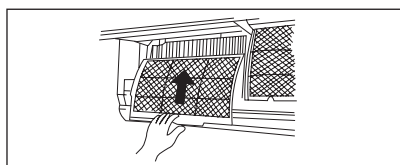
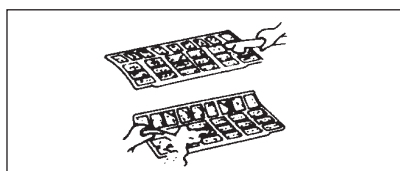
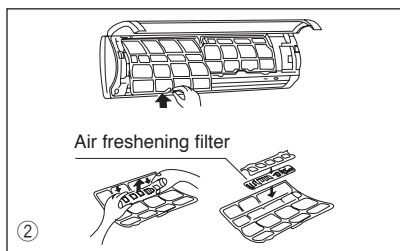
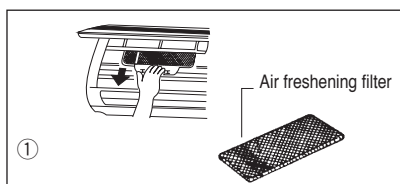
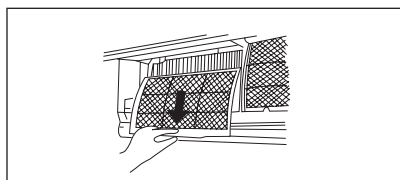
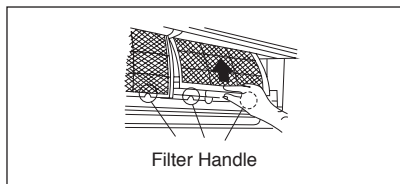
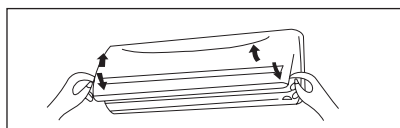
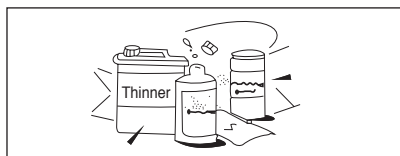
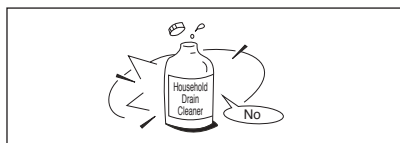
- Condition to stop defrosting: Units will switch back to heating mode when either of the following conditions is met.
 - Unit has been running at defrosting mode for 10 minutes.
 - $T_3 > 20\text{ }^\circ\text{C}$

Remark: T3 is coil temperature of outdoor units.

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MAINTENANCE



⚠ WARNING

It is necessary to stop the air conditioner and disconnect the power supply before cleaning.

■ Cleaning the indoor unit and remote controller

⚠ CAUTIONS

- Use a dry cloth to wipe the indoor unit and remote controller.
- A cloth dampened with cold water may be used on the indoor unit if it is very dirty.
- The front panel of the indoor unit can be removed and cleaned with water. Then wipe it with a dry cloth.
- Do not use a chemically treated cloth or duster to clean the unit.
- Do not use benzine, thinner, polishing powder, or similar solvents for cleaning. These may cause the plastic surface to crack or deform.

■ Cleaning the air filter

A clogged air filter reduces the cooling efficiency of this unit. Please clean the filter once every 2 weeks.

1. Lift the indoor unit panel up to an angle until it stops with a clicking sound.
2. Take hold of the handle of the AIR FILTER and lift it up slightly to take it out from the filter holder, then pull it downwards.
3. Remove the AIR FILTER from the indoor unit.
 - Clean the AIR FILTER once two weeks.
 - Clean the AIR FILTER with a vacuum cleaner or water, then dry it up in cool place.
4. Remove the air freshening filter from its support frame (The installation and removing method of the air freshening filter is different depending on the models, see the pictures marked ① and ② on the left).
 - Clean the air freshening filter at least once a month, and replace it every 4-5 months.
 - Clean it with vacuum cleaner, then dry it in cool place.
5. Install the AIR FILTER back into position.
6. Insert the upper portion of the AIR FILTER back into the unit taking care that the left and right edges line up correctly and place filter into position.

■ Maintenance

If you plan to idle the unit for a long time, perform the following:

- (1) Operate the fan for about half a day to dry the inside of the unit.
- (2) Stop the air conditioner and disconnect power. Remove the batteries from the remote controller.
- (3) The outdoor unit requires periodic maintenance and cleaning. Do not attempt to do this yourself. Contact your dealer or servicer.

■ Checks before operation

- Check that the wiring is not broken off or disconnected.
- Check that the air filter is installed.
- Check if the air outlet or inlet is blocked after the air conditioner has not been used for a long time.

⚠ CAUTIONS

- Do not touch the metal parts of the unit when removing the filter. Injuries can occur when handling sharp metal edges.
- Do not use water to clean inside the air conditioner. Exposure to water can destroy the insulation, leading to possible electric shock.
- When cleaning the unit, first make sure that the power and circuit breaker are turned off.



OPERATION TIPS

The following events may occur during normal operation.

1. Protection of the air conditioner.

Compressor protection

- The compressor cannot restart for 3 minutes after it stops.
- Anti-cold air (Cooling and heating models only)
- The unit is designed not to blow cold air on HEAT mode, when the indoor heat exchanger is in one of the following three situations and the set temperature has not been reached.
 - A) When heating has just starting.
 - B) Defrosting.
 - C) Low temperature heating.
- The indoor or outdoor fan stop running when defrosting (Cooling and heating models only).
- Defrosting (Cooling and heating models only)
- Frost may be generated on the outdoor unit during heat cycle when outdoor temperature is low and humidity is high resulting in lower heating efficiency of the air conditioner.
- During this condition air conditioner will stop heating operation and start defrosting automatically.
- The time to defrost may vary from 4 to 10 minutes according to the outdoor temperature and the amount of frost buildup on the outdoor unit.

2. A white mist coming out from the indoor unit.

- A white mist may generate due to a large temperature difference between air inlet and air outlet on COOL mode in an indoor environment that has a high relative humidity.
- A white mist may generate due to moisture generated from defrosting process when the air conditioner restarts in HEAT mode operation after defrosting.

3. Low noise of the air conditioner.

- You may hear a low hissing sound when the compressor is running or has just stopped running. This sound is the sound of the refrigerant flowing or coming to a stop.
- You can also hear a low "squeak" sound when the compressor is running or has just stopped running. This is caused by heat expansion and cold contraction of the plastic parts in the unit when the temperature is changing.
- A noise may be heard due to louver restoring to its original position when power is first turned on.

4. Dust in blown out from the indoor unit.

This is a normal condition when the air conditioner has not been used for a long time or during first use of the unit.

5. A peculiar smell come out from the indoor unit.

This is caused by the indoor unit giving off smells permeated from building material, from furniture, or smoke.

6. The air conditioner turns to FAN only mode from COOL or HEAT (for cooling and heating models only) mode.

When indoor temperature reaches the temperature setting on air conditioner, the compressor will stop automatically, and the air conditioner turns to FAN only mode. The compressor will start again when the indoor temperature rises on COOL mode or falls on HEAT mode (For cooling and heating models only) to the set point.

7. Dripping water may generate on the surface of the indoor unit when cooling in a high relatively humidity (relative humidity higher than 80%). Adjust the horizontal louver to the maximum air outlet position and select HIGH fan speed.

8. Heating mode (for cooling and heating models only)

The air conditioner draws in heat from the outdoor unit and releases it via the indoor unit during heating operation. When the outdoor temperature falls, heat drawn in by the air conditioner decreases accordingly. At the same time, heat loading of the air conditioner increases due to larger difference between indoor and outdoor temperature. If a comfortable temperature cannot be achieved by the air conditioner, we suggest you use a supplementary heating device.

9. Auto-restart function

Power failure during operation will stop the unit completely.

For the unit without Auto-restart feature, when the power restores, the OPERATION indicator on the indoor unit starts flashing. To restart the operation, push the ON/OFF button on the remote controller. For the unit with Auto-restart feature, when the power restores, the unit restarts automatically with all the previous settings preserved by the memory function.

10. Lightning or a car wireless telephone operating nearby may cause the unit to malfunction.

Disconnect the unit with power and then re-connect the unit with power again. Push the ON/OFF button on the remote controller to restart operation.

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TROUBLESHOOTING GUIDE

Problem	Probable cause	Remedy
A. The air conditioner does not run.	<ol style="list-style-type: none"> 1. Power failure. 2. Fuse blown or circuit breaker open. 3. Voltage is too low. 4. Faulty contactor or relay. 5. Electrical connections loose. 6. Thermostat adjustment too low (in heating mode) or too high (in cooling mode). 7. Faulty capacitor. 8. Incorrect wiring, terminal loose. 9. Pressure switch tripped. 	<ol style="list-style-type: none"> 1. Wait for power resume. 2. Replace the fuse or reset the breaker. 3. Find the cause and fix it. 4. Replace the faulty component. 5. Retighten the connection. 6. Check thermostat setting. 7. Find the cause then replace capacitor. 8. Check and retighten. 9. Find the cause before reset.
B. The outdoor fan runs but the compressor will not start.	<ol style="list-style-type: none"> 1. Motor winding cut or grounded. 2. Faulty capacitor. 	<ol style="list-style-type: none"> 1. Check the wiring and the compressor winding resistance. 2. Find the cause then replace capacitor.
C. There is insufficient heating or cooling.	<ol style="list-style-type: none"> 1. There is a gas leak. 2. Liquid and gas line insulated together. 3. The room was probably very hot (cool) when you started the system. 	<ol style="list-style-type: none"> 1. Remove charge, repair, evacuate and recharge. 2. Insulate them separately. 3. Wait while unit has enough time to cool the room.
D. The compressor runs continuously.	<ol style="list-style-type: none"> 1. Thermostat adjustment too low (in heating mode) or too high (in cooling mode). 2. Faulty fan. 3. Refrigerant charge too low, leak. 4. Air or incondensables in refrigerant circuit. 	<ol style="list-style-type: none"> 1. Check thermostat setting. 2. Check condenser air circulation. 3. Find leak, repair and recharge. 4. Remove charge, evacuate and recharge.
E. The compressor starts but shuts down quickly.	<ol style="list-style-type: none"> 1. Too much or too little refrigerant. 2. Faulty compressor. 3. Air or incondensables in refrigerant circuit. 4. Changeover valve damaged or blocked open (heat pump unit). 	<ol style="list-style-type: none"> 1. Remove charge, evacuate and recharge. 2. Determine the cause and replace compressor. 3. Remove charge, evacuate and recharge. 4. Replace it.
F. Clicking sound is heard from the air conditioner.	In heating or cooling operation any plastic parts may expand or shrink due to a sudden temperature change in this event, a clicking sound may occur.	In heating or cooling operation any plastic parts may expand or shrink due to a sudden temperature change in this event, a clicking sound may occur.

According to REACH Regulation 1907/2006/ EC article 33 products contain DEHP in quantities above 0.1% W/W are :



INSTALLATION, REMOVAL AND DISPOSAL

This product contains refrigerant under pressure, rotating parts, and electrical connections which may be a danger and cause injury!
All work must only be carried out by competent persons using suitable protective clothing and safety precautions.



Read the Manual



Risk of electric shock



Unit is remotely controlled and may start without warning

1. Isolate all sources of electrical supply to the unit including any control system supplies switched by the unit. Ensure that all points of electrical and gas isolation are secured in the OFF position. The supply cables and gas pipework may then be disconnected and removed. For points of connection refer to unit installation instructions.
2. Remove all refrigerant from each system of the unit into a suitable container using a refrigerant reclaim or recovery unit. This refrigerant may then be reused, if appropriate, or returned to the manufacturer for disposal. **Under No circumstances should refrigerant be vented to atmosphere.** Where appropriate, drain the refrigerant oil from each system into a suitable container and dispose of according to local laws and regulations governing disposal of oily wastes.
3. Packaged unit can generally be removed in one piece after disconnection as above. Any lifting down bolts should be removed and then unit lifted from position using the points provided and equipment of adequate lifting capacity. Reference **MUST** be made to the unit installation instructions for unit weight and correct methods of lifting. Note that any residual or spilt refrigerant oil should be mopped up and disposed of as described above.
4. After removal from position the unit parts may be disposed of according to local laws and regulations.

