FORD & DOONAN
Air Conditioning Systems

Operating Instructions

for your Ford & Doonan Ducted System

Congratulations!

Congratulations on your new Ford & Doonan Air Conditioning System. You can rest assured you have received a system of the highest quality, backed by the very best customer service. Before operating the air conditioner, please read this operating manual carefully. It will advise you on how to operate the unit correctly, understand the air conditioner's advanced features and help you in the unlikely event that a problem should occur.

Please keep this manual in a safe place for future reference.

Thank you
for purchasing
Ford & Doonan
Air Conditioning

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Air Conditioning Systems

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Contents

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1. Important Safety Instructions

Never remove any fixed covers on the indoor or outdoor unit. Removal of the covers may expose fast moving fan blades or electrical components operating at a hazardous voltage. Contact with the blades or high voltage components may result in injury or electric shock.

Never insert any objects into the openings of the indoor or outdoor unit. This may damage the product or result in injury to the person inserting the object.

Do not expose the indoor unit or remote controller to rain or moisture. Water or other fluids on the electrical components may result in fire or electric shock.

Always replace any blown fuse with a fuse of the same specification. The use of the wrong fuse may allow the electrical wiring to overheat and catch on fire. If the correct type of fuse continues to blow, or the circuit breaker continues to trip, contact Ford & Doonan Service Department.

Never operate the air conditioner without the return air filter(s) in place. Operating the unit without the filter(s) will allow dust to enter the indoor unit and build up on the heat exchanger coil and fan motor. This will cause a malfunction of the unit, which will not be covered by warranty.

This electrical appliance is not intended for use by young children. Young children should be supervised to ensure that they do not play with the outdoor unit.

Main switch

Ensure you are familiar with the location of the main switches for the air conditioning system. These switches are normally located adjacent to the outdoor unit and in the fuse box/switchboard.

If the air conditioner is not going to be used for an extended period of time or you are going away on holidays, the main switch should be turned off to prevent accidental operation of the air conditioner. When turning the system back on, the main switch must be turned on at least 6 hours before the air conditioner is operated to warm up the compressor. Failure to do so may result in damage to the compressor, which will not be covered by warranty.

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2. Zone Operation

Applicable when your new system has zones fitted

- For operational instructions please refer to the attached sub manual (if applicable).
- It is possible to run all zones at the same time, however, the system will not be running very efficiently.
- You may operate two or more zones at once, depending on the capacity of your unit, design and heat load. For example, under maximum heat load (a hot day) it is better to have fewer zones on than under a low heat load (at night) when an extra zone may be turned on.
- We recommend turning on the living areas during the day and closing any bedrooms and other zones that are not needed. At night it is best to turn off any living areas and keep the bedroom zones open. This will allow the best efficiency of the system.
- The zones can take up to 2 minutes to open or close.
- If some zones do not have enough air flow check how many zones are open. Close off any zones that are not needed and see if air flow increases.

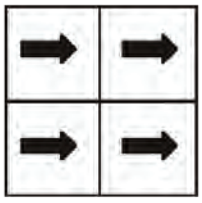
3. Outlets

Multi-Directional outlets

Multi-Directional outlets (if applicable) are designed to give maximum adjustment to airflow. Each of the four cores (called louvre panels) is adjustable by lifting and turning to direct air from one direction to another. For the distribution of cool air, the louvre panels are set to deflect air horizontally across the ceiling. For high ceilings and heating systems the louvre panels are adjusted to achieve 40% downward flow. For spot cooling and heating, the louvre panels oppose each other for a vertical down airflow. The outlets can be manually closed during winter if the system is not used for heating, although this is not a necessity.

Sidewall registers

Sidewall registers (if applicable) have vertical and horizontal blades that are adjustable. The blades are manufactured not to rattle. Any adjustments are required to be done with the assistance of long nose pliers with insulation tape wrapped around the ends so the paint of the register is not damaged. Gently move the blades to the desired position.



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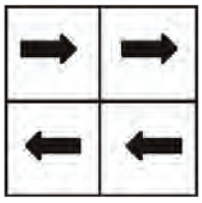

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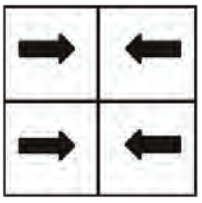

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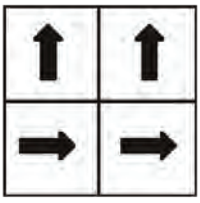

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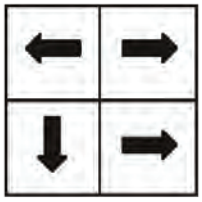

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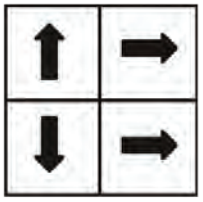

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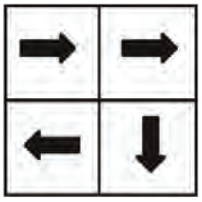

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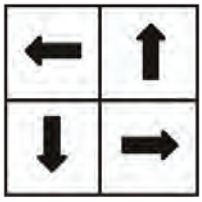


FOUR WAY

4. Maintenance

1. Cleaning the air filter

If you have a clean air filter pack, please call your Ford & Doonan store to purchase a replacement filter. We recommend replacing the filter every 12 months, if you have allergies or pets, we recommend replacing the filter every 6 months.

To clean your filter, remove the filter, hose it down and leave it a couple of hours to dry. Once this is done do not forget to press the filter reset button on your air conditioning controller.

2. Cleaning the outside panel

Cleaning of the outside panel is easy, by using a soft cloth or a cloth dampened by a neutral detergent solution. Never use paint thinner, other chemical products, or polishing powder when cleaning the outside panel. A good quality car polish can be applied to the painted surfaces to increase the paint's durability.

3. When the unit is not being used for an extended period

- Switch off the main power switch.
- Rust preventative coating has been applied to the outside cover. If corroded, repair by painting.
- Clean the condenser to remove dust and excess waste (leaves, paper, etc.).

4. Maintenance service contract recommended

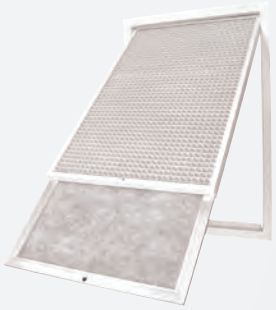
To ensure your system delivers cool, fresh air throughout the year and that your warranty is valid, it's essential you maintain it regularly. Preventative maintenance by qualified technicians has been proven to reduce the risk of failure of plant and equipment and maintain the efficiency of the overall installation.

Servicing by a qualified Ford & Doonan technician is recommended. For domestic operation of the air conditioning system we recommend an annual service. If equipment is subjected to heavy use a bi-annual service frequency is desirable.

Contact your Service Department (9331 8800) to set up automatic service reminders and ask about our three year service packages at a reduced cost.

We recommend replacing your disposable filter every 12 months

DISPOSABLE filter



WASHABLE filter

5. Common Queries

If the air conditioning is not running or the cooling effect cannot be achieved as desired, check the following points before requesting repair or service.

If the air conditioner does not function please check the following:

Is the power switched ON?

Has the power fuse failed?

Is power supplied?

Has the circuit breaker tripped?

Is the temperature indicator set in the correct operating position, or to a position which is too high for the cooling operation?

How to perform a reboot of your air conditioning system

Before calling the Service Department please perform a reset of your air conditioning system. As any electrical appliance, power dropouts or surges can interrupt the operation of the system. In most cases a reboot is all that is required. In case the system has never been used before, make sure that the main switch has been turned on for at least 6 hours before using the air conditioning unit.

Locate the isolator switch at the outdoor unit. It is a big white switch at the outdoor unit. Turn it off and wait 3 minutes before turning it back on.

If the system does not reboot, or the fault still appears please call the Ford & Doonan Service Department.

Not cooling or heating as desired please check the following:

Is the thermostat set to the proper position to heating or cooling?

Is there an obstruction near the air intake or outlet port?

Is the air filter free from clogging by dust, dirt, etc.?

Are doors and windows completely closed?

Smoke coming from outdoor unit?

In cold weather you may see what appears to be smoke coming from the unit. This is just steam being released when the unit is in de-ice mode. Further you may notice the unit icing up and appearing frozen. This is normal as long as the system completes a de-ice cycle.

"Filter clean" displays

If a small tap or spanner symbol appears, this indicates it is time to clean or replace the filter. Press this switch to reset and clear the symbol once you have cleaned or replaced the filter. Please see Maintenance for more information on how to clean your filter. If the spanner symbol appears with a fault code, it is advising you of a problem and you will need to contact your Service Department.

Faults:

If the **"CHECK"** indicator starts flashing, this means there is a fault at hand.

In this case, or if fault codes appear, please call your Service Department with the fault code, explain the problem and they will be able to assist with the issue.

6. Performance Expectations

Hot weather

Heat load calculations and manufacturers capacity ratings are based on an outside temperature of 36°C. When the temperature exceeds this, the performance of your air conditioner will fall away the hotter it gets and room temperatures will increase accordingly.

Cold weather

Heat load calculations and manufacturers capacity ratings are based on an outside temperature of 7°C. When the temperature is lower than this, the performance of your air conditioner will fall away the colder it gets and room temperatures will decrease accordingly.The above conditions do occur in Perth and there will be nothing wrong with your air conditioning unit when it happens.

Heating performance

Hot air rises and the room temperatures at different levels will be different. It is normal that some parts of the room will be warmer than others. The same applies on cooling mode but to a lesser degree.

Return air

Your system will usually be designed with one only return air grille. The area around the return air grille will always be drafty, and in Winter, always much cooler than the rooms. This is why we select hallways or other "non occupied rooms". You will have to leave any room's entry door ajar to allow the conditioned air to come back to the grille. You cannot close the door as performance will be affected. We have options to overcome these situations, so please discuss this with your consultant.

Zones

If we have installed zones, then they cannot all be turned on together without effecting performance. On low load days or nights your air conditioner can handle a larger area at one time. Your air conditioner can only handle the percentage of the home we mention in our letter at typical design temperatures. Turning on less zones will effectively increase the available capacity you have.

7. Performance Tips

1. Temperature setting on your air conditioning unit

We recommend that in summer you set the cooling cycle at 24 degrees and in Winter the heating at 21 degrees. On very hot days (above 36 degrees) or cold days (below 7 degrees) one can increase the temperature in Summer and decrease in Winter, to keep the efficiency of the air conditioning.

2. To keep the comfortable temperature without extra heat loading

The easiest solution to start your air conditioner earlier in the day by using your timer setting. On hot days start the air conditioner before your heat load increases so the air conditioner can get a head start. On cold days start the air conditioner whilst it is still warm outside (above 12-15°C). This will let the air conditioner deliver maximum capacity before performance falls away. If your system has zones (residential only) reduce the number of zones turned on when the external conditions are extreme. The smaller the area being air conditioned, the better it can cope.

3. Close doors of rooms that are not being air conditioned

When operating an air conditioning system that utilises the zoning technique, remember the system has only a certain capacity, therefore the idea is to air condition the areas you are occupying at the time. With this in mind, it becomes prudent to habitually close the doors that lead to a non air conditioned area, thereby reducing the total area being subjected to air conditioning. This will enhance the effectiveness of the machine.

4. Allow air flow to return air grille

You will notice that the larger return air grill is normally located in a central position in the building. It is important to encourage the airflow towards this grille. This grille is drawing the total air capacity of the system through it and therefore

requires unrestricted airflow. Depending upon the building, you may need to open or close doors around this area to keep the air flowing to this grille.

5. Regular cleaning of the filter is important

The return air grille in most cases also contains an air filter. This air filter, depending on the system usage and other air quality factors, will need to be cleaned regularly. To do this, simply open the grille and slide out the filter. In most cases it is best to hose the filter clean, although some people prefer to vacuum the filter. Remember, regular cleaning of the filter will improve the system efficiency.

6. Clean outdoor unit and surroundings

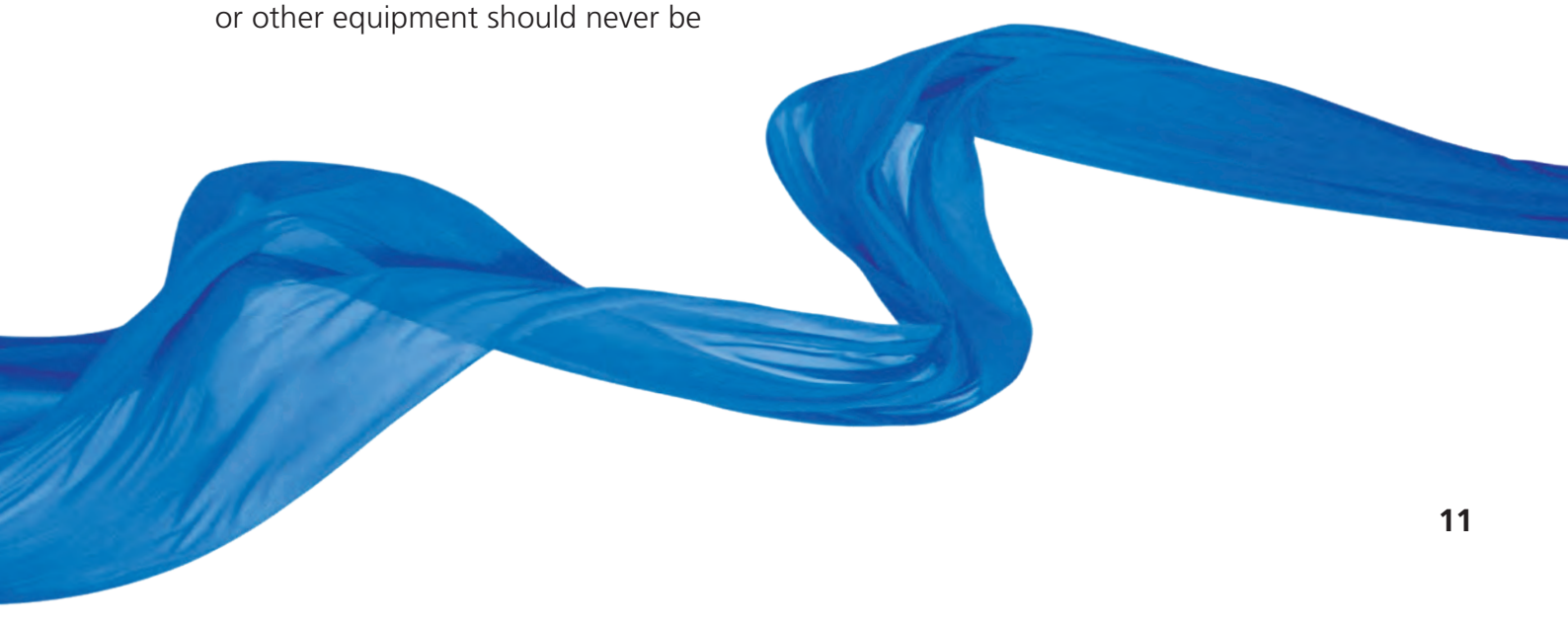
The condensing or outdoor unit is located in a position to best suit the building and the occupants. It is important to maintain cleanliness around the unit, for example sweeping away any build-up of leaves or general flotsam. It is critical to not inhibit the airflow coming from the condenser, therefore general garden paraphernalia or other equipment should never be stacked on or lent against the condenser. Similarly if a garden is developing around the condenser, this can be an advantage as some of the sound from the condensing unit will be absorbed, although a robust bush can block the air flow so consideration should be given to this. It is also imperative to keep the condensing unit accessible for servicing purposes.

7. Sizing of equipment

When we recommend a unit we have completed a heat load calculation on the area. We have assumed the following:

- Curtains will be drawn closed in both sunny Summer days and at night in Winter.
- Ceiling insulation has been installed directly above your ceiling (not just anti-con or sisalation)
- Doors and windows will be left closed.

If any of the above changes, your air conditioner may not be large enough to maintain acceptable room temperatures.



MODEL:

42SHV071P1 / 38SHV071P1
42SHV087P1 / 38SHV087P1
42SHV105P1 / 38SHV105P1
42SHV135P1 / 38SHV135P1
42SHV165P1 / 38SHV165P1

Carrier®

turn to the experts℠

OWNER'S MANUAL

High Static Pressure Ducted Type Air Conditioner

Thank you very much for purchasing our air conditioner,
Before using your air conditoner, please read this manual carefully and keep it for future reference.

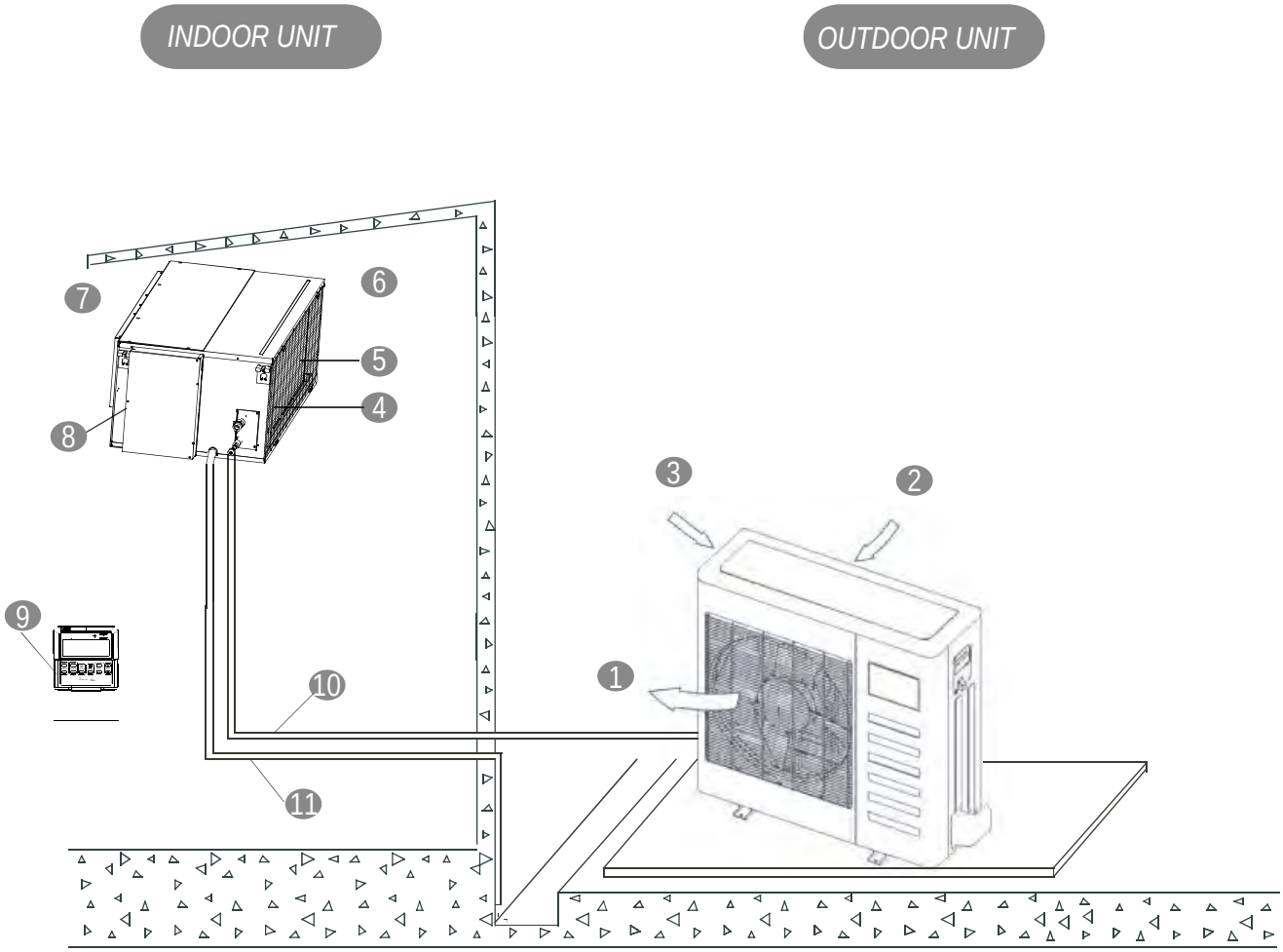


Fig.1

1. Air outlet
2. Air inlet
3. Air inlet(side and rear)
4. Air filter(inside air-in grill)(optional)
5. Heat exchanger
6. Air inlet
7. Air outlet
8. E-Box
9. Wire controller
10. Refrigerant pipe
11. Drain hose

NOTE

All the pictures in this manual are for explanation purpose only. There may be slightly different from the air conditioner you purchased (depend on model).The actual shape shall prevail.

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1. IMPORTANT SAFETY INFORMATION

To prevent injury to the user or other people and property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.

The safty precautions listed here are divided into two categories. In either case, important safty information is listed which must be read carefully.

WARNING

The appliance shall be installed in accordance with national wiring regulations.Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

WARNING

Ask your dealer for installation of the air conditioner.
Incomplete installation performed by yourself may result in a water leakage, electric shock, and fire.

Ask your dealer for improvement, repair, and maintenance.
Incomplete improvement, repair, and maintenance may result in a water leakage, electric shock, and fire.

In order to avoid electric shock, fire or injury, or if you detect any abnormality such as smell of fire, turn off the power supply and call your dealer for instructions.

Never let the indoor unit or the remote controller get wet.
It may cause an electric shock or a fire.

Never press the button of the remote controller with a hard, pointed object.
The remote controller may be damaged.

Never replace a fuse with that of wrong rated current or other wires when a fuse blows out.
Use of wire or copper wire may cause the unit to break down or cause a fire.

It is not good for your health to expose your body to the air flow for a long time.

Do not insert fingers, rods or other objects into the air inlet or outlet.
When the fan is rotating at high speed, it will cause injury.

Never use a flammable spray such as hair spray,lacquer or paint near the unit.
It may cause a fire.

Never touch the air outlet or the horizontal blades while the swing flap is in operation.
Fingers may become caught or the unit may break down.

Never put any objects into the air inlet or outlet.
Objects touching the fan at high speed can be dangerous.

Never inspect or service the unit by yourself.
Ask a qualified service person to perform this work.

Do not dispose this product as unsorted municipal waste.Collection of such waste separately for special treatment is necessary.

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.
Contact you local government for information regarding the connection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundeater and get into the food chain, damaging your health and well-being

To prevent refrigerant leak, contact your dealer.
When the system is installed and runs in a small room, it is required to keep the concentration of the refrigerant, if by any chance coming out, below the limit. Otherwise, oxygen in the room may be affected, resulting in a serious accident.

The refrigerant in the air conditioner is safe and normally does not leak.
If the refrigerant leaks in the room, contact with a fire of a burner, a heater or a cooker may result in a harmful gas.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.
Do not use the air conditioner until a service person confirms that the portion where the refrigerant leaks is repaired.

CAUTION

Do not use the air conditioner for other purposes.
In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.

Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord.
Otherwise, an electric shock and injury may result.

In order to avoid electric shock or fire, make sure that an earth leak detector is installed.

Be sure the air conditioner is grounded.
In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to gas or water pipe, lightning conductor or telephone earth wire.

In order to avoid injury, do not remove the fan guard of the outdoor unit.

Do not operate the air conditioner with a wet hand.
An electric shock may happen.

Do not touch the heat exchanger fins.
These fins are sharp and could result in cutting injuries.

Do not place items which might be damaged by moisture under the indoor unit.
Condensation may form if the humidity is above 80%, the drain outlet is blocked or the filter is polluted.

After a long use, check the unit stand and fitting for damage.
If damaged, the unit may fall and result in injury.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the air conditioner.

Arrange the drain hose to ensure smooth drainage.
Incomplete drainage may cause wetting of the building, furniture etc.

Never touch the internal parts of the controller.
Do not remove the front panel. Some parts inside are dangerous to touch, and a machine trouble may happen.

Never expose little children, plants or animals directly to the air flow.
Adverse influence to little children, animals and plants may result.

Do not allow a child to mount on the outdoor unit or avoid placing any object on it.
Falling or tumbling may result in injury.

Do not operate the air conditioner when using a room fumigation - type insecticide.
Failure to observe could cause the chemicals to become deposited in the unit, which could endanger the health of those who are hypersensitive to chemicals.

Do not place appliances which produce open fire in places exposed to the air flow from the unit or under the indoor unit.
It may cause incomplete combuston or deformation of the unit due to the heat.

Do not install the air conditioner at any place where flammable gas may leak out.
If the gas leaks out and stays around the air conditioner, a fire may break out.

The appliance is not intended for use by young children or infirm persons without supervision.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

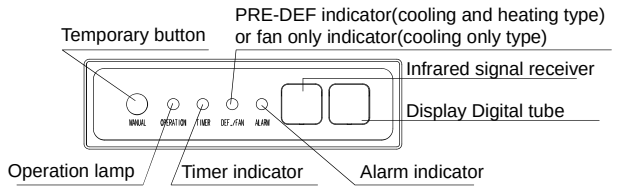
If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Do not operate your air conditioner in a wet room such as a bathroom or laundry room.

2. PARTS NAMES

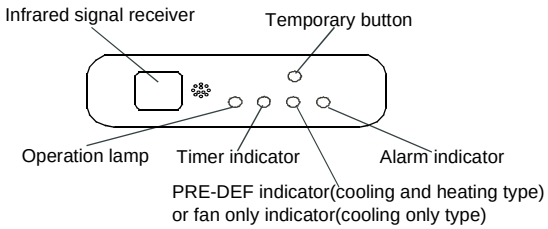
The air conditioner consists of the indoor unit, the outdoor unit, the connecting pipe and the remote controller.
(Refer to Fig.2)

Function indicators on indoor unit display panel



Display panel

Fig.2-1



Display panel

Fig.2-2

For inverter type,this switch is used for after-sales service purpose only,the user should not push it.

For fixed-frequency type,this function is used to operate the unit temporarily in case you misplace the remote controller or its batteries are exhausted. Two modes including FORCED AUTO and FORCED COOL can be selected through the TEMPORARY BUTTON on the air-in grill control box of the indoor unit. Once you push this button, the air conditioner will run in such order: FORCED AUTO, FORCED COOL, OFF, and back to FORCED AUTO.

1 FORCED AUTO
The OPERATION lamp is lit, and the air conditioner will run under FORCED AUTO mode. The remote controller operation is enabled to operate according to the received signal.

2 FORCED COOL
The OPERATION lamp flashes, the air conditioner will turn to FORCED AUTO after it is enforced to cool with a wind speed of HIGH for 30 minutes. The remote controller operation is disabled.

3 OFF
The OPERATION lamp goes off. The air conditioner is OFF while the remote controller operation is enabled.

NOTE

This manual does not include Remote Controller Operations, see the<<Remote Controller Owner's manual>> packed with the unit for details.

3. AIR CONDITIONER OPERATIONS AND PERFORMANCE

Use the system in the following temperature for safe and effective operation.The Max operation temperature for the air conditioner.(Cooling/Heating)

Table 3-1

Mode \ Temperature	Outdoor temperature	Room temperature
Cooling operation	18°C ~ 43°C / 64 °F~109°F	17°C ~ 32°C (62 °F ~ 90°F)
	-7°C ~ 43°C / 20 °F~109°F (for the models with low temperature cooling system)	
	18°C ~ 52°C / 64 °F~126°F (for special tropical models)	
Heating operation (cooling only type without)	-7°C ~ 24°C / 20 °F ~ 76°F	0°C ~ 30°C / 32 °F~86°F
Drying operation	18°C ~ 43°C / 64 °F~109°F	17°C ~ 32°C (62 °F ~ 90°F)
	18°C ~ 52°C / 64 °F~126°F (for special tropical models)	

■ **Table 3-2(for invert type air conditioner)**

Mode \ Temperature	Outdoor temperature	Room temperature
Cooling operation	0°C ~ 50°C / 32 °F~122°F	17°C ~ 32°C (62 °F ~ 90°F)
	-15°C ~ 50°C / 5 °F~122°F (for the models with low temperature cooling system)	
Heating operation (cooling only type without)	-15°C ~ 24°C / 5 °F~76°F	0°C ~ 30°C / 32 °F~86°F
Drying operation	0°C ~ 50°C / 32 °F~122°F	17°C ~ 32°C (62 °F ~ 90°F)

NOTE

1 If air conditioner is used outside the above conditions, it may cause the unit to function abnormally.
2 The phenomenon is normal that the surface of air conditioning may condense water when the relative larger humidity in room, please close the door and window.
3 Optimum performance will be achieved within these operating temperature range.

Three-minute protection feature

A protection feature prevents the air conditioner from being activated for approximately 3 minutes when it restarts immediately after operation.

Power failure

Power failure during operation will stop the unit completely.

- The OPERATION lamp on the indoor unit will start flashing when power is restored.
- To restart operation, push the ON/OFF button on the remote controller.
- Lightning or a car wireless telephone operating nearby may cause the unit to malfunction.

4. HINTS FOR ECONOMICAL OPERATION

The following should be noticed to ensure an economical operation. (Refer to corresponding chapterfor details)

- Adjust the air flow direction properly to avoid winding toward your body.
- Adjust the room temperature properly to get a comfortable situation and to avoid supercooling and superheat.
- In cooling, close the curtains to avoid direct sunlight.
- To keep cool or warm air in the room, never open doors or windows more often than necessary.
- Set the timer for the desired operating time.
- Never put obstructions near the air outlet or the air inlet. Or it will cause lower efficiency, even a sudden stop.
- If you don't plan to use the unit for a long time, please disconnect power and remove the batteries from the remote controller. When the power switch is connected, some energy will be consumed, even if the air conditioner isn't in operation. So please disconnect the power to save energy. And please switch the power on 12 hours before you restart the unit to ensure a smooth operation.
- A clogged air filter will reduce cooling or heating efficiency, please clean it once two weeks.

5. MAINTENANCE

CAUTION

Before you clean the air conditioner, be sure the power supply is off.

Check if the wiring is not broken off or disconnected.

Use a dry cloth to wipe the indoor unit and remote controller.

A wet cloth may be used to clean the indoor unit if it is very dirty.

Never use a damp cloth on the remote controller.

Do not use a chemically-treted duster for wiping or leave such material on the unit for long.
it may damage or fade the surface of the unit.

Do not use benzine, thinner, polishing powder, or similar solvents for cleaning.
These may cause the plastic surface to crack or deform.

■ Maintenance after a long stop period

(eg. at the beginning of the season)

Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.

Clean air filters and casings of indoor units.
Refer to "Cleaning the air filter" for details on how to proceed and make sure to install cleaned air filters back in the same position.

Check and remove everything that might be blocking inlet and outlet vents of indoor units and outdoor units.

Clean air filters and casings of indoor units.
Refer to "Cleaning the air filter" for details on how to proceed and make sure to install cleaned air filters back in the same position.
Turn on the power at least 12 hours before operating the unit in order to ensure smoother operation. As soon as he power is turned on, the remote controller displays appear.

■ Maintenance before a long stop period

(eg. at the end of the season)

Let the indoor units run in fan only operation for about half a day in order to dry the interior of the units.

Clean air filters and casings of indoor units. Refer to " Cleaning the air filter" for details on how to proceed and make sure to install cleaned air filters back in the same position.

■ Cleaning the air filter

The air filter can prevent the dust or other particulate from going inside .If the filter is blocked,the working efficiency of the air conditioner may greatly decrease.Therefore,the filter must be cleaned once two weeks during long time usage.

If the air conditioner is installed in a dust place , clean the the air filter frequent.

If the accumulated dust is too heavy to be cleaned , please replace the filter with a new one(replaceable air filter is an optional fitting).

When cleaning the filter,make sure to unplug the power from the unit.Washable foam based air filter captures large particles from the air.The filter is cleaned with a vacuum or by hand washing.

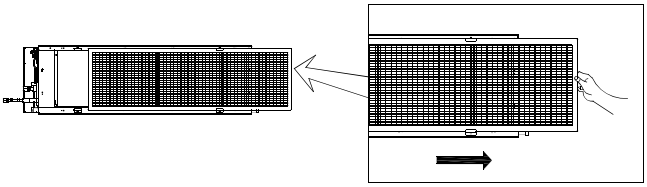


Fig.5-1

2.Take out the air filter from the panel.

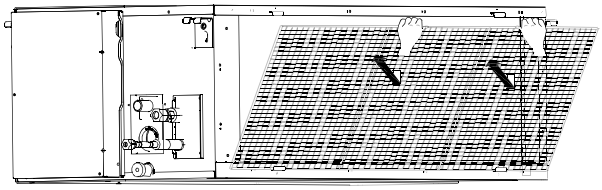


Fig.5-2

3.Slide out the air filter on the rear side panel to the underside.

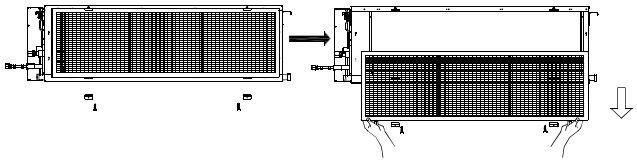


Fig.5-3

4.Clean the air filter with the soft brush or vacuum cleaner.If dust is too heavy,then rinse it with running water and dry it in a ventilated area.

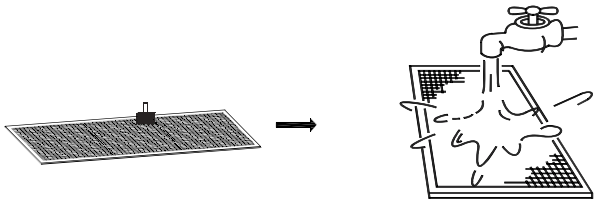


Fig.5-4

CAUTION

Do not dry out the air filter under direct sunshine or with fire.

Re-install the air filter

Insert the filter back in the original position.

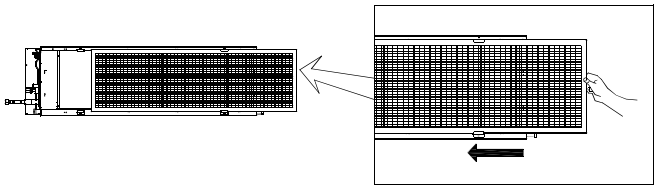


Fig.5-5

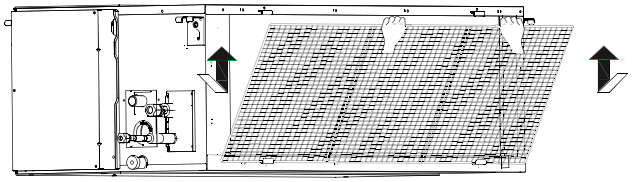


Fig.5-6

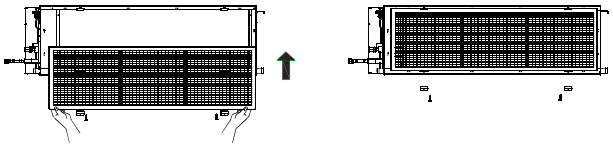


Fig.5-7

6. FOLLOWING SYMPTOMS ARE NOT AIR CONDITIONER TROUBLES

Symptom 1: The system does not operate

- The air conditioner does not start immediately after the ON/OFF button on the romote controller is pressed.
  If the operation lamp lights, the system is in normal condition.To prevent overloading of the compressor motor, the air conditioner starts 3 minutes after it is turned on.

- If the operation lamp and the "PRE-DEF indicator(cooling and heating type) or fan only indicator(cooling only type)" light, it means you choose the heating model, When just starting, if the compressor has not started, the indoor unit appears "anti cold wind" protection because of its overlow outlet temperature.

Symptom 2: Change into the fan mode during cooling mode

- In order to prevent the indoor evaporator frosting, the system will change into fan mode automatically, restore to the cooling mode after soon.

- When the room temperature drops to the set temperature, the compressor goes off and the indoor unit changes to fan mode; when the temperature rises up, the compressor starts again. It is same in the heating mode.

Symptom 3: White mist comes out of a unit

Symptom 3.1: Indoor unit

- When humidity is high during cooling operation If the interior of an indoor unit is extremely contaminated, the temperature distribution inside a room becomes uneven. It is necessary to clean the interior of the indoor unit. Ask your dealer for details on cleaning the unit. This operation requires a qualified service erson

Symptom 3.2: Indoor unit, outdoor unit

- When the system is changed over to heating operation after defrost operation Moisture generated by defrost becomes steam and is exhausted.

Sptom 4: Noise of air conditionerscooling

Symptom 4.1: Indoor unit

- A continuous low "shah" sound is heard when the system is in cooling operation or at a stop.
  When the drain pump (optional accessories) is in operation,this noise is heard.

- A "pishi-pishi" squeaking sound is heard when the system stops after heating operation.
  Expansion and contraction of plastic parts caused by temperature change make this noise.

Symptom 4.2: Indoor unit, outdoor unit

- A continuous low hissing sound is heard when the system is in operation.
  This is the sound of refrigerant gas flowing through both indoor and outdoor units.

- A hissing sound which is heard at the start or immediately after stopping operation or defrost operation.
  This is the noise of refrigerant caused by flow stop or flow change.

Symptom 4.3: Outdoor unit

- When the tone of operating noise changes.
  This noise is caused by the change of frequency.

Symptom 5: Dust comes out of the unit

- When the unit is used for the first time in a long time.
  This is because dust has gotten into the unit.

Symptom 6: The units can give off odours

- The unit can absorb the smell of rooms, furniture, cigarettes, etc., and then emit it again.

Symptom 7: The outdoor unit fan does not spin.

- During operation. The speed of the fan is controlled in order to optimize product operation.

7. TROUBLESHOOTING

7.1. Troubles and causes of air conditioner

If one of the following malfunctions occur, stop operation, shut off the power, and contact with your dealer.

- The operation lamp is flashing rapidly (5Hz). This lamp is still flashing rapidly after turn off the power and turn on again. *(see in* Table 7-1a and Table 7-1b*)*

- Remote controller receives malfunction or the button does not work well.

- A safety device such as a fuse, a breaker frequently actuates.

- Obstacles and water enter the unit.

- Water leaks from indoor unit.

- Other malfunctions.

If the system does not properly operate except the above mentioned cases or the above mentioned malfunctions is evident, investigate the system according to the following procedures. *(see in* Table 7-2*)*

CAUTION

Please cut off the power supply when appearing the above malfunction, check if the voltage provided is out of range, check if the installation of air-conditioner is correct, then electrify again after 3 minutes power off. If the problem is still existent, please contact the local service station or the equipment provider.

7.2. Troubles and causes of wire controller

Before asking for serving or repairing , check the following points. *(see in* Table 7-3*)*

Table 7-1a

NO.	MALFUNCTION & PROTECTION DEFINE	LED1 OPERATION	LED2 TIMER	LED3 DEF.FAN	LED4 ALARM	DISPLAY DIGITAL TUBE
1	Indoor fan motor speed out of control			◎	◎	E8
2	In-Outdoor unit COMM. Checking channel is abnormal		◎			E1
3	Room TEMP. sensor checking channel is abnormal	◎				E2
4	Pipe TEMP. Sensor checking channel is abnormal(T2)	◎				E3
5	Pipe TEMP. Sensor checking channel is abnormal(T2B)	◎				E4
6	EPPROM malfunction			◎		E7
7	Water-level alarm malfunction				◎	EE
8	Outdoor malfunction				○	Ed
9	Indoor twins communication malfunction		◎		◎	F3
10	Other malfunction of twins	◎			◎	F4

● Light ◎ Flashing at 2.5HZ ○ Flashing at 0.5HZ

Applicable to inverter air conditioner only

Table 7-1b

• • •	MALFUNCTION & PROTECTION DEFINE	LED1 OPERATION	LED2 TIMER	LED3 DEF.FAN	LED4 ALARM	DISPLAY DIGITAL TUBE
•	IDU & ODU communication malfunction	◎		◎		E1
•	Room temperature sensor checking channel is abnormal		◎			E2
•	Pipe temperature sensor checking channel is abnormal	◎				E3
•	Outdoor TEMP. sensor checking channel is abnormal			◎		E4
•	Pump temperature sensor malfunction				◎	E5
•	Outdoor malfunction	◎	◎	◎	◎	E6
•	EEPROM malfunction	◎	◎			E7
•	Water-level alarm malfunction				◎	E8
•	DC motor speed out of control		◎		◎	Eb
•	Outdoor low pressure malfunction	◎	◎	◎		Ed

● Light ◎ Flashing at 5HZ ○ Flashing at 1HZ

Applicable to fixed-frequency air conditioner only

Table 7-2

Symptoms	Causes	Solution
Unit does not start	• Power failure. • Power switch is off. • Fuse of power switch may have burned. • Batteries of remote controller exhausted or other problem of controller.	• Wait for the comeback of power. • Switch on the power. • Replace. • Replace the batterises or check the controller.
Air flowing normally but completely can't cooling	• Temperature is not set correctly. • Be in 3 minutes protection of compressor.	• Set the temperature properly. • Wait.
Units start or stop frequently	• Refrigerant is too little or too much. • Air or no concretingc gas in the refrigerating circuit. • Compressor is malfunction. • Voltage is too high or too low. • System circuit is blocked.	• Check leakage, and rightly recharge refrigerant. • Vacuum and recharge refrigerant. • Maintenance or change compressor. • Install manostat. • Find reasons and solution.
Low cooling effect	• Outdoor unit and indoor unit heat exchanger is dirty. • The air filter is dirty. • Inlet/outlet of indoor/outdoor units is blocked. • Doors and windows are open • Sunlight directly shine. • Too much heat resource. • Outdoor temp. is too high. • Leakage of refrigerant or lack of refrigerant.	• Clean the heat exchanger. • Clean the air filter. • Eliminate all dirties and make air smooth. • Close doors and windows. • Make curtains in order to shelter from sunshine. • Reduce heat source. • AC cooling capacity reduces (normal). • Check leakage and rightly recharge refrigerant.
Low heating effect	• Outdoor temperature is lower than 7°C • Doors and windows not completely closed. • Leakage of refrigerant or lack of refrigerant.	• Use heating device. • Close doors and windows. • Check leakage and rightly recharge refrigerant.

Table 7-*3*

Symptoms	Solution	Causes
The fan speed can not be changed.	● Check whether the MODE indicated on the display is "AUTO"	When the automatic mode is selected, the air conditioner will automatically change the fan speed.
	● Check whether the MODE indicated on the display is "DRY"	When dry operation is selected, the air conditioner automatically change the fan speed. The fan speed can be selected during "COOL" , "FAN ONLY", and "HEAT"
The wire controller signal is not transmitted even when the ON/OFF button is pushed.	● Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit.	The power supply is off.
The TEMP. indicator does not come on.	● Check whether the MODE indicated on the display is FAN ONLY	The temperature cannot be set during FAN mode.
The indication on the display disappears after a lapse of time.	● Check whether the timer operation has come to an end when the TIMER OFF is indicated on the display.	The air conditioner operation will stop up to the set time
The TIMER ON indicator goes off after a lapse of certain time.	● Check whether the timer operation is started when the TIMER ON is indicated on the display.	Up to the set time, the air conditioner will automatically start and the appropriate indicator will go off.
No receiving tone sounds from the indoor unit even when the ON/OFF button is pressed.	● Check whether the signal transmitter of the wire controller is properly directed to the infrared signal receiver of the indoor unit when the ON/OFF button is pressed.	Directly transmit the signal transmitter of the wire controller to the infrared signal receiver of the indoor unit, and then repeatly push the ON/OFF button twice.

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