

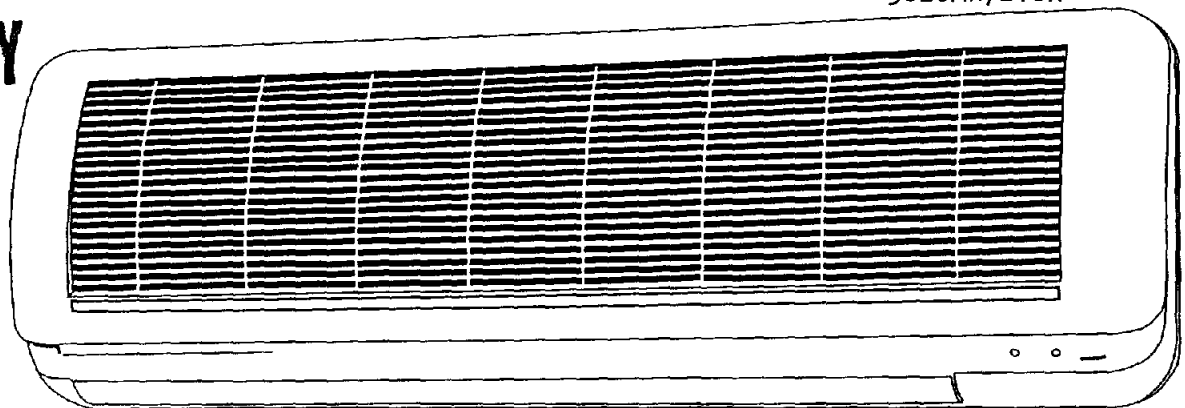
HEAT CONTROLLER, INC.

ENERGY  KNIGHT®

Wall Mounted
Mini-Split System
Air Conditioning/Heat Pump

MSS/MSH SERIES
3828AR7216X

FILE COPY



Owners Manual

00000004.TIF

Important Information

- Please read carefully and thoroughly this manual before operating this unit.
- Contact a qualified service technician for installation, repair and maintenance of this unit.
- The appliance is not intended for use by young children or those who require supervision.
- Young children should be supervised to ensure that they do not play with the appliance.

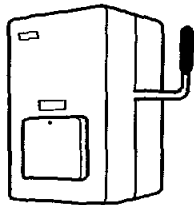
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CAUTION

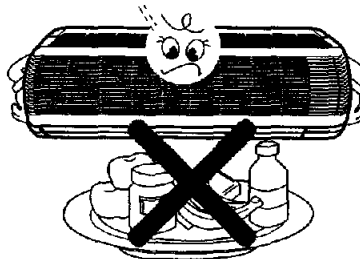
To warm up the system, power mains must be turned on at least five(5) hours before operation.

Leave the power ON unless you will not be using this appliance for an extended period.



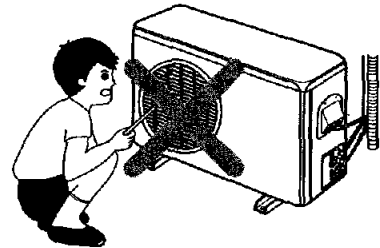
Do not use the air conditioner for purposes other than cooling the room.

Do not use the air conditioner for other purposes, such as drying clothes, preserving foods, or cultivating vegetables.



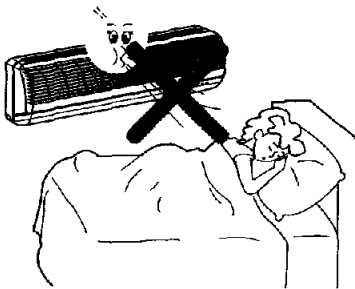
Do not block the air intake and outlet vents.

This causes lowered performance and irregular operation. Do not insert sticks or other objects into these vents as it is dangerous to touch the electric components and the fan.



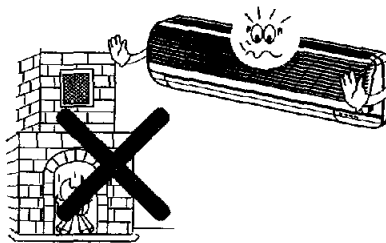
Select the most appropriate temperature.

Take care to adjust the temperature to suit the conditions. Rooms occupied by young infants, the elderly, or invalids should be kept at an appropriate temperature.



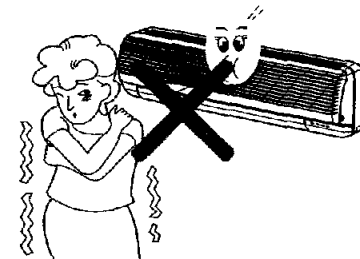
Do not use heating apparatuses in the vicinity.

The air conditioner's plastic parts may melt if exposed to excessive heat.



Avoid exposing the body directly to a continuous unidirectional cool airflow for long periods.

This will cause discomfort and may affect your health.



PRODUCT COMPONENT IDENTIFICATION

(1) Feature

1 Soft Dry Operation Mode

page 12

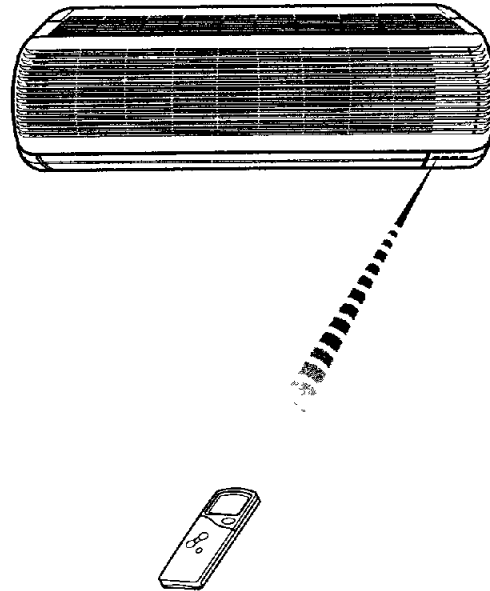
This mode is designed to dehumidify without overcooling.

2 Auto Operation

page 11

In selecting this mode of operation, the setting temperature, indoor fan speed, and the desired operation mode are automatically set by the unit electronic control on the basis of the room temperature.

During Auto Operation, pressing the Air-flow direction control button makes vertical louver swings up and down automatically. Pressing the Airflow Direction Control Button will set the louvers at a fixed position. Pressing the Airflow Direction Control Button again will restore the auto-swing.



Wireless Remote Controller puts all functions at your fingertips.

3 ON/OFF Dual Timer Setting

page 18~19

You can program the room air conditioner to turn itself on or off at a predetermined time to ensure maximum comfort when you return from being away.

4 Sleep Mode Auto Control

page 15

A touch of the Sleep Mode Button automatically programs the room air conditioner to control the indoor fan speed, and adjusts the setting temperature to create a more comfortable sleep.

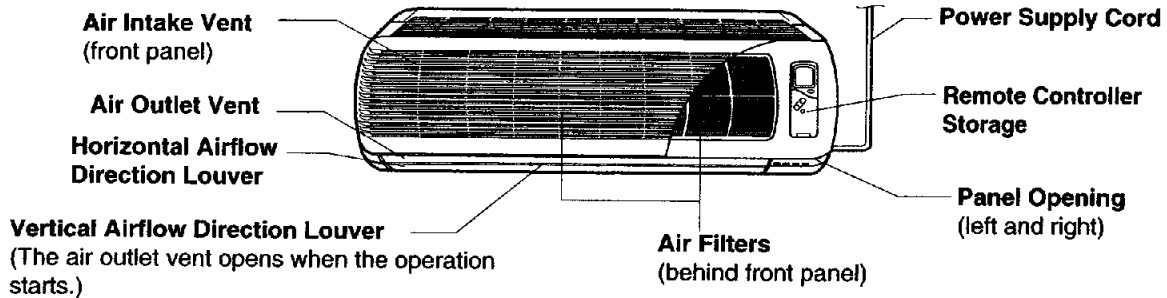
CAUTION

of handling the Remote Controller

- Aim at the signal receptor on the room air conditioner so as to operate.
- The remote control signal can be received at a distance of up to about 7m(23ft).
- Be sure that there are no obstructions between the remote controller and the signal receptor.
- Do not drop or throw the remote controller. Do not place the remote controller in a location exposed to direct sunlight, or near the heating unit, or any other heat source.
- Block a strong light over the signal receptor with a curtain or etc. so as to prevent the abnormal operation.

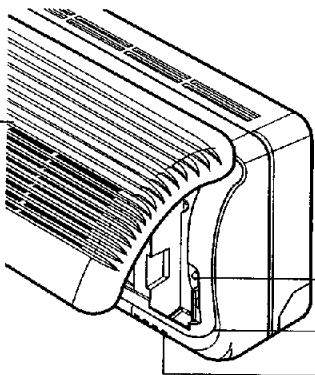
(2) Indoor Unit, Outdoor Unit

Indoor Unit



Indoor unit controls and indicators

Open the front panel
Pull the panel to open (left and right side of front panel) and open the panel upward.



Force Operation Button

Use for operation when the remote controller cannot be used. (When operation is stopped by the remote control without removing power plug, the room air conditioner consumes approximately 2W of electricity.)

Signal Receptor

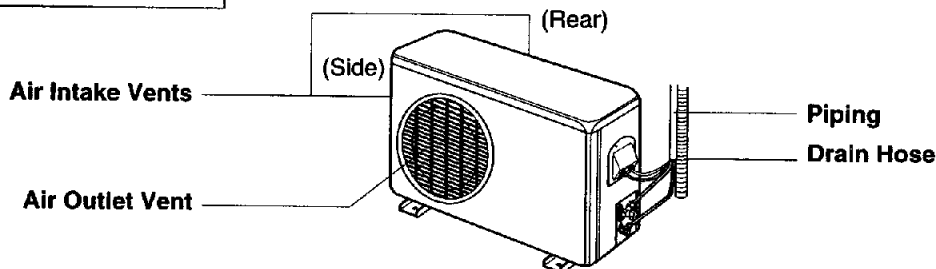
Receives the signals from the remote controller. (Signal receiving sound: two short beeps or one long beep.)

Operation Indication Lamps

- ① On/Off : Lights up during the air conditioner operation.
 - ☆ Sleep Mode : Lights up during Sleep Mode Auto operation.
 - ⌚ Timer : Lights up during timer operation.
 - ❄️ Defrost Mode : Lights up during Defrost Mode or hot start operation.
- Heating Model only
- or

OUT Outdoor Unit : Lights up during the outdoor unit's operation. - Cooling Model only

Outdoor Unit

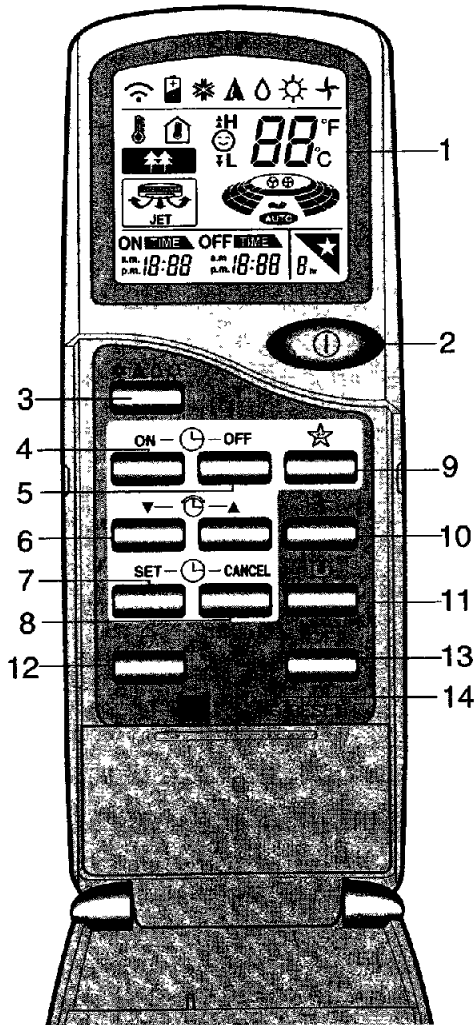


(3) Name and Function-Remote Controller(Heating Model)

Remote Controller

Signal transmitter

Transmits the signals to the room air conditioner.



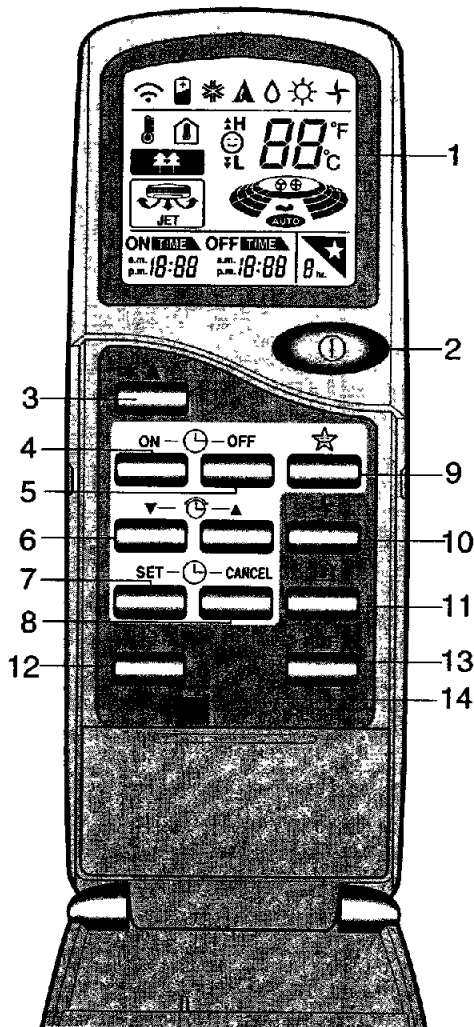
- 1 Operation display**
Displays the operation conditions.
- 2 Start/Stop Button**
 - Operation starts when this button is pressed, and stops when the button is pressed again.
 - The fan blows at low speed when start button is pressed initially, after a while the fan speed will be reached at the desired speed.
- 3 Operation Mode Selection Button**
Used to select the operation mode.
 - Cooling Operation Mode.
 - Auto Operation Mode.
 - Soft Dry Operation Mode.
 - Heating Operation Mode(Heat Pump Only).
- 4 ON Timer Button**
Used to set the time of starting operation.
- 5 OFF Timer Button**
Used to set the time of stopping operation.
- 6 Time Setting Button**
Used to adjust the time.
- 7 Timer Set Button**
Used to set the timer when the desired time is obtained.
- 8 Timer Cancel Button**
Used to cancel the timer operation.
- 9 Sleep Mode Auto Button**
Used to set Sleep Mode Auto Operation.
- 10 Air Circulation Button**
Used to circulate room air without cooling.
- 11 Room Temperature Checking Button**
Used to check the room temperature.
- 12 Airflow Direction Control Button**
Used to set the desired vertical airflow direction.
- 13 °C to °F Switching Button**
Used to switch temperature reading from Centigrade to Fahrenheit.
- 14 Reset Button**

(4) Name and Function-Remote Controller(Cooling Model)

Remote Controller

Signal transmitter

Transmits the signals to the room air conditioner.



1 Operation display

Displays the operation conditions.

2 Start/Stop Button

- Operation starts when this button is pressed, and stops when the button is pressed again.
- The fan blows at low speed when start button is pressed initially, after a while the fan speed will be reached at the desired speed.

3 Operation Mode Selection Button

Used to select the operation mode.

- Cooling Operation Mode.
- Auto Operation Mode.
- Soft Dry Operation Mode.

4 ON Timer Button

Used to set the time of starting operation.

5 OFF Timer Button

Used to set the time of stopping operation.

6 Time Setting Button

Used to adjust the time.

7 Timer Set Button

Used to set the timer when the desired time is obtained.

8 Timer Cancel Button

Used to cancel the timer operation.

9 Sleep Mode Auto Button

Used to set Sleep Mode Auto Operation.

10 Air Circulation Button

Used to circulate room air without cooling.

11 Room Temperature Checking Button

Used to check the room temperature.

12 Airflow Direction Control Button

Used to set the desired vertical airflow direction.

13 °C to °F Switching Button

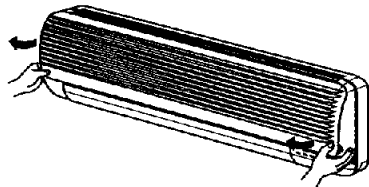
Used to switch temperature reading from Centigrade to Fahrenheit.

14 Reset Button

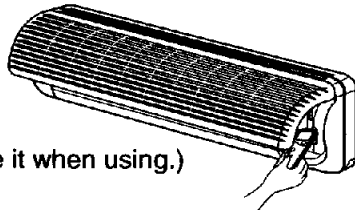
(5) Remote Controller Preparation

How to store the remote controller

- 1 Pull the left and the right side to open the front panel upward.

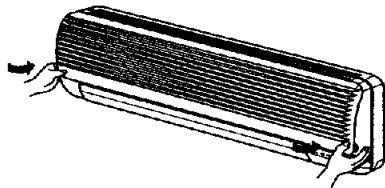


- 2 Store the remote control.



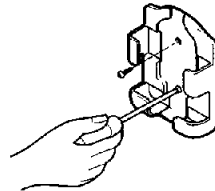
(Remove it when using.)

- 3 Press the left and the right side to close the front panel.



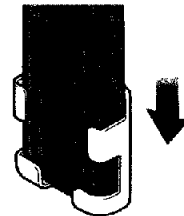
How to mount onto a wall

- 1 Use the screws to secure the holder to the wall.

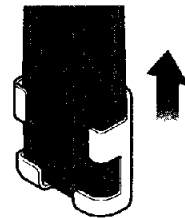


Confirm that the remote control signals can reach the signal receptor of unit.

- 2 To attach the remote controller to the holder.



- 3 To remove.



How to insert batteries

- 1 Remove the battery cover from the remote controller.

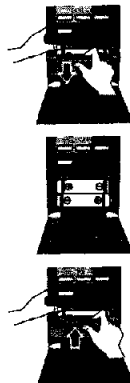
- Slide the cover according to the arrow direction.

- 2 Insert the two batteries.

- Be sure that the (+) and (-) directions are correct.
- Be sure that both batteries are new.

- 3 Re-attach the cover.

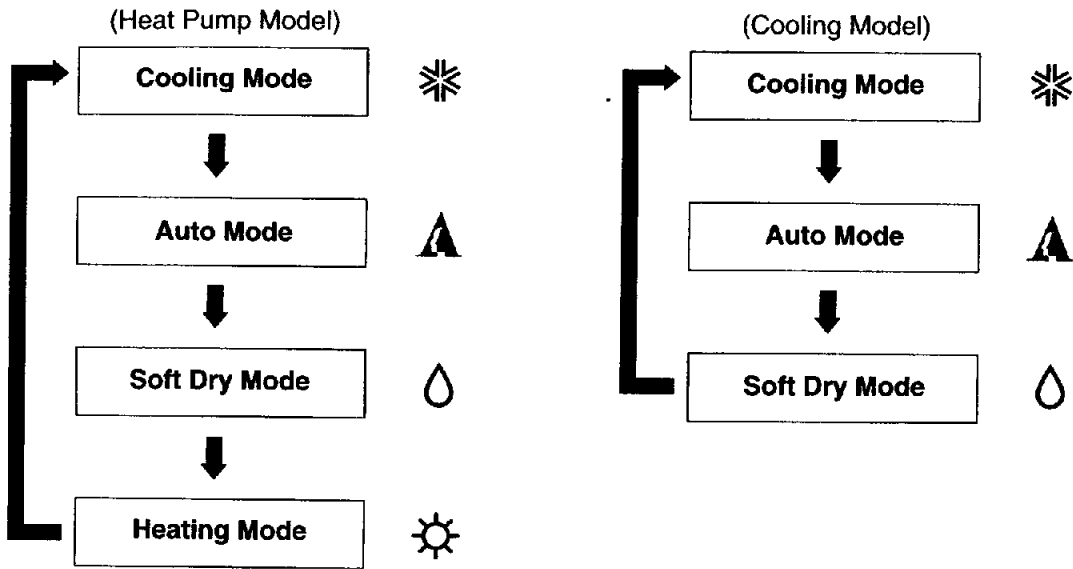
- Slide it back into position.



- Do not use rechargeable batteries, such batteries differ from standard dry cells in shape, dimensions, and performance.
- Remove the batteries from the remote controller if the air conditioner is not going to be used for some long time.
- Batteries for the remote controller are type "AAA".

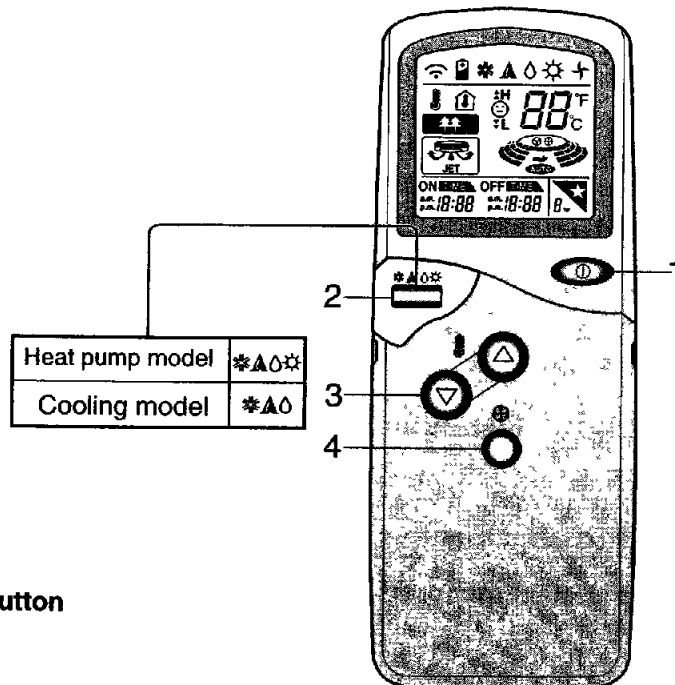
AIR CONDITIONER OPERATION

(1) Operation Mode



(2) Operation Procedure

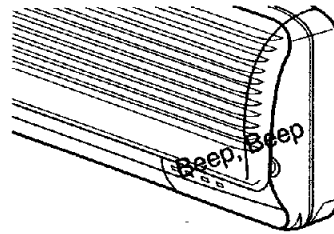
- 1st** Start/Stop Button
- 2nd** Operation Mode Selection Button
- 3rd** Room Temperature Setting Button
- 4th** Indoor Fan Speed Selection Button



1 Cooling Operation Mode

(① LED lamp ON)

1 Press the Start/Stop Button.

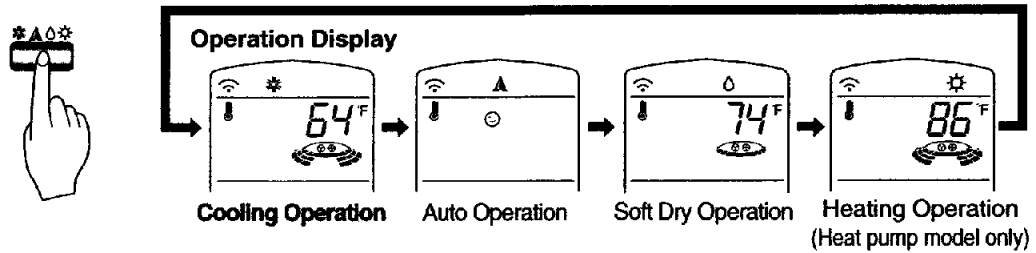


- Two short beeps will sound and the operation lamp will light up.

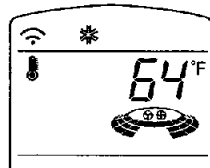
2 Select Cooling Operation.

Press the Operation Mode Selection Button.

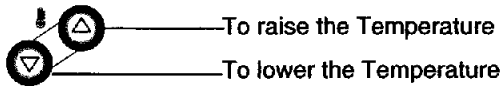
Each time the button is pressed, the operation mode is shifted in the arrow direction.



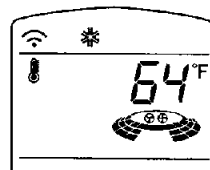
3 Set the temperature lower than the room temperature.



- The temperature can be set within a range of 64°F~86°F by 2°F.



4 Set the fan speed.



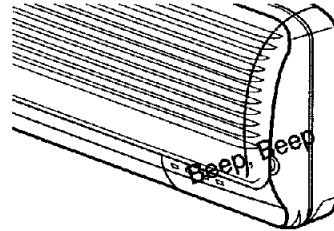
- Select the fan speed in four steps -low, medium, high, AUTO.
- The display shows high fan speed.

- Each time the button is pressed, the fan speed mode is shifted.

2 Auto Operation Mode

(① LED lamp ON)

1 Press the Start/Stop Button.



- Two short beeps will sound and the operation lamp will light up.

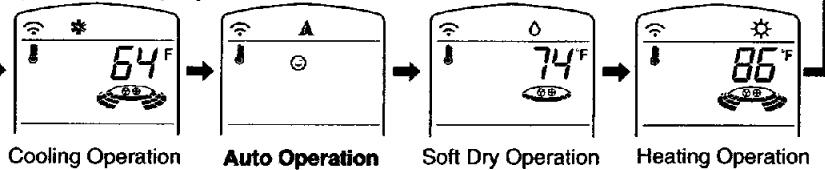
2 Select Auto Operation.

Press the Operation Mode Selection Button.

Each time the button is pressed, operation mode is shifted in the arrow direction.



Operation Display



Cooling Operation

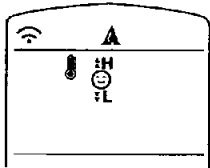
Auto Operation

Soft Dry Operation

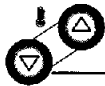
Heating Operation

(Heat pump model only)

3 Set the temperature.



- Operation mode, set temperature and fan speed are automatically set by the electronic controls based on the room temperature.
- If you want to change the set temperature, press room temperature setting button.
- The cooler or warmer you feel, the more times (up to two times) you press the button.
- Then the set temperature will be changed automatically by micom control.



To raise the Temperature. (When you feel too cool or cold)

To lower the Temperature. (When you feel too warm or hot)

4 During Auto Operation.

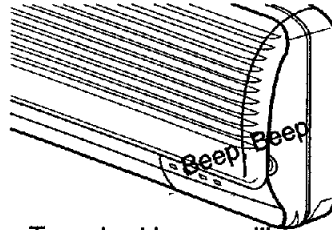
- It is impossible to switch the indoor fan speed during Auto Operation because of being already set to the best position by the electronic control.
- If the room air conditioner is not operating as desired, switch to cooling mode or other mode.
- During Auto Operation, pressing the Air-flow direction control button makes vertical louver swings up and down automatically. If you want to stop auto-swing, press the Airflow Direction Control Button again.

③ Soft Dry Operation Mode

This mode dehumidifies without overcooling.

(① LED lamp ON)

1 Press the Start/Stop Button.



- Two short beeps will sound and the operation lamp will light up.

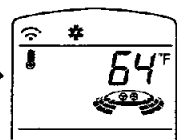
2 Select Soft Dry Operation.

Press the operation Mode Selection Button.

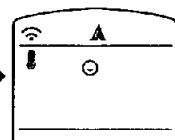
Each time the button is pressed, the operation mode is shifted in the arrow direction.



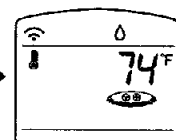
Operation Display



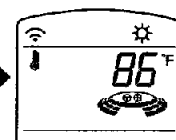
Cooling Operation



Auto Operation

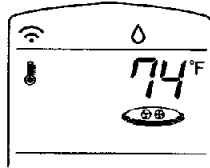


Soft Dry Operation

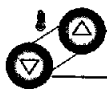


Heating Operation
(Heat pump model only)

3 Set the Temperature lower than the room temperature.



- The temperature can be set within a range of 64°F~86°F by 2°F.



To raise the Temperature

To lower the Temperature

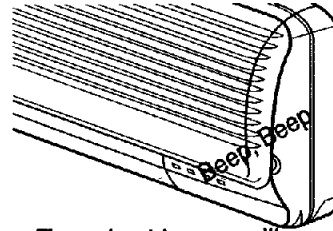
4 During Dry Operation

- The indoor fan speed is automatically set to the low, and cannot be adjusted during Dry Operation by Micom Control.
- The indoor fan may stop during this operation if the electronic control determines over-cooling may occur.

4 Heating Operation Mode (Heat pump model only)

(① LED lamp ON)

1 Press the Start/Stop Button.

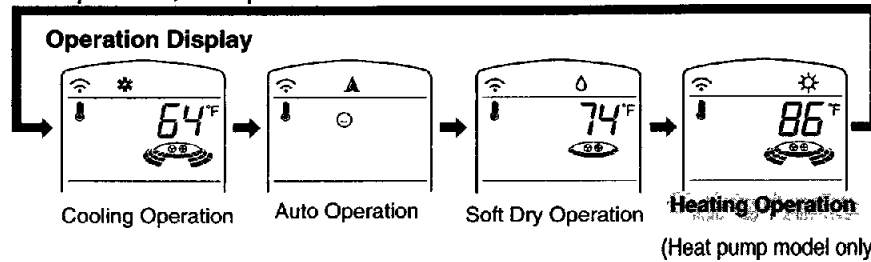


- Two short beeps will sound and the operation lamp will light up.

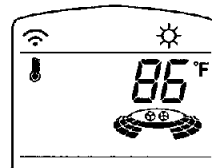
2 Select Heating Operation.

Press the Operation Mode Selection Button.

Each time the button is pressed, the operation mode is shifted in the arrow direction.



3 Set the temperature.



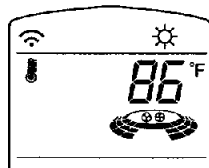
- The temperature can be set within a range of 60°F~86°F by 2°F.



To raise the Temperature

To lower the Temperature

4 Set the fan speed.



- Select the fan speed in four steps -low, medium, high, AUTO.
- The display shows high fan speed.

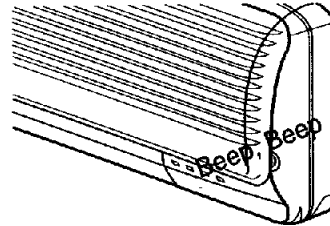
- Each time the button is pressed, the fan speed mode is shifted.

5 Air Circulation Mode

This mode is used to circulate room air without cooling or heating.

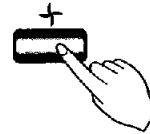
(① LED lamp ON)

1 Press the Start/Stop Button.

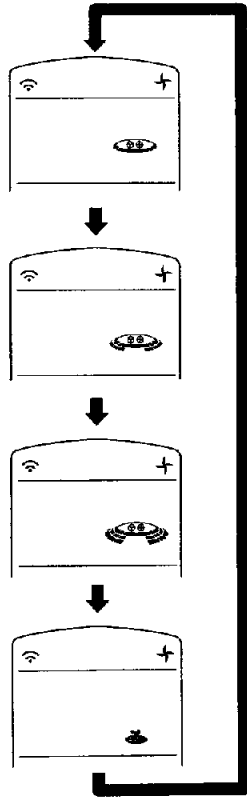


• Two short beeps will sound and the operation lamp will light up.

2 Press Air Circulation Button.



3 Each time Indoor Fan Speed Selector is pressed, the fan speed mode is shifted in the arrow direction.



• Fan speed is low.

• Fan speed is medium.

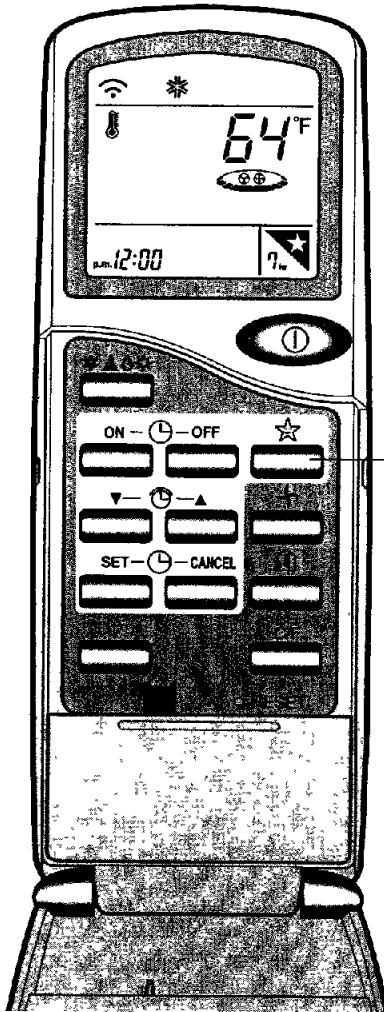
• Fan speed is high.

• Auto Air: Fan speed is automatically changed from medium to low speed, or viceversa, depending on the ambient temperature.

(3) Sleep Mode Auto - Control Setting

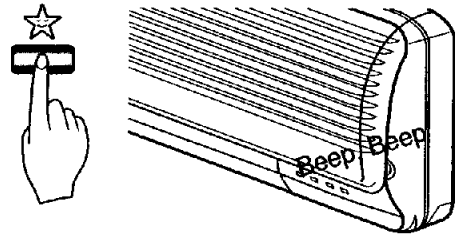
(☆ LED lamp ON)

Remote Controller



- The Sleep Mode will be operated at a low fan speed(Cooling) or a med. fan speed(Heating) for quiet sleeping.

Press the Sleep Mode Auto Button.



1. Press the Sleep Mode Auto Button and set the time to turn off.
2. Check the Sleep Mode Auto LED of the room air conditioner lights up.
3. The Timer is programmed by 1 hour each pressing the sleep mode auto button from 1 hour to 7 hours.

In Cooling mode

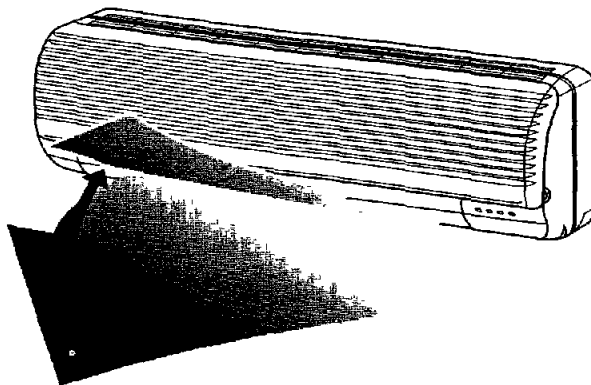
- The setting temperature will be automatically raised by 2°F 30 minutes later and by 4°F 1 hour later for comfortable sleeping.
- In order to cancel the Sleep Mode, press the button several times until star pictograph on the operation display disappears.

(4) Airflow Direction Procedure

1 Vertical Airflow Direction Control

Airflow Direction Control

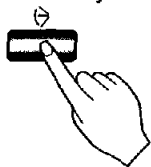
The airflow direction can be adjusted as desired by using the remote controller.



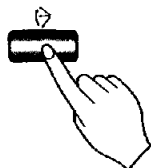
- 1** Press the Start/Stop Button.
(Confirm the unit on operation.)



- 2** Press the Airflow Direction Control Button and the vertical louvers swing up and down automatically.



- 3** Press again the Airflow Direction Control Button to set the vertical louver at the desired airflow direction.

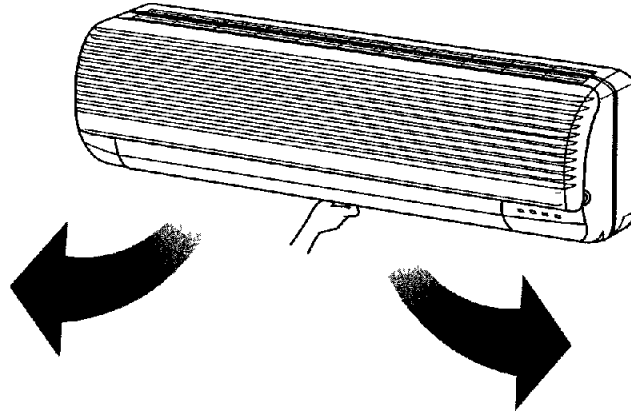


Caution

- Always use the remote controller to adjust the airflow direction. Manually moving the vertical airflow direction louver by hand could cause operation errors.
- When air conditioner operation is stopped, the vertical airflow direction louver will close the air outlet vent of room air conditioner.

2 Horizontal Airflow Direction Control

- Adjust the horizontal airflow direction by manually moving the horizontal airflow direction louver by hand.



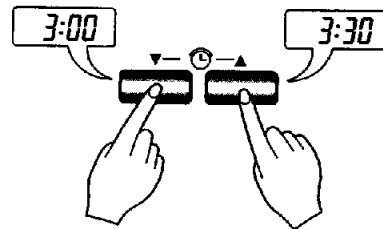
(5) Setting the Present Time

The present time can be set only when pressing the reset button or when replacing batteries for the remote controller.

- 1** Press the Start/Stop Button after pressing the RESET Button or changing batteries for Remote Controller.



- 2** Press the Time Setting Button until being set the desired time.



- 3** Press the Time SET Button.



NOTE : Check a.m. and p.m. Indicator in setting time.

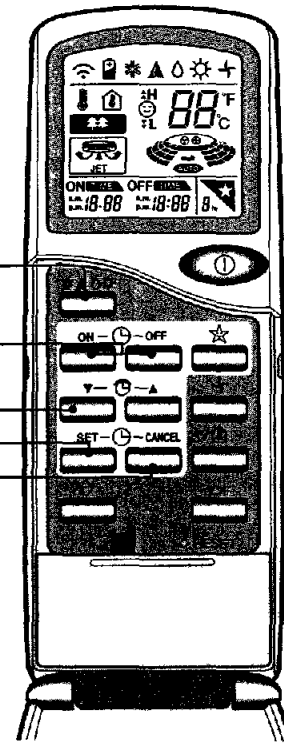
(6) Timer Setting

(Ⓛ LED lamp ON)

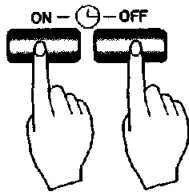
Remote Controller

- 1 ON Timer Button or OFF Timer Button
- 2 Time Setting Button
- 3 Timer SET Button
- 4 Timer CANCEL Button

Heating	*A0*
Cooling	*A0

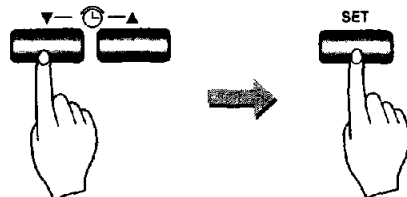


- 1 Press the ON Timer Button or OFF Timer Button.



The timer setting will be displayed.

- 2 Change the Timer Setting and press the Timer Set Button.



To cancel the settings

Press the Timer Cancel button.



(The timer lamp on the air conditioner and the display will go out.)

If the settings are cancelled by a power failure.

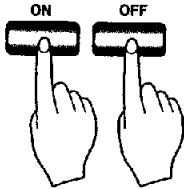
Press the Start/Stop Button, and then set the timer again as desired time according to Timer Setting Procedure.

Timer Setting Procedure

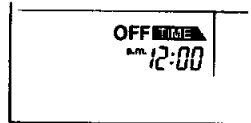
1 Confirm the present time. (Refer to page 17)

2 Press ON Timer Button or OFF Timer Button.

• Select one of the following four types of operation.



Delay
OFF Timer



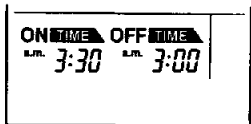
Operation stops at OFF Timer Setting.

Delay
ON Timer



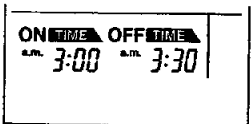
Operation starts at ON Timer Setting.

Delay OFF
and ON Timer



Operation stops at OFF Timer Setting and starts at ON Timer Setting.

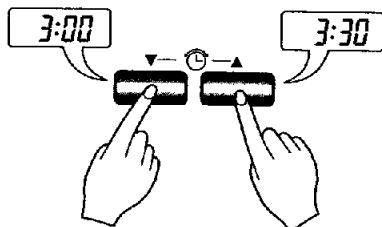
Delay ON
and OFF Timer



Operation starts at ON Timer Setting and stops at OFF Timer Setting.

NOTE : Check a.m. and p.m. indicator in setting time.

3 Press the Time Setting Button until being set the desired time.



4 Set the Timer SET Button.

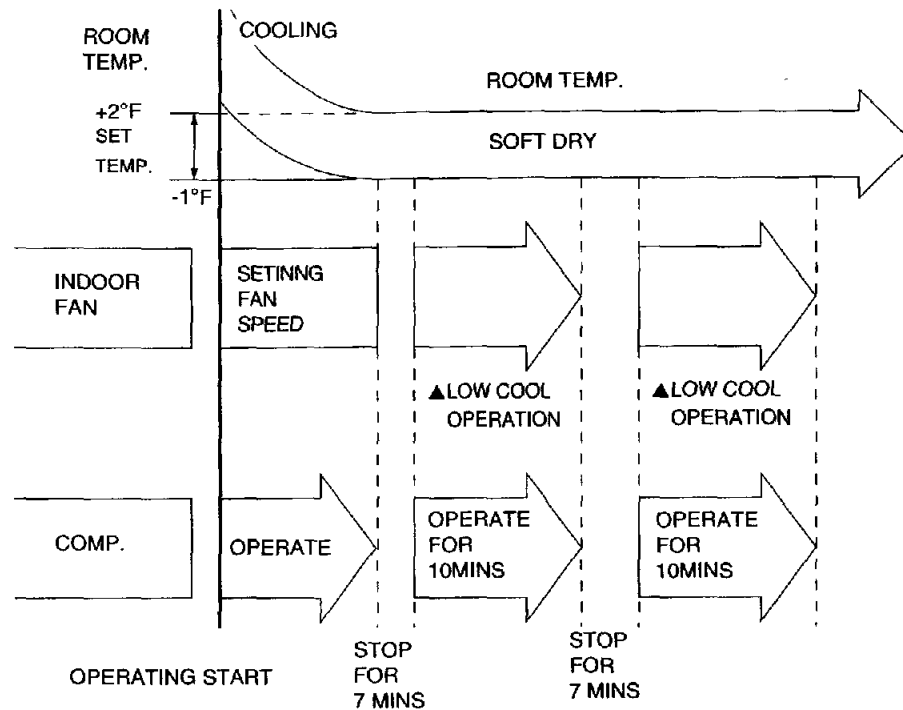


(7) Operation Details

• Soft Dry Operation Mode

When the room temperature is higher than the setting temperature, it operates the cooling mode as the temperature setting, the fan speed setting (if AUTO mode, then med.), and then it will be switched to Soft Dry Operation Mode when the room temperature reaches the temperature setting.

In Soft Dry Operation Mode, the indoor fan speed is automatically switched to the low.



• Auto Air

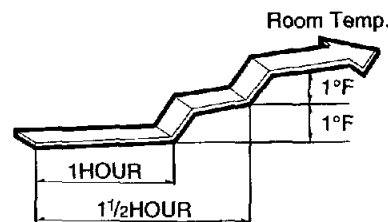
For fresh cooling more than other modes.

Press the Indoor Fan Speed Selector and set to Auto Air mode.

The fan blows from medium to low speed, or reversely by the room temperature.

The temperature setting goes up by time automatically.

This mode economizes power consumption and prevents over-cooling (below Fig).



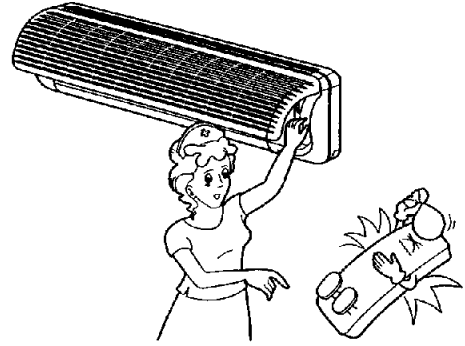
AUTO AIR MODE OPERATION

FORCED OPERATION

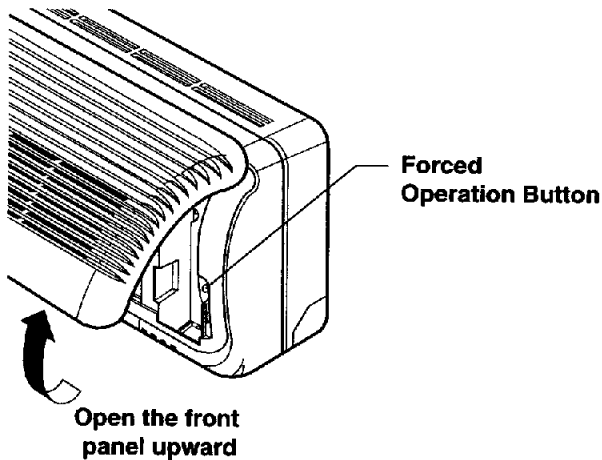
Operation procedures when the remote controller can't be used.

Open the front panel upward and press the Forced Operation Button.

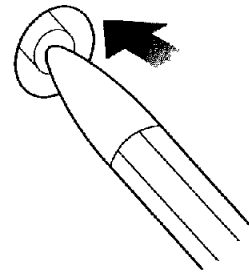
If you want to stop operation, press again. During Forced operation, the operating conditions are automatically set as follows:



	Cooling only Model	Heat pump Model		
		Room Temp $\geq 76^{\circ}\text{F}$	$70^{\circ}\text{F} < \text{Room Temp} \leq 76^{\circ}\text{F}$	Room Temp $< 70^{\circ}\text{F}$
Operating mode	Cooling	Cooling	Soft Dry	Heating
Indoor Fan Speed	High	High	Soft Dry Rule	High
Setting Temp.	72°F	72°F	Air Intake Temperature	76°F



Press the Forced Operation Button.



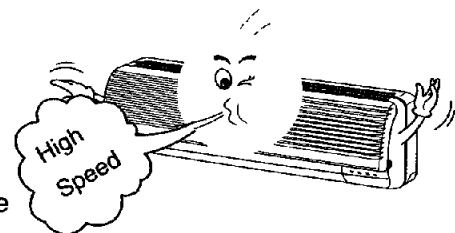
• Press the Forced Operation Button once again to stop operation.

Helpful information

Airflow speed and cooling capacity

The cooling capacity indicated in the specification is the value when the fan speed is set to high, and the capacity will be lower at low or medium fan speed.

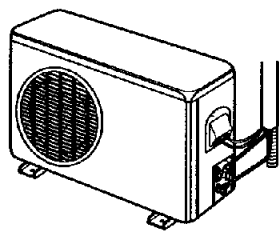
High fan speed is recommended when you wish to cool the room quickly.



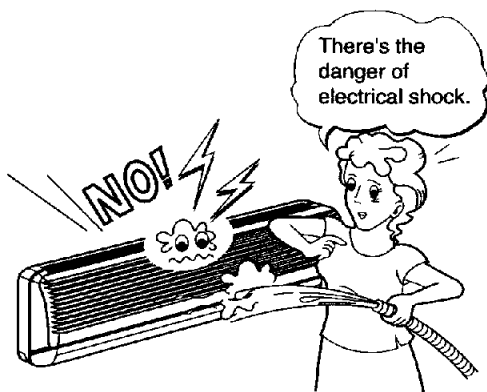
CARE AND MAINTENANCE

Before performing any maintenance procedure

Turn off Main Power.



Don't wash with water indiscriminately or improperly as shown, below.



Never use any of the followings:

- Water hotter than 104°F.

Could cause deformation and/or discoloration.

- Volatile substances.

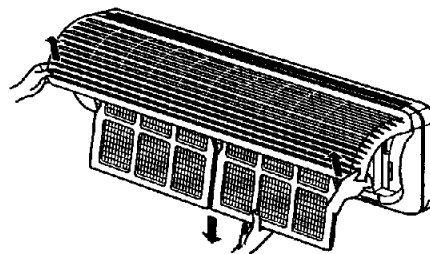
Could damage the surfaces of the air conditioner.



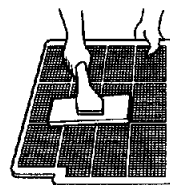
During the season

Cleaning of the air filters.
Recommended about once every two weeks.

- 1** Remove the Air filters.
Take hold of the tab and pull slightly forward to remove the filter.



- 2** Clean.
 - To remove the dust adhered to the filters, either use a vacuum cleaner, or wash them in water and dry in the shade.
 - Re-insert the filter into the original position.



If the Air Filters become damaged.

- Purchase new filters from your air conditioner dealer.

Cleaning of the air conditioner and the remote controller.

- Wipe with a soft, dry cloth.



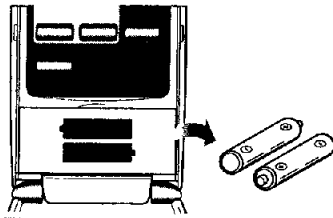
At the end of the season

- 1 Operate the air conditioner at the following settings for 2 to 3 hours.

- Type of operation : Air circulation mode. (refer to page 14)

This will dry out the internal mechanisms.

- 2 Remove the batteries from the Remote Controller.

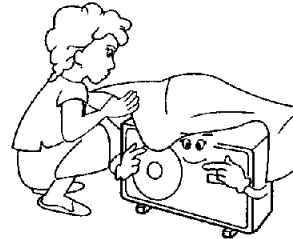


- 3 Cover the outdoor unit with a protective cover.

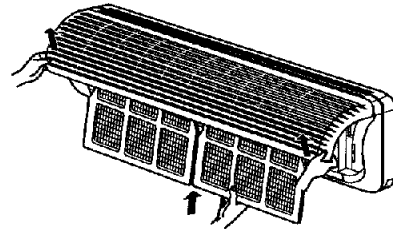


At the start of the season

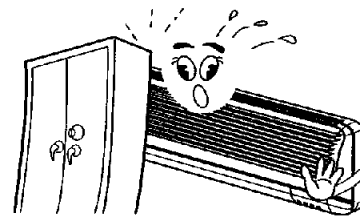
- 1 Remove a protective cover from the outdoor unit.



- 2 Clean the air filters, re-insert them, and operate the air conditioner.



- 3 Be sure that nothing obstructs the air outlet and intake vents.



Helpful information

The air filters and your electric bill.

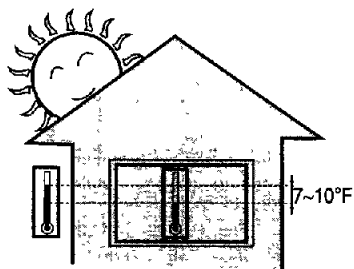
If the air filters become clogged with dust, the cooling capacity will drop, and 6% of the electricity used to operate the air conditioner will be wasted.



OPERATION TIPS

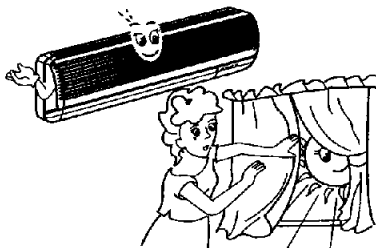
Do not overcool the room.

This will reduce comfort and may affect your health, it also wastes electricity.



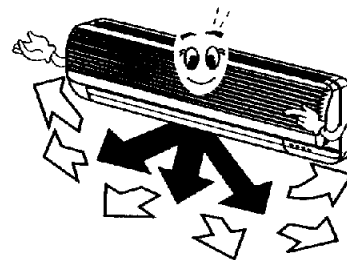
Keep blinds or curtains closed.

Do not let direct sunshine enter the room when the air conditioner is in operation.



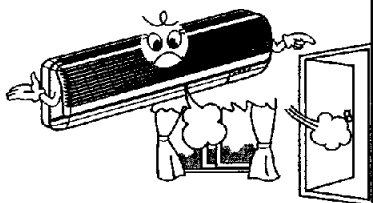
Keep the room temperature uniform.

Adjust the vertical and horizontal airflow direction to ensure a uniform temperature in the room.



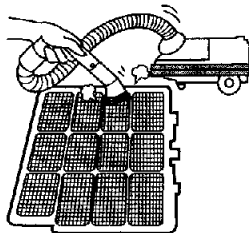
Make sure that the doors and windows are shut tight.

Avoid opening doors and windows as much as possible to keep the cool air in the room.



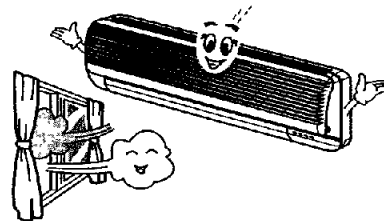
Clean the air filter regularly.

Blockages in the air filter reduce the airflow and lower cooling and dehumidifying effects. Clean at least once every two weeks.



Ventilate the room occasionally.

Since windows are kept closed, it is a good idea to open them and ventilate the room now and then.



BEFORE CALLING FOR SERVICE

Check the following points before requesting repairs or service.... If the malfunction persists, please contact your dealer.

Faults	Cause
Does not operate.	<ul style="list-style-type: none"> • Has the fuse blown or has the circuit breaker been tripped? • Have you made a mistake in timer operation?
Does not cool or heat effectively.	<ul style="list-style-type: none"> • Is the air filter dirty? See air filter cleaning instructions. • The room may have been very hot when the room air conditioner was first turned on. Allow time for it to cool down. • Has the temperature been set incorrectly? • Are the indoor unit's air inlet or outlet vents obstructed?
The room has a peculiar odor.	<ul style="list-style-type: none"> • Check that this is not a damp smell exuded by the walls, carpet, furniture or cloth items in the room.
The air conditioner operation is noisy.	<ul style="list-style-type: none"> • For a noise that sounds like water flowing. -This is the sound of refrigerant flowing inside the air conditioner unit. • For a noise that sounds like the compressed air releasing into atmosphere. -This is the sound of the dehumidifying water being processed inside the air conditioning unit.
It seems that condensation is leaking from the air conditioner.	<ul style="list-style-type: none"> • Condensation occurs when the airflow from the air conditioner cools the warm room air.
Air conditioner does not operate for about 3 minutes when restarted.	<ul style="list-style-type: none"> • This is a protective of the mechanism. • Wait about three minutes and operation will begin.
Remote controller display is faint, or no display at all.	<ul style="list-style-type: none"> • Are the batteries depleted? • Are the batteries inserted in the opposite (+) and (-) directions?

This is not malfunction

You may hear a "Tig" "Tig" sound, when starting or stopping the air conditioner.

This sound is generated by the expansion/constriction of the front panel, etc. due to changes of temperature.

