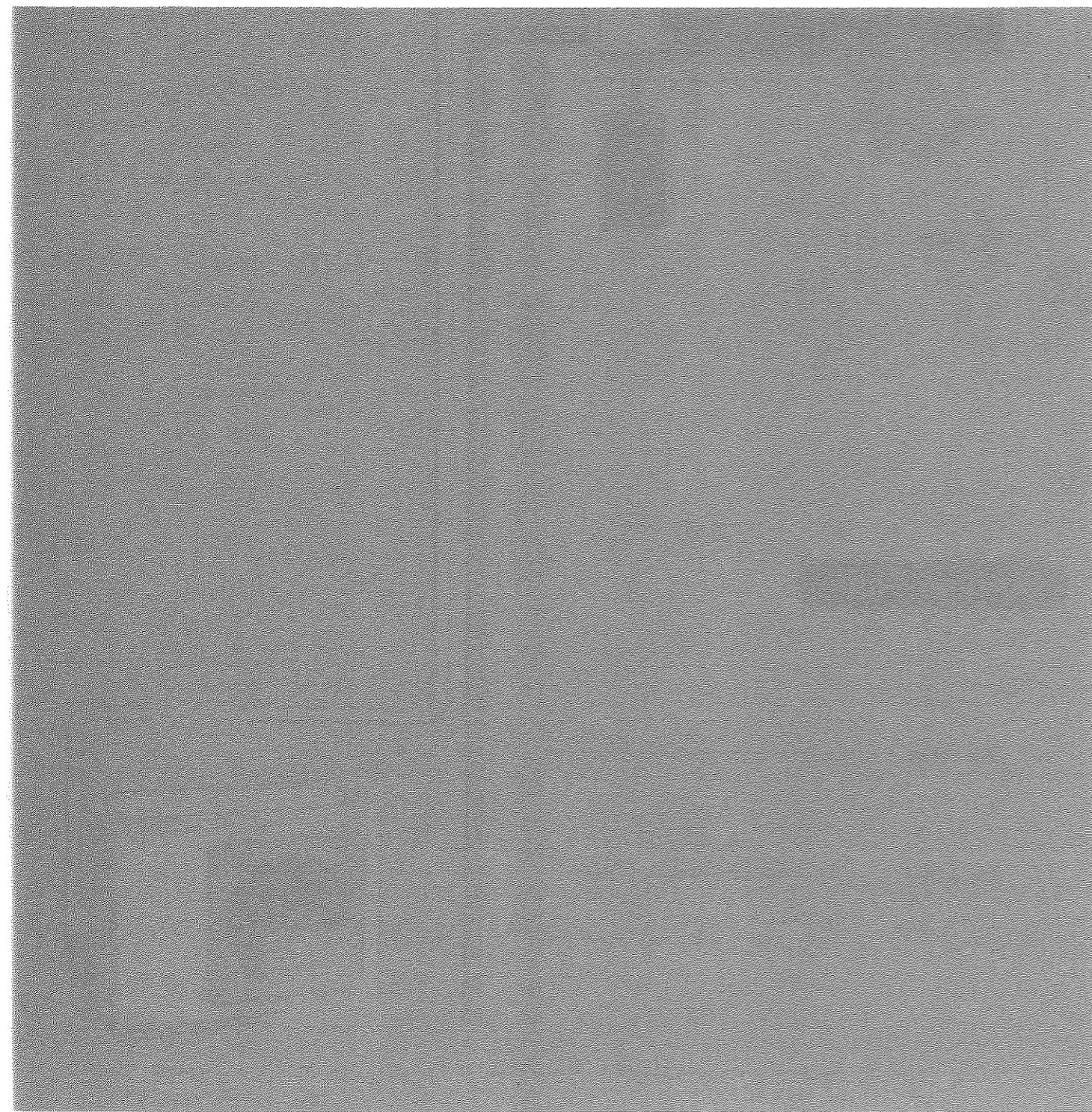


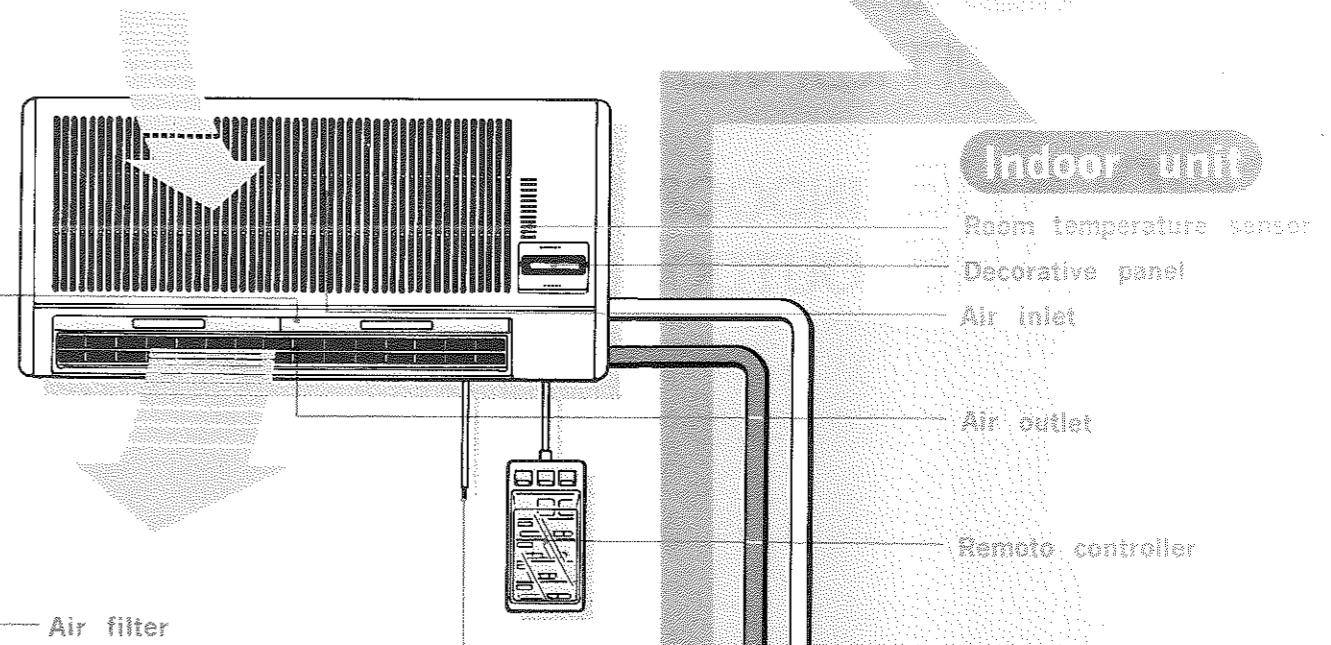
TOSHIBA

AIR CONDITIONER
SPLIT

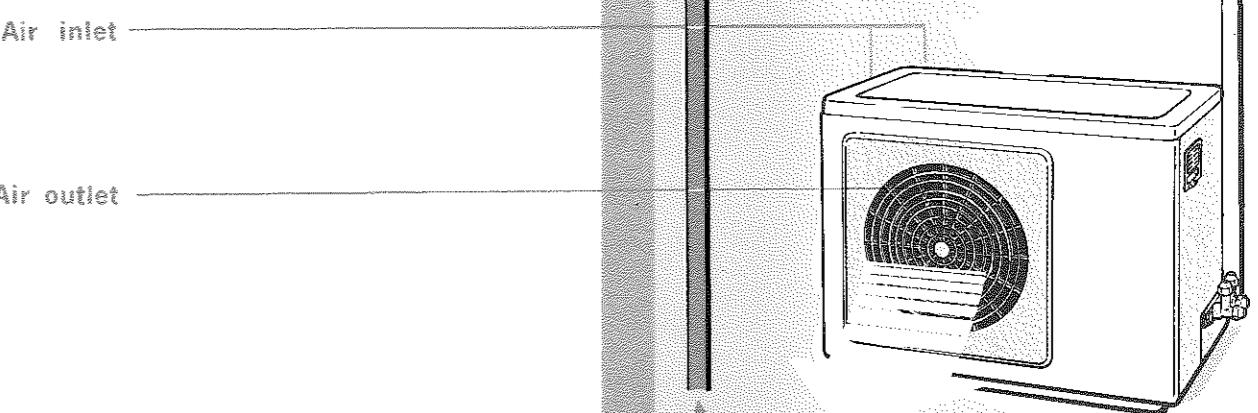
RAS-20LKHE INDOOR UNIT
RAS-20LAHE OUTDOOR UNIT



PARTS NAME



Outdoor unit



CONTROLS AND THEIR FUNCTIONS.

NORMAL operation

When this button is pushed the air conditioner will start running, and lamp will ignite. When pushed again, the lamp will go out and air conditioner will stop.

DEFROST lamp

This lamp will ignite during defrost operation or in the initial stage of heating operation.

TIMER knob.

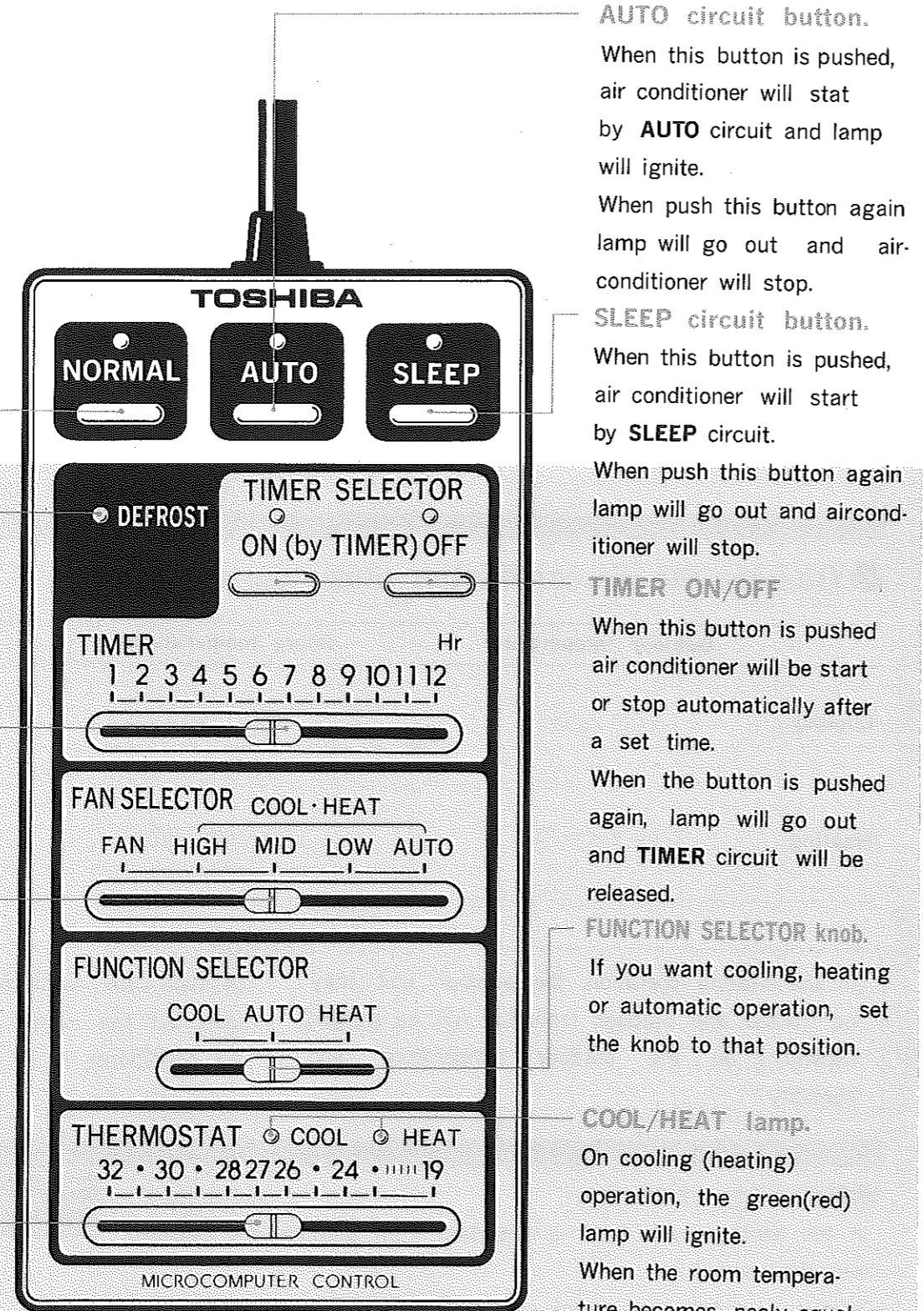
This knob is used to set the time of timer on or off.

FAN SELECTOR knob

Fan speed is selected by this knob. At a **AUTO** position the fan will run at a high, medium or low speed as selected automatically to meet the room temperature.

THERMOSTAT knob.

Room temperature is controlled by this knob.



AUTO circuit button.

When this button is pushed, air conditioner will start by **AUTO** circuit and lamp will ignite.

When push this button again lamp will go out and air-conditioner will stop.

SLEEP circuit button.

When this button is pushed, air conditioner will start by **SLEEP** circuit.

When push this button again lamp will go out and airconditioner will stop.

TIMER ON/OFF

When this button is pushed air conditioner will be start or stop automatically after a set time.

When the button is pushed again, lamp will go out and **TIMER** circuit will be released.

FUNCTION SELECTOR knob.

If you want cooling, heating or automatic operation, set the knob to that position.

COOL/HEAT lamp.

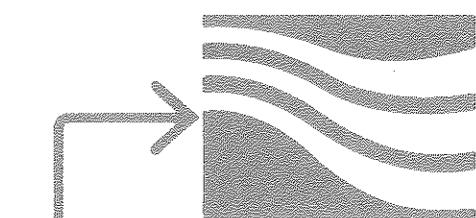
On cooling (heating) operation, the green(red) lamp will ignite.

When the room temperature becomes nealy equal to setting temperature by a thermostat, the lamp will automatically go out.

OPERATING SEQUENCE AND MODES OF OPERATION

This air conditioner is equipped with microcomputer for automatic controll, convenience and comfort.

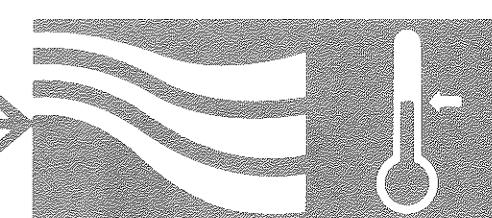
You can get the operation only touch the desired button.



NORMAL operation.

Ordinary cooling or heating operation is carried out.

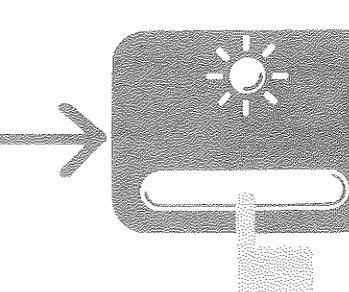
(See page 6)



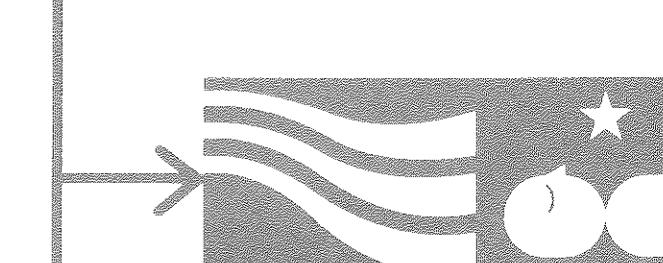
AUTOMATIC circuit operation.

After 5 hours of running, your air conditioner is automatically stop.

(See page 7)



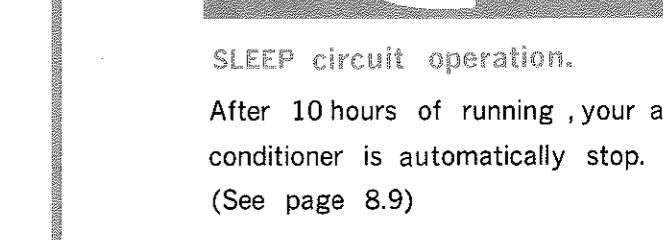
Push the desired button.



SLEEP circuit operation.

After 10 hours of running ,your air conditioner is automatically stop.

(See page 8.9)



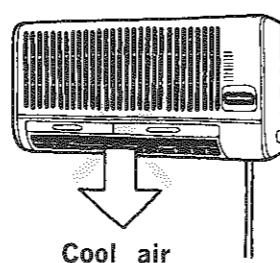
TIMER operation.

Air conditioner will be start (Timer on) or stop (Timer off) after passing the setting time.

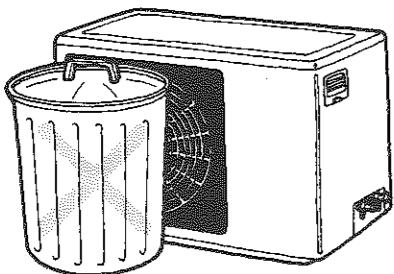
(See page 10~13)

PRECAUTIONS FOR PROPER USE OF AIR CONDITIONER

- Never use the plug as a switch.



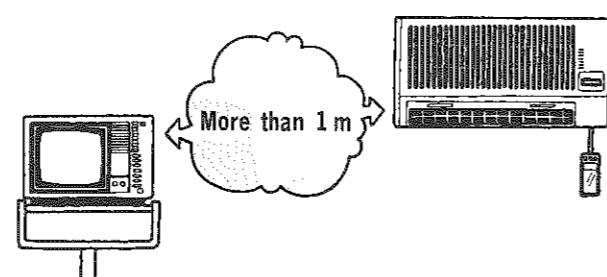
- Be sure to change the air flowing direction by turning the rotary grille as required by the cooling or heating direction.



- Never block up the air inlet and outlet of indoor and outdoor unit.



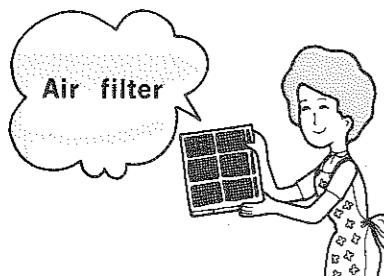
- Never poke a rod into the air inlet or air outlet of the indoor and outdoor unit.



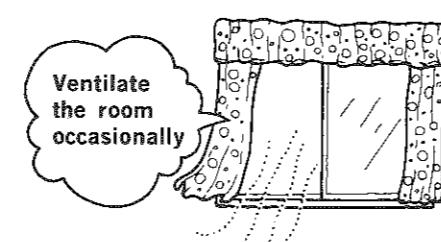
- Air conditioner and remote controller should be separate from TV sets and radio receiver more than 1 m.



- Be sure to keep the room temperature comfortably, especially using for the handicapped, nursing baby, small child, the old, or patient.

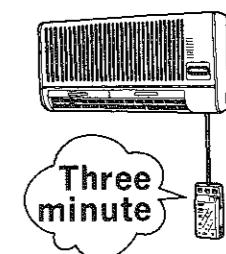
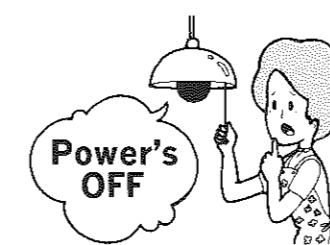


- Be sure to set the air filter in position.



- When running the air conditioner, the room is liable to be kept closed. Ventilate the room with fresh air occasionally.

MINIMUM KNOWLEDGE NECESSARY FOR OPERATION



- When power is off during operation, all the air conditioner functions will be reset automatically. To reset the air conditioner after restoration of the power system, follow all the necessary start up sequence by working the control buttons.

- Wait at least 3 minutes before restarting. The air conditioner is provided with microcomputer-assisted protection for 3 min. When the protection is in action the blower alone will be run, and about 3 min later the cooling or heating operation will be started automatically.
- When the power cord is plugged to the socket, the operation is same to above.

Operate the air conditioner under correct conditions as specified below.

	Outdoor temperature	Room temperature	Room humidity
Cooling	21°C ~ 43°C	21°C ~ 32°C	Less than 80%
Heating	Less than 21°C	Less than 28°C	—

Caution

In the heating operation, the outdoor unit may be frosted and outdoor fanmotor will be stopped, depending on the outdoor temperature and humidity.

In such case, white fog will send up from outdoor unit, but this is not failure.
Air conditioner is in automatic defrosting.

Heating capacity.

In the heating cycle, heat is absorbed from outdoor and released into the room.

That is so-called heat pump system.

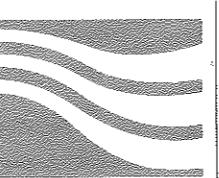
Heating capacity is therefore dependent on the outdoor temperature and right table shows the heating capacity by outdoor temperature.

When the outdoor temperature is too low, you are recommended to use other heating unit in combination with the airconditioner.

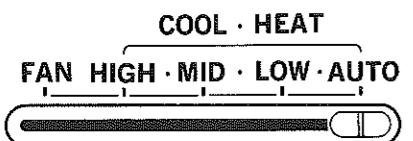
Room temperature	Outdoor temperature	Heating capacity
21°C	10°C	13,000
	7°C	12,000
	0°C	9,840

Heating capacity rating condition.
Roomside 21°C
Outdoor side 7°C

NORMAL OPERATION



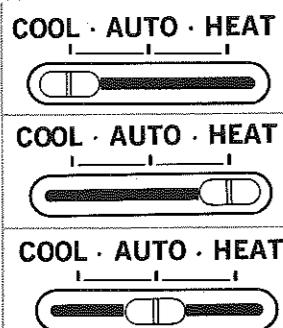
FAN SELECTOR



Set the knob at **AUTO**

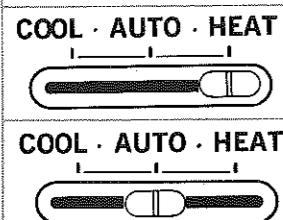
- At **AUTO**, the fan speed will change high, middle, or low speed depending on the room temperature.
- You can get the desired position too.
- If you set the knob to **FAN** position air conditioner will operate only fan.

FUNCTION SELECTOR



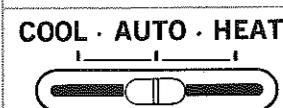
Set the knob at **COOL**.

(In case of cooling operation)
desired.



Set the knob at **HEAT**.

(In case of heating operation)
desired.



Set the knob at **AUTO**.

(In case of cooling or heating
desired depend on room tempe-
rature.)

THERMOSTAT

COOL HEAT

32 • 30 • 28 27 26 • 24 • 19



Set the knob to
desired position.



Push the **NORMAL** button.

The lamp will ignite and air
conditioner will start.



Push the **NORMAL** button
again.

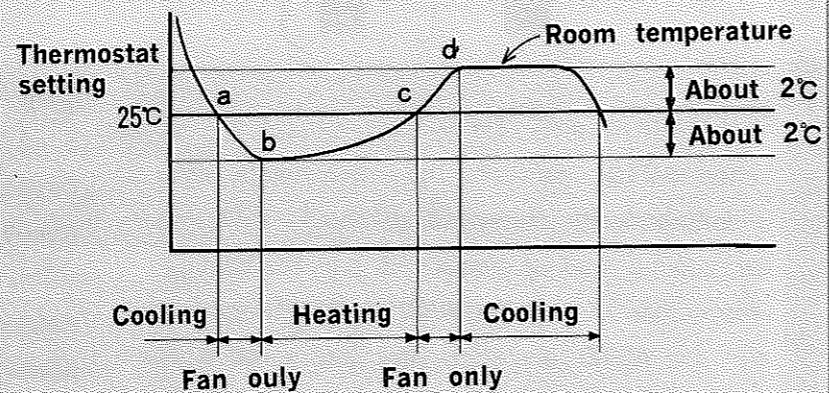
The lamp will go out and air
conditioner will stop.

Automatic change of Cooling and Heating.

Set the thermostat knob at a desired temperature.

The air conditioner will cool or heat the room
automatically depending on the room temperature.

Rightside chart shows the example of operating
sequence.



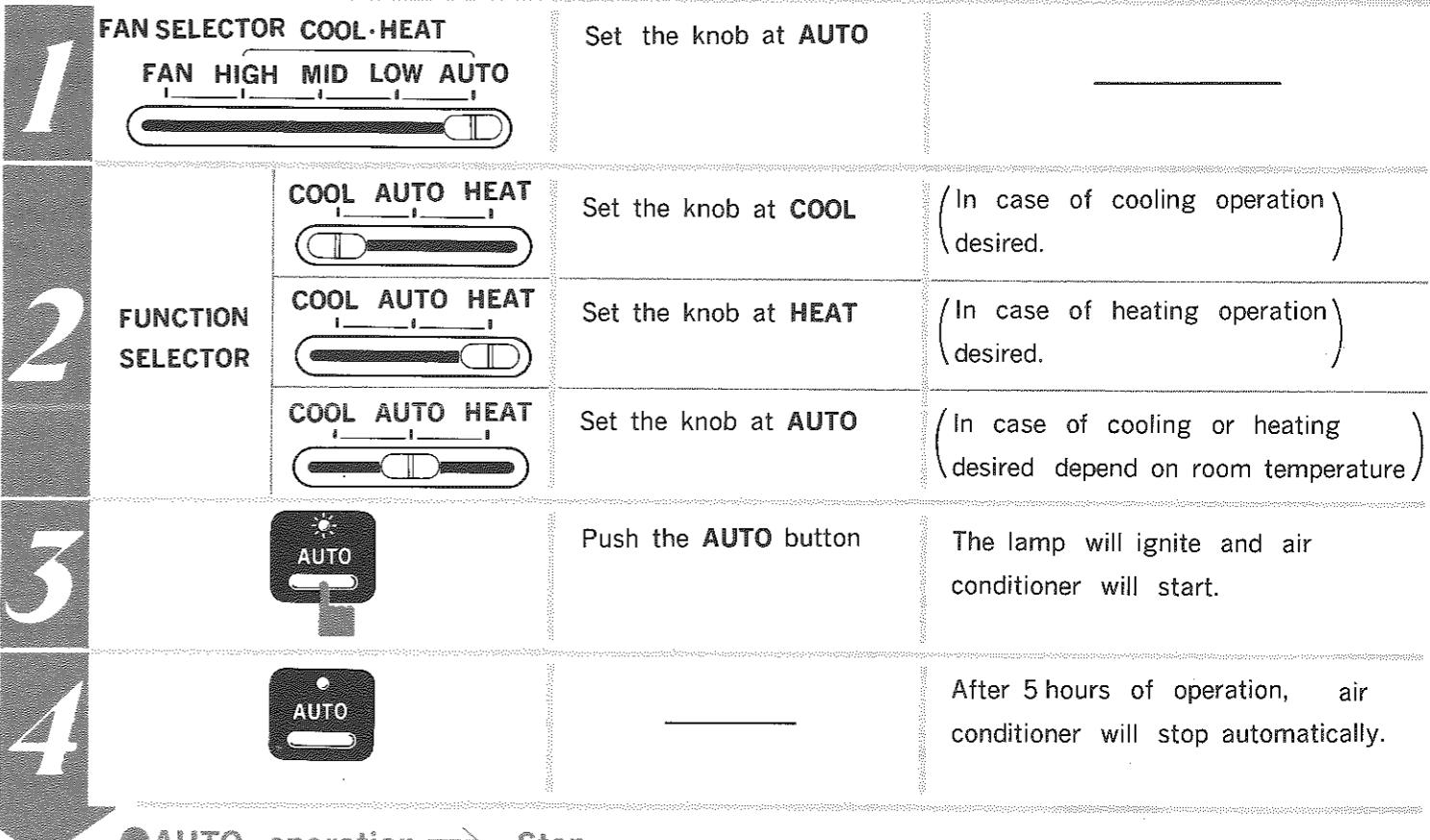
Caution

When the **FUNCTION SELECTOR** knob is at **AUTO**,
the air conditioner may run in the cooling mode
when the room temperature runs up excessively.

If you desire to continue the heating operation,
set the knob at **HEAT** position.



AUTO OPERATION

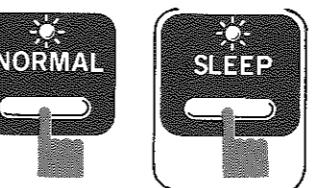


● AUTO operation → Stop



Push the **AUTO** button again.
Lamp will go out and air conditioner will stop.

● AUTO operation → NORMAL (SLEEP) operation.

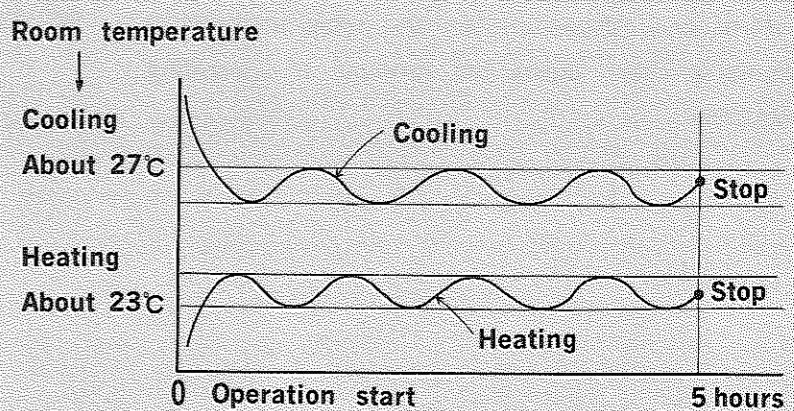


Push the **NORMAL (SLEEP)** button,
AUTO lamp will go out and air conditioner
will be switched to **NORMAL (SLEEP)** operation.

● AUTO operation.

In the **AUTO** operation, the room temperature
is automatically controlled at about 27°C in
the cooling and at about 23°C in the heating
irrespective of the **THERMOSTAT** setting.

● In the **AUTO** operation, the fan speed is
changed automatically High, Mid, or Low
depending on the room temperature.

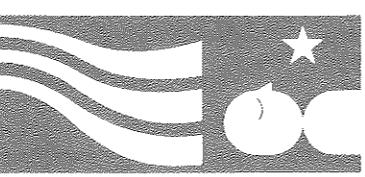


Caution

● **FAN SELECTOR** knob at **FAN** position,
air conditioner runs fan only.
Even if that knob set at **HIGH**, **MID** or

LOW the fan speed will be changed
automatically depending on the room
temperature.

SLEEP OPERATION

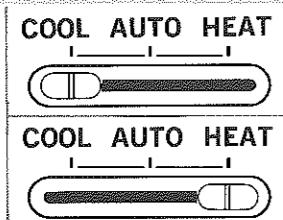


1 FAN SELECTOR COOL·HEAT



Set the knob at **AUTO**

2 FUNCTION SELECTOR



Set the knob at **COOL**

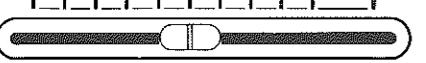
(In case of cooling)
operation desired.

Set the knob at **HEAT**

(In case of heating)
operation desired.

3 THERMOSTAT

○ COOL ○ HEAT
32 • 30 • 28 27 26 • 24 • 19



Set the knob at a
desired room temperature.

4



Push the **SLEEP** button.

The lamp will ignite and
air conditioner will start.

5



After 10 hours (max.) of operation,
air conditioner will stop automatically.

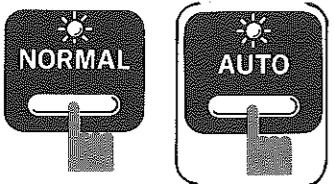
● SLEEP operation → stop



Push the **SLEEP** button again.

Lamp will go out and air conditioner will stop.

● SLEEP operation → NORMAL (AUTO) operation

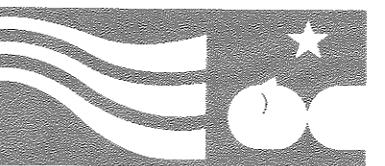


Push the **NORMAL (AUTO)** button.

SLEEP lamp will go out and air conditioner will be switched to
NORMAL (AUTO) operation

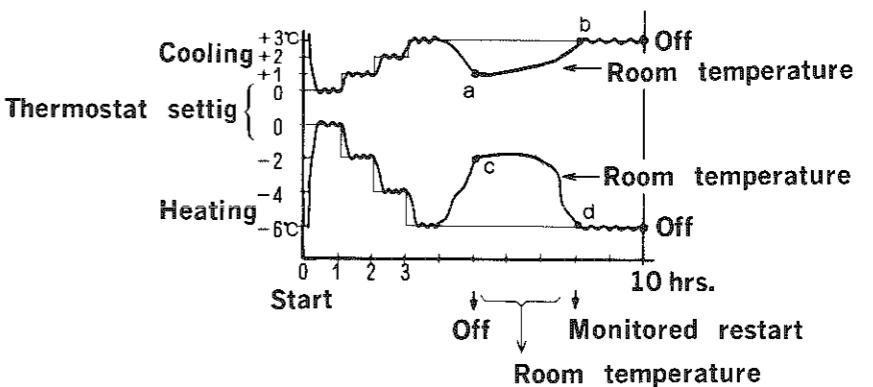
● SLEEP operation.

In the sleep operation, the room temperature control setting is gradually changed from the initial
THERMOSTAT setting in order not to over cool in the cooling or over heat in the heating.



SLEEP OPERATION

- When the **SLEEP** button is pushed, the room temperature control setting is increased automatically at a rate of 1°C an hour if the air conditioner is operated as a cooling : 3 hours later, the room temperature will be increased 3°C above the initial **THERMOSTAT** setting. On the other hand, if the air conditioner is operated as a heating the room temperature control setting is decreased at a rate of 2°C an hour : 3 hours later, the room temperature will be lowered by 6°C as against the initial **THERMOSTAT** setting.

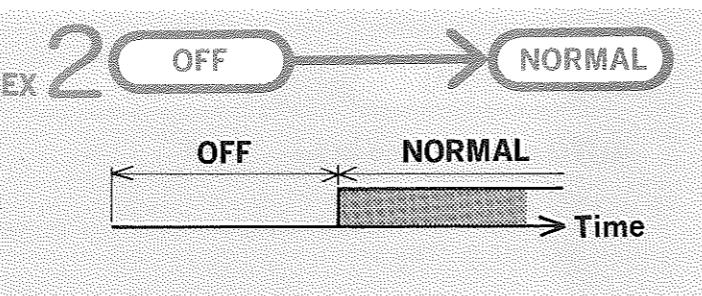
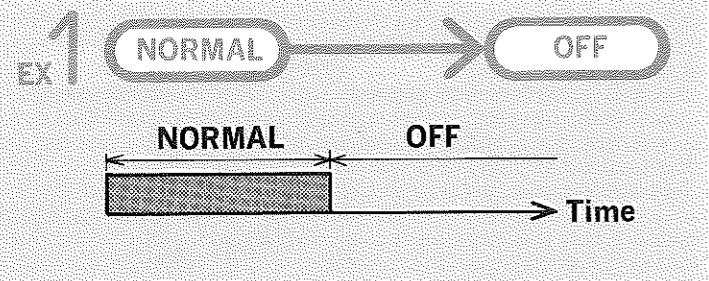


- After 3 hours of cooling, if the room temperature has fallen 2°C from the automatically shifted room temperature setting (point "a" on the diagram), the air conditioner will be stopped automatically. After 3 hours of heating, if the room temperature has risen 4°C above the automatically shifted room temperature setting (point "c" on the diagram), the air conditioner will be stopped automatically. Even after the suspension of the air conditioner, the **SLEEP** circuit will remain active with its lamp on to monitor the room temperature for a maximum of 10 hours after the start. When the room temperature has attained the automatically shifted room temperature setting (point "b" in the cooling and Point "d" in the heating), the air conditioner will be restarted automatically.
- During **SLEEP** operation, the fan speed will be changed to **HIGH**, **MID** or **LOW** automatically depending on the room temperature.

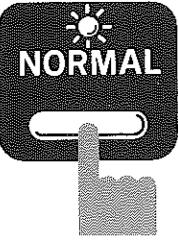
Caution

- In the **SLEEP** operation, be sure to set the **FUNCTION SELECTOR** knob at **COOL** or **HEAT** as desired. If the **FUNCTION SELECTOR** knob is set at **AUTO**, either cooling or heating will be continued without change over of cooling to and from heating operation.
- If the **SLEEP** operation is still in action after you got up, give a push to the **NORMAL** or **AUTO** button to normalize the air conditioner operation.

TIMER OPERATION



Push the **NORMAL** button

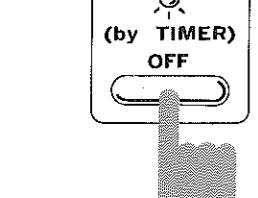


1 **TIMER** Hr

1 2 3 4 5 6 7 8 9 10 11 12



Set the **TIMER** knob at a desired time.



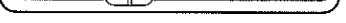
Push the **TIMER OFF** button.

Push the **NORMAL** button

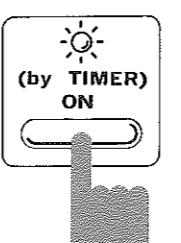


2 **TIMER** Hr

1 2 3 4 5 6 7 8 9 10 11 12



Set the **TIMER** knob at a desired time.



Push the **TIMER ON** button.

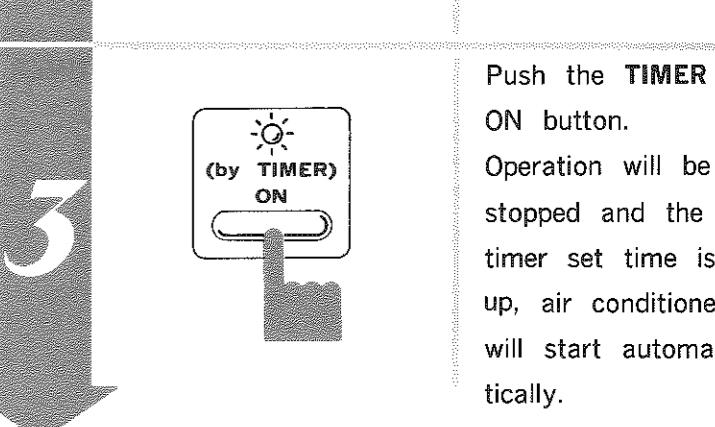
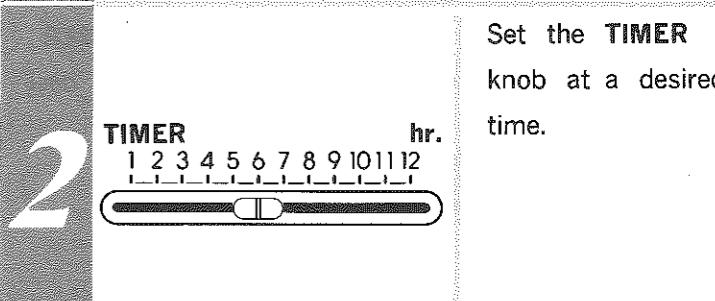
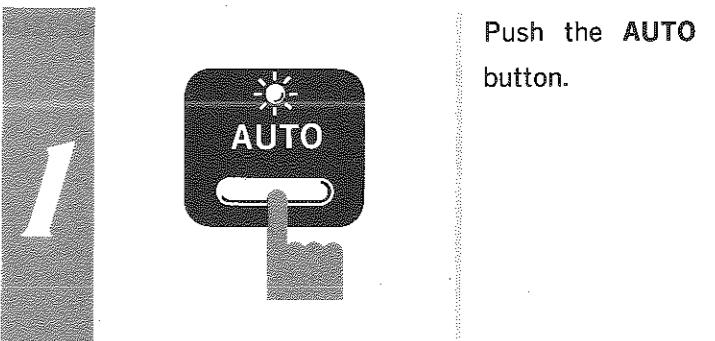
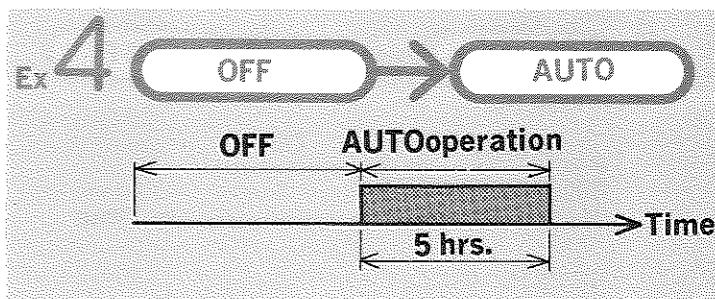
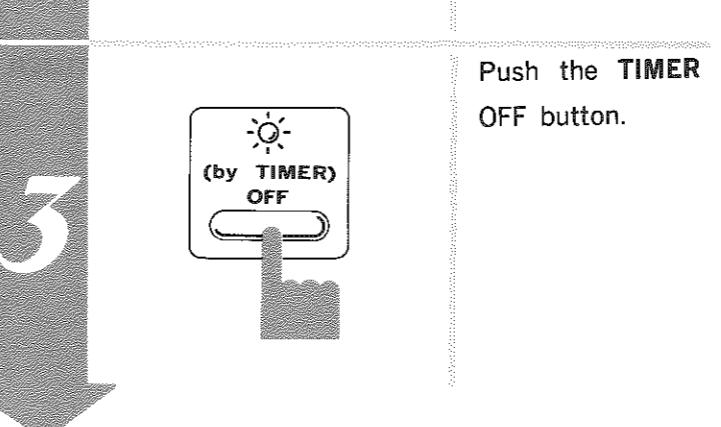
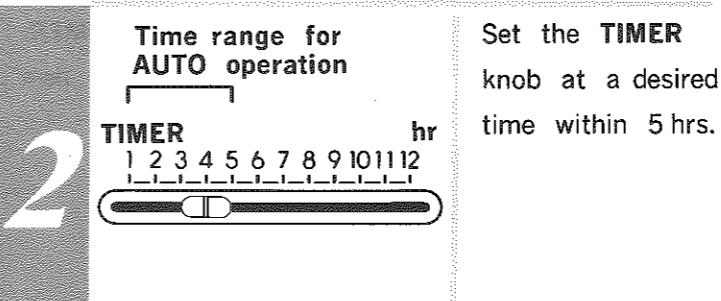
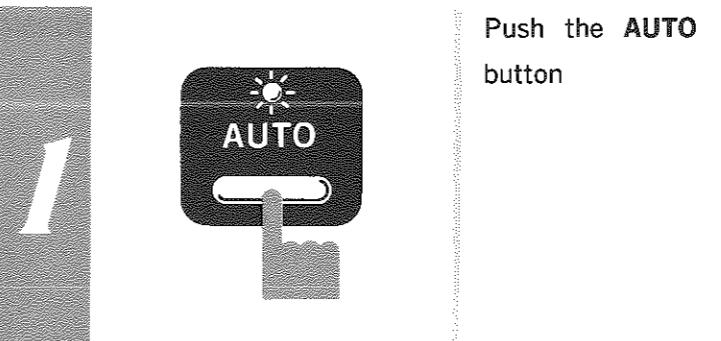
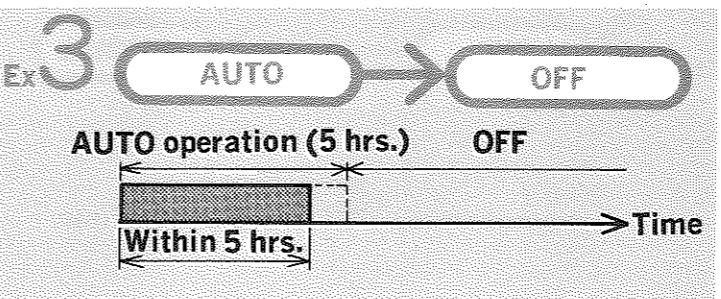


If the **OFF** (**ON**) button is pushed prior to the pressing of the **NORMAL** button, the **AUTO** operation will be started automatically. If the **NORMAL** button is then depressed, the **AUTO** operation will be replaced by the **NORMAL** operation, and the **NORMAL** operation will be stopped (started) at the end of the timer set time.

The timer can be set at an interval of one hour in 12 steps from 1 hour to 12 hours, and not at any intermediate time.



TIMER OPERATION



If the OFF button is pushed prior to the pressing of AUTO button, the AUTO operation will be started automatically. When the timer set time is up, the AUTO operation will be stopped.

In the combination of AUTO operation and timer turn off function, the maximum timer set time is 5 hours.

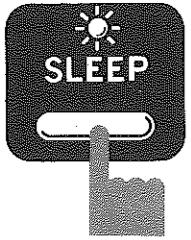
If the ON button is pushed prior to the pressing of the AUTO button, the AUTO operation will be started when the timer set time is up.

TIMER OPERATION



SLEEP operation (10 hrs) OFF

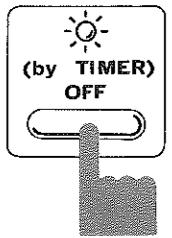
Push the SLEEP button.



Time range for SLEEP operation

TIMER hr
 1 2 3 4 5 6 7 8 9 10 11 12

Push the TIMER OFF button.

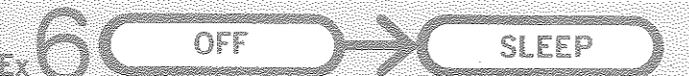


If the OFF button is pushed prior to the pressing of the SLEEP button, the AUTO operation will be started automatically.

But the pressing of the SLEEP button will release the AUTO operation to SLEEP operation, and the air conditioner will start the SLEEP operation.

When the timer set time is up, the SLEEP operation will be stopped.

In the combination of SLEEP operation and timer turn off function, the maximum timer set time is 10 hrs.



OFF SLEEP operation

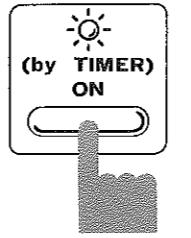
Push the SLEEP button.



Set the TIMER knob at a desired time.

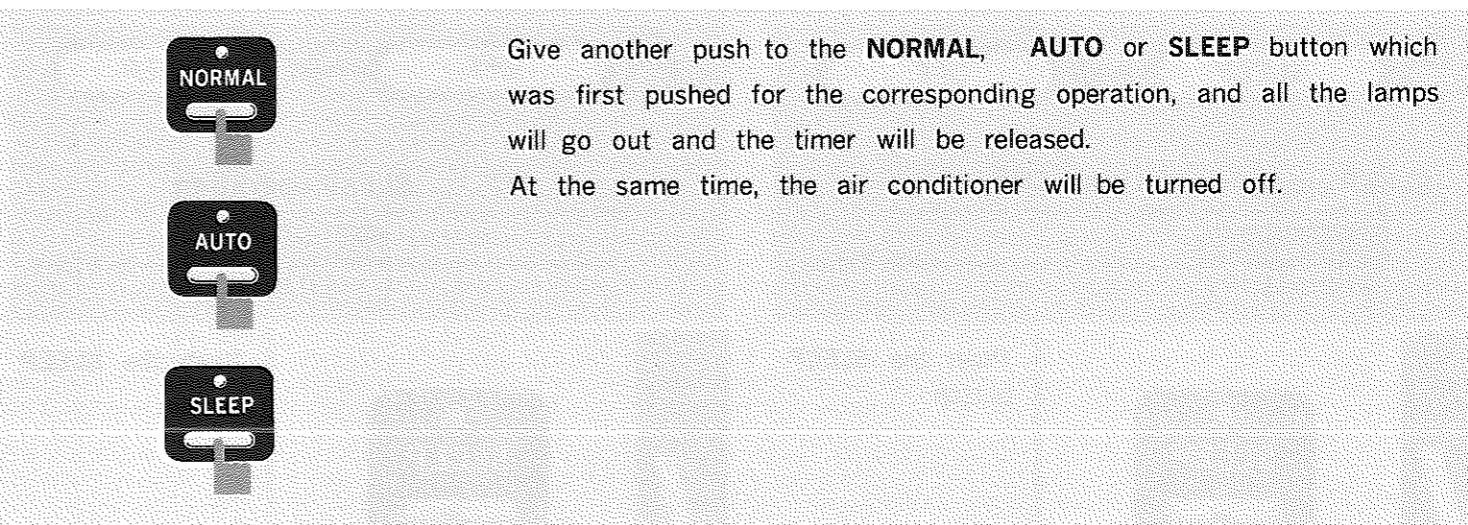
TIMER hr
 1 2 3 4 5 6 7 8 9 10 11 12

Push the TIMER ON button.
 Operation will be stopped and the timer set time is up, air conditioner will start automatically.

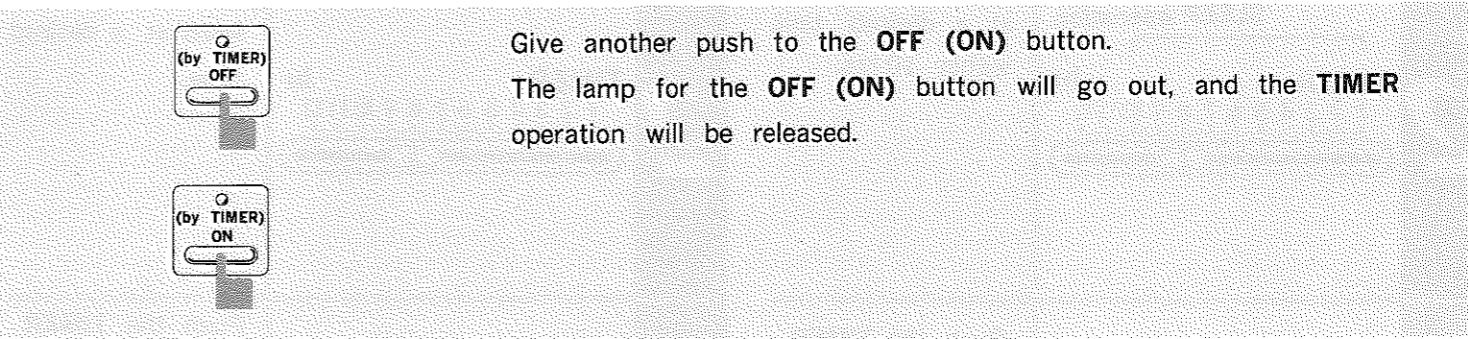


If the ON button is pushed prior to the pressing of the SLEEP button, the air conditioner will start AUTO operation automatically. But the pressing of the SLEEP button will release the AUTO operation to SLEEP operation, and the air conditioner will start the SLEEP operation after a lapse of the timer set time.

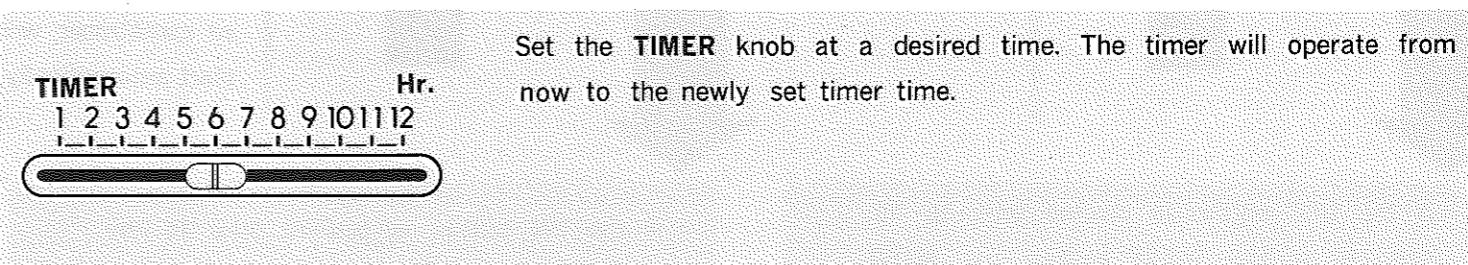
TO TURN OFF THE AIR CONDITIONER DURING TIMER OPERATION



TO RELEASE THE TIMER OPERATION BEFORE THE TIMER TIME IS UP.

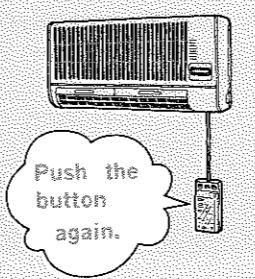


TO CHANGE THE TIMER SET TIME DURING TIMER OPERATION

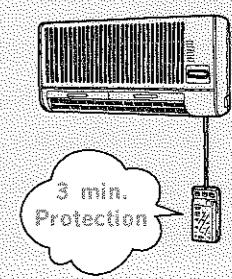


CAUTION

When a blackout happens, all the operation will be stopped. After restoration of power, do the start up sequence over again.



When 3 min. protection is in action, the outdoor unit will remain at reset even when the **COOL** or **HEAT** lamp is a glow.



DEFROST LAMP

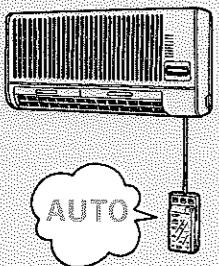


The **DEFROST LAMP** will ignite during the defrosting. After 2 to 10 min. the lamp will go out, and the heating operation will be restarted automatically.

During defrost operation, the indoor fan will be turned off.

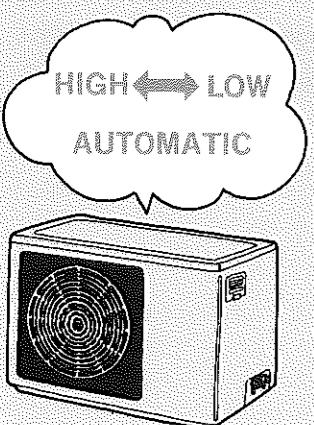
In cases other than defrost operation, the lamp may light up in the initial stage of heating or thermostat control for several minutes until the machine is warmed up.

OPERATION OF INDOOR FAN



- When the **FAN SELECTOR** knob is set at **AUTO**, the air conditioner will change the fan speed automatically depending on the room temperature. (3 steps)
(In the heating operation, the fan will be run at **HIGH** speed when the room temperature is lower and at **LOW** speed when the room temperature is higher)
- When the heating operation is started with the room temperature below a certain value, the fan will remain at rest until the indoor heat exchanger is warmed up to a specified level.

OPERATION OF OUTDOOR FAN



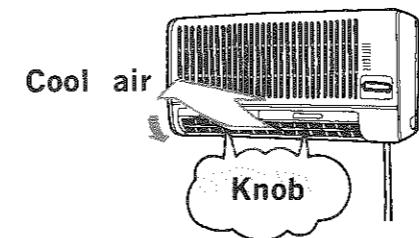
- In the cooling operation.
The thermostat in the outdoor unit will change fan speed (2 steps) depending on the outdoor temperature.

- In the heating operation.
In case the air conditioner is run for heating when the outdoor temperature is high, the control device may function to stop the outdoor fan. When the **DEFROST LAMP** stays lit, the outdoor fan may stop.

HOW TO USE THE ROTARY GRILLE

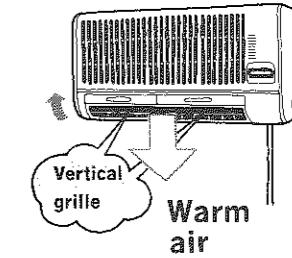
Front blow

- In case of cooling, be sure to set the rotary grille to blow the air from the front.



Downward blow

- In case of heating, the rotary grille opening should be directed downward for improved heating efficiency.

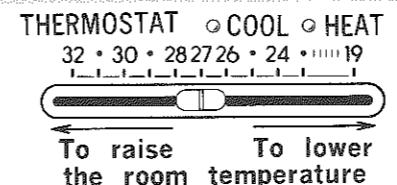


- Hold the rotary grille at both ends and turn in the arrow direction each.
- The lateral air flow direction can be adjusted by turning grille's knob and the vertical grill of the rotary grille.

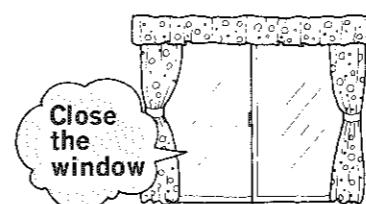
CAUTION

- If the rotary grille opening is set downward when your air conditioner is cooling, the rotary grille surface may sweat and drip condensate.

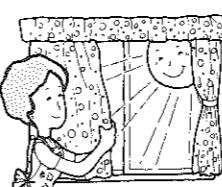
AIR CONDITIONER TIPS



The thermostat turns on and off the air conditioner automatically to keep the room at a proper temperature namely, it performs cooling and heating economically by making good use of electric power.



Do not leave the door and window wide open.

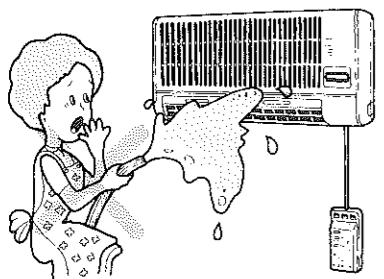


Pull the curtain or blind on the window to keep off the sun. This will improve the cooling efficiency.

- If a heat appliance such as boiler or range is used in the room during cooling operation the cooling efficiency will be lowered.

HDR MAINTENANCE

When servicing the air conditioner, be sure to turn off the air conditioner and mains switch.

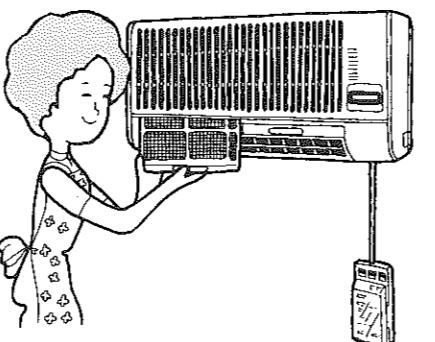


- Under any circumstances, do not flush the indoor unit with water for cleaning.
You may be got electric shock.

● How to maintain the air filter.

If the air filter becomes clogged with dust, smooth air flow is obstructed and operating efficiency becomes low.

Clean the air filter every two weeks.



● How to remove and reassemble the air filter.

A light pull to the center of the air filter, and pull downward. To reinstall in position, push in right upward until a click is heard.

(There is one air filter installed on either side.)



● How to clean the air filter.

To remove dust from the air filter, use a vacuum cleaner or pat it to dislodge the dust.

If the air filter is fouled seriously, immerse into lukewarm water and shave up and down.

The water temperature should be held below 40°C.

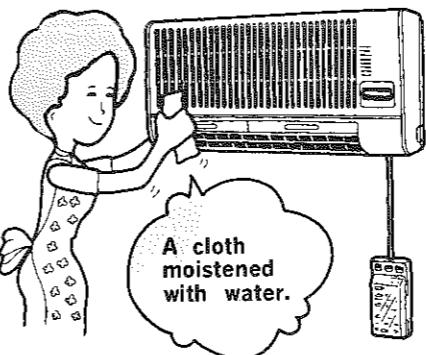
After washing, rinse with water, and leave the air filter in the shade until dry.

Then, put the air filter in the indoor unit as it was before.

FOR MAINTENANCE

How to clean soiled cabinet

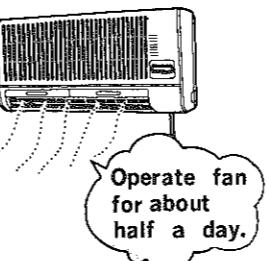
Clean with a cloth moistened with water (less than 40 °C), and polish with a dry cloth.



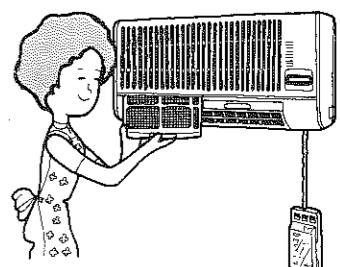
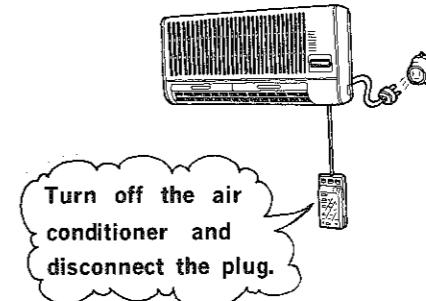
CAUTION

Never use gasoline, bengine, thinner and similar solvents as a cleaning agent.
Never spray liquid insecticide or similar liquids. The paints may peel off, or the plastics may be cracked or deformed.

Care after season



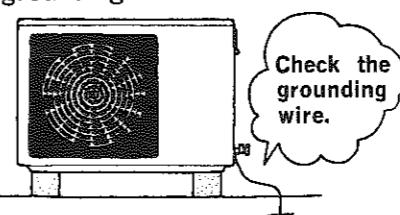
In order to dry up the machine inside.



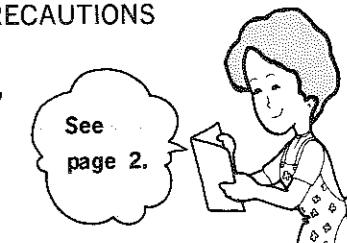
Clean the air filter, dry well and replace as it was.

Check up before season

Make sure that the grounding wire is not broken or disconnected.



Strictly observe the "PRECAUTIONS FOR PROPER USE OF AIR CONDITIONER" on page 2.



Inspection and maintenance

Afrer several season of use, the air conditioner may degrade in performance because its inside may be fouled depending on the service conditions.

For the inspection and maintenance, consult your Toshiba agent.

OBSERVANCES FOR EXTENDED USE

● Installation

1 Your air conditioner removes moisture from the room air when cooling.

Arrange a pipe to drain all water out of the unit.

2 Don't install the unit in a hazardous location where combustible gas or vapor is likely to concentrate in the air.

3 If the air conditioner is operated in an atmosphere containing oils (machine oil), salt near a coastal area sulfide gas near a hot spring, etc. Such substances may lead to failure of the unit.

● Concern against noise

1 A sturdy place that can bear the weight of air conditioner.

2 Install at such a place that will prevent the hot air and noise of the outdoor unit worrying your neighbors.

3 Don't install obstacles in front of the blow off of the outdoor unit.

● Wiring

1 Ground the air conditioner for prevention of electric shock.

2 Provide an outlet for exclusive use with your air conditioner.

3 Loads connected in multiple together with the air conditioner might possibly cause over heat or even a fire accident.

4 Never pull the power cord and remote controller cord tight.

5 In some states, it is mandatory to use a leakage breaker for prevention of electric shock hazards. For details, consult your Toshiba agent.

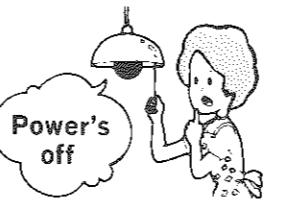
● Relocation

If you move out or if it is desired to relocate the air conditioner, consult your Toshiba agent.

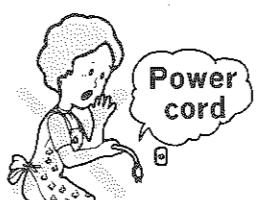
TROUBLES AND CAUSES

Before requesting servicing,
check the following points.

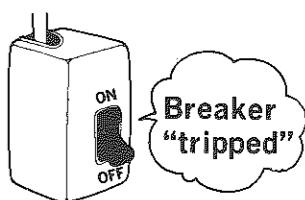
● If your air conditioner does not run



Is the commercial line out?

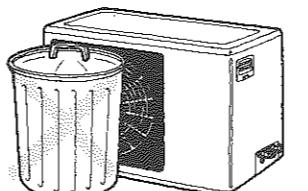


Is the cord plugged into the outlet?

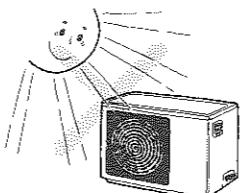


Is the breaker tripped?

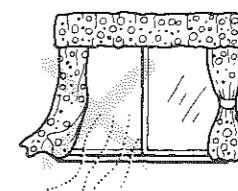
● If your air conditioner delivers air, but does not cool the room



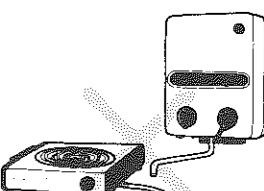
The outdoor unit air outlet or inlet is blocked or ventilation is poor.



Outdoor unit temperature is abnormally high due to application of direct sunlight or heat from some other source.



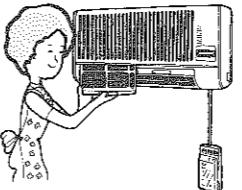
Is the door or window left open?



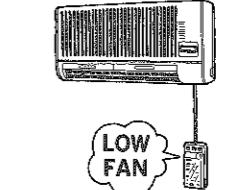
Are you using a boiler or range in the room?



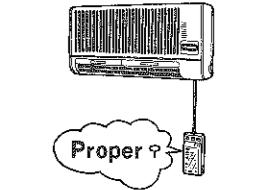
Too many people in the room?



Is the air filter clogged up with dust?

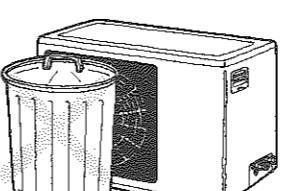


"FAN SELECTOR" knob left at "LOW"?

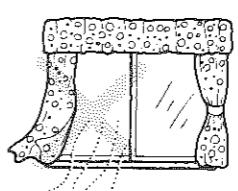


Is the THERMOSTAT set at a proper room temperature?

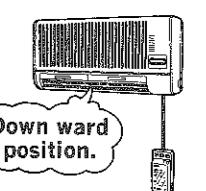
● If your air conditioner delivers air, but does not heat the room



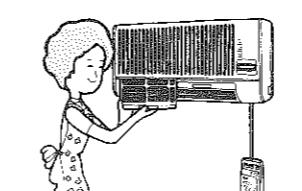
The outdoor unit air outlet or inlet is blocked or ventilation is poor.



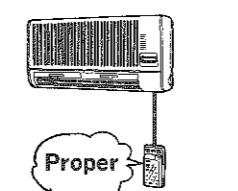
Is the door or window left open?



Is the rotary grille directed downward?



Is the air filter clogged up with dust?



Is the THERMOSTAT knob set at a proper heating temperature?

SPECIFICATIONS

MODEL	Indoor unit RAS-20LKHE	Outdoor unit RAS-20LAHE
Type.	Reverse Cycle, Split type.	
Power supply	1φ , 50Hz, 220/240V	
Cooling		
Capacity	8,000 Btu/h	
Amps	0.17A	4.63A
Watts	39W	961W
Heating		
Capacity	12,000 Btu/h	
Amps	0.17A	5.73A
Watts	39W	1161W
Net weight	11.5Kg	40Kg
Dimensions		
Width	790 mm	720mm
Hight	370 mm	525mm
Depth	168 mm	300mm

● The specifications may be subject to change without notice for purpose of improvement.



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