

OWNER'S MANUAL



TOSHIBA

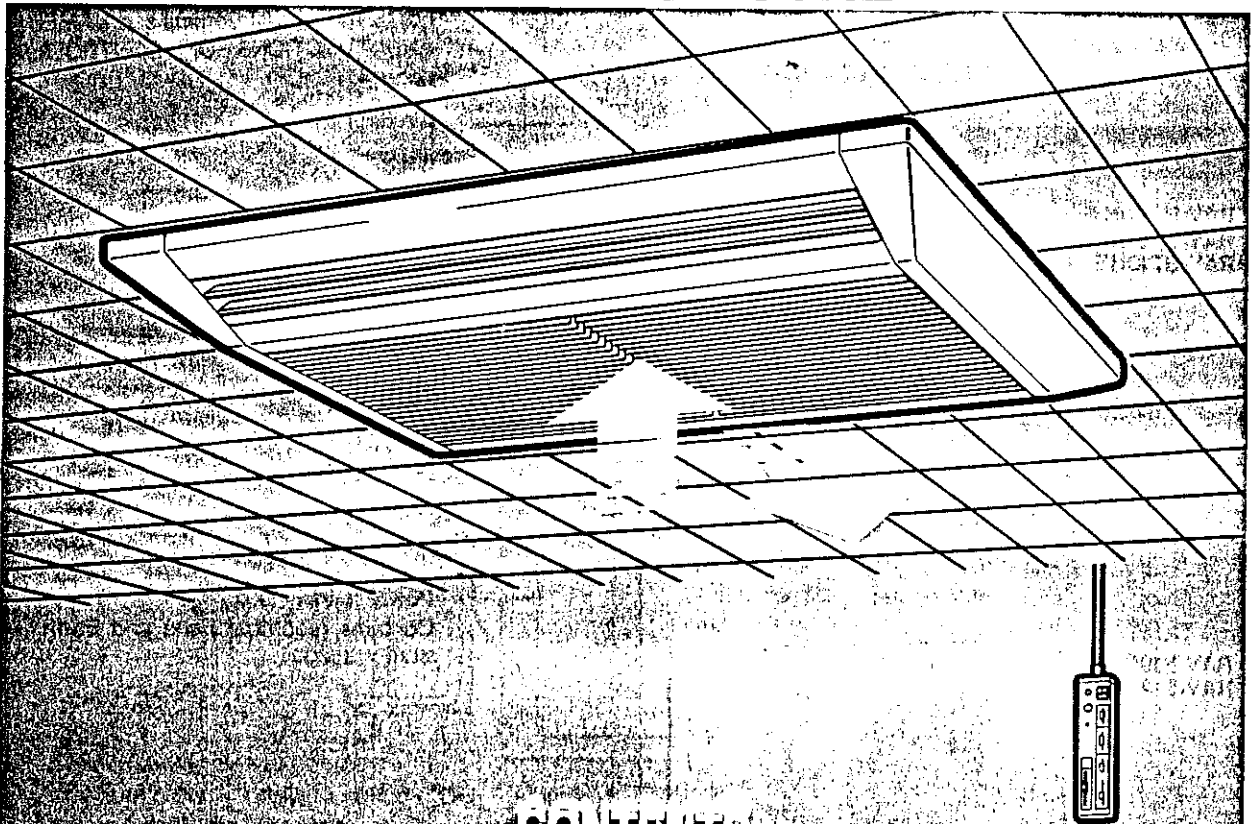
AIR CONDITIONER HEAT PUMP SPLIT (Cassette Type)

Indoor Unit

RAV-450UHJE
RAV-710UHE
RAV-1000UHE
RAV-1250UHE

Outdoor Unit

RAV-S451HJE, S450HJE
RAV-S710HE
RAV-S1000HE
RAV-S1250HE



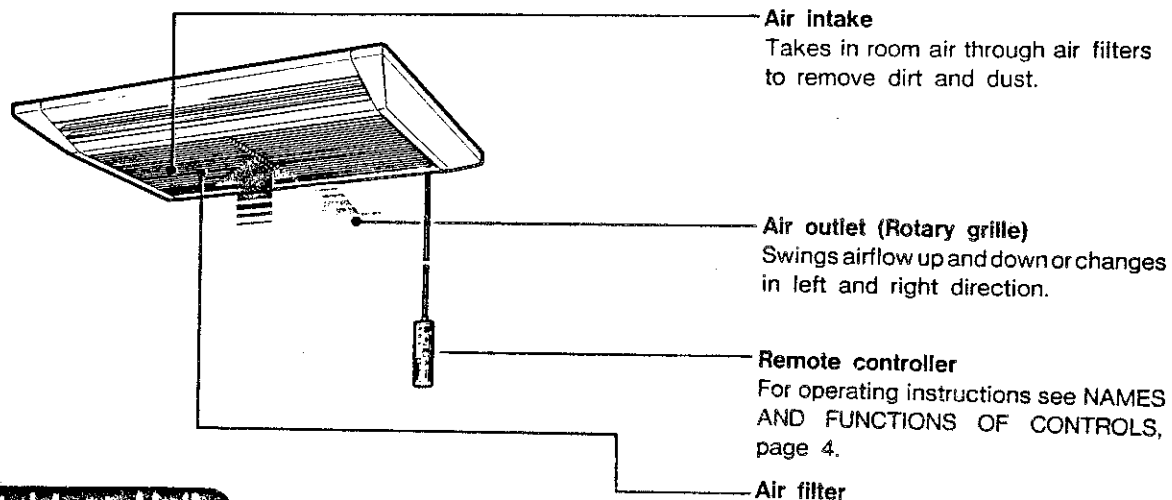
Thank you very much for your purchase of our TOSHIBA air conditioner. Please read this manual carefully before starting operations with your air conditioner to ensure satisfactory performance. After reading the manual, be sure to keep it with you.

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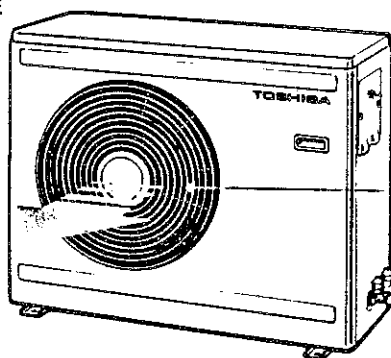
NAMES AND FUNCTIONS OF COMPONENTS

Indoor Unit

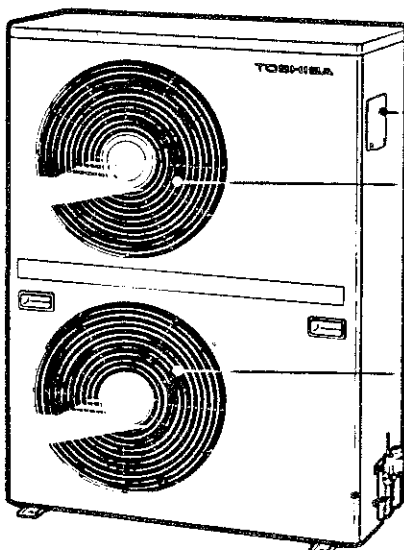


Outdoor Unit

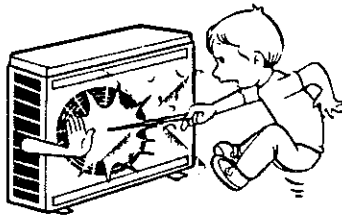
RAV-S450HJE
RAV-S451HJE
RAV-S710HE



RAV-S1000HE
RAV-S1250HE

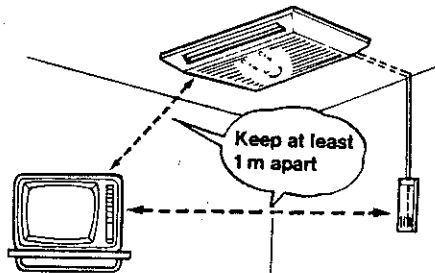


PRECAUTIONS



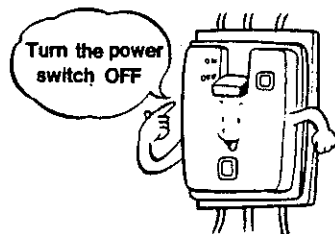
- Never poke a rod or any other thin object into the air intake or outlet of the indoor or outdoor unit.

This will be extremely hazardous because the blower is running at high speed inside.

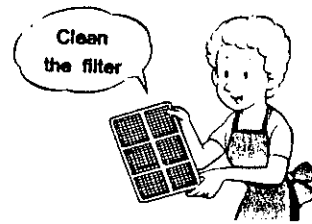


- Keep your TV set, radio, etc. at least 1m apart from the indoor unit or remote controller.

Interferences in video images or noises may result.

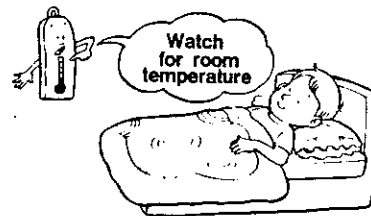


- Turn the power switch OFF when servicing the air conditioner or when it is found faulty.



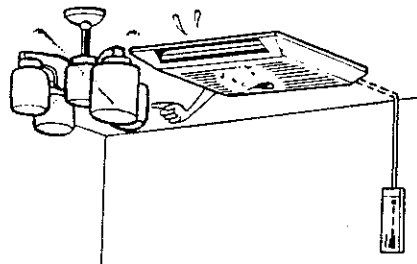
- Be sure that the air filter is installed at the air intake before starting the air conditioner.

If the air conditioner is run without the air filter properly installed, it will be more liable to failure as a result of taking in contaminated room air.



- To avoid health effects, protect your skin against extended exposure to blown airflow.

This is especially important when running the air conditioner in rooms where physically handicapped persons, babies, children, senior, or sick persons are present. Watch for room temperature from time to time and adjust the air conditioner for maximum comfort to them.



- Before switching on the air conditioner, make sure that the air intake and outlet of the indoor and outdoor units are not blocked by obstacles.

HANDLING INFORMATION

- To get maximum performance out of your air conditioner, be sure to run it only under the following conditions:

	Ambient temperature	Room temperature	Room relative humidity
Cooling operation	21°C or more but 43°C or less Running the air conditioner at ambient temperatures above 43°C could trip a protective device, thereby inhibiting cooling operation. Running at temperatures lower than 21°C could cause a freeze to occur in the indoor unit, resulting in failure.	21°C or more but 32°C or less Running the air conditioner at room temperatures lower than 21°C could cause a freeze to occur in the indoor unit, resulting in failure. Also, extended periods of service at temperatures above 32°C might trip a protective device, thereby inhibiting cooling operation.	80% or less Extended periods of service at relative humidities above 80% might cause dew to be condensed and dripped over the air conditioner surfaces.
Heating operation	21°C or less Running the air conditioner at ambient temperatures above 21°C could trip a protective device, thereby inhibiting heating operation.	28°C or less Running the air conditioner at room temperatures above 28°C under conditions of high ambient air temperature could trip a protective device, thereby inhibiting heating operation.	

● Heating Capacities

This air conditioner permits selecting between cooling and heating operation with a single switch. In heating, it operates on the principle of a heat pump, which absorbs heat from outdoors and discharges it indoors. As a result, the heating capacity tends to decline with drops in ambient air temperature as shown in the table below.

When ambient air temperature is low, your air conditioner may be run with the aid of a heating apparatus. A circulator may also be installed when the temperature difference between the ceiling level and the floor level is marked during heating operation.

		Heating capacity (Btu/h) (50Hz)			
Room temperature	Ambient air wet-bulb temperature	RAV-450UHJE	RAV-710UHE	RAV-1000UHE	RAV-1250UHE
21°C	10°C	18,800	29,400	40,200	51,400
	6°C	18,000	27,200	37,200	47,600
	0°C	14,800	23,200	31,600	40,400

The indicated room temperature of 21°C and ambient air wet-bulb temperature of 6°C comply with Japanese Industrial Standards (JIS B8615).

NAMES AND FUNCTIONS OF CONTROLS

FILTER Lamp (Red)

Goes on to indicate that air filter cleaning is required.

FILTER RESET Button

Press this button after air filter cleaning is finished. The FILTER lamp will go off. (See page 8 for further information.)

DEFROST Lamp (Green)

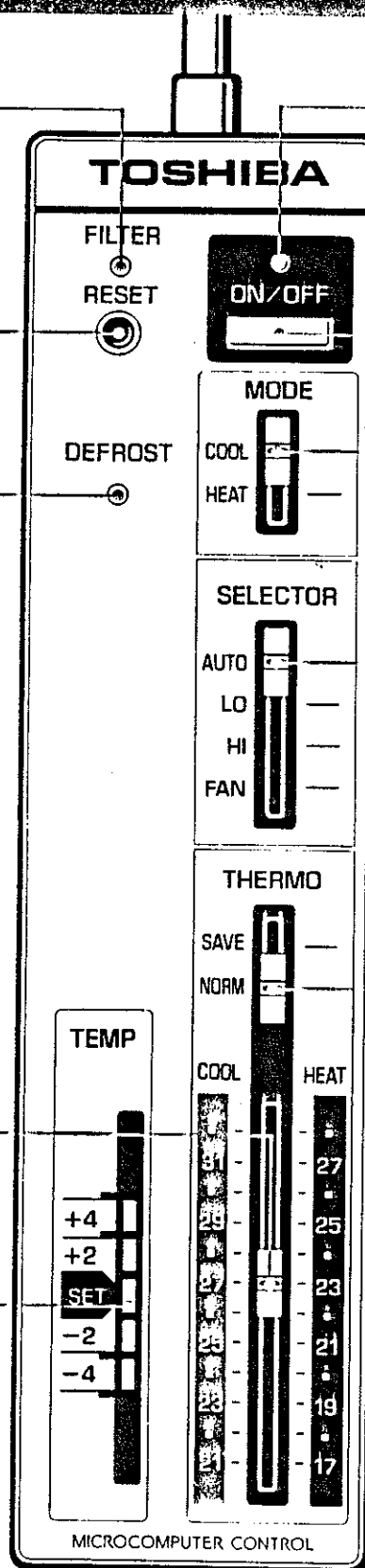
Stays on while heating to indicate that the outdoor unit is being defrosted. It will flash on and off when the power switch is turned on and when the air conditioner is restarted after a power failure, but it will go off when the air conditioner has started running.

ROOM TEMPERATURE CONTROL Switch

Used to control room temperature. Values indicate rough temperature settings.

PRESENT ROOM TEMPERATURE MONITOR Lamps

Indicate deviations of the present room temperature from its setting. + side lamps go on when the present room temperature is higher than its setting, or - side lamps go on when it is lower.



Operation Lamp (Red)

Stays on while the air conditioner is in operation. It will flash on and off when the hand power switch is turned on and when the air conditioner is restarted after a power failure, but it will go off when the air conditioner has started running.

RUN/STOP Button

Press this button to start the unit; press again to stop.

MODE Select Switch

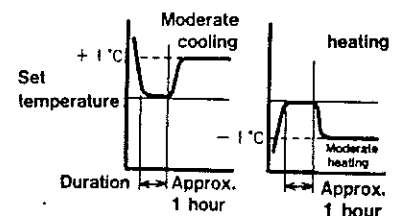
Set the switch to COOL for cooling operation, to HEAT for heating operation.

AIRFLOW SELECT Switch

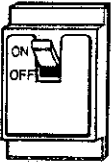
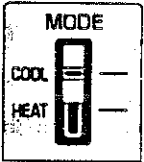
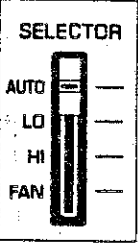
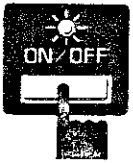
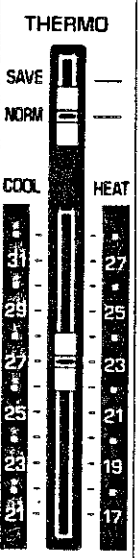
Selects the quantity of airflow. AUTO automatically changes airflow to fit room temperature. Set to FAN when only blowing operation is desired.

MODERATE Power Saver Switch

With the switch being set at SAVE the air conditioner keeps the room temperature at 1°C above the set temperature while cooling, or at 1°C below the set temperature while heating, about 1 hour after the setting is reached.



OPERATION

Control	Cooling Operation	Heating Operation	Blowing Operation
<p>1</p> <p>Power switch</p> 	<p>Turn on the power switch.</p>	<p>Turn on the power switch.</p>	<p>Turn on the power switch.</p>
<p>2</p> <p>MODE</p> 	<p>Set the MODE Select Switch to COOL.</p>	<p>Set the MODE Select Switch to HEAT</p>	<p>The MODE Select Switch may be set at either COOL or HEAT.</p>
<p>3</p> <p>SELECTOR</p> 	<p>Set the AIRFLOW SELECT Switch to AUTO, LO, or HI at your choice.</p>	<p>Set the AIRFLOW SELECT Switch to AUTO, LO, or HI at your choice.</p>	<p>Set the AIRFLOW SELECT Switch to FAN.</p>
<p>4</p> 	<p>Press the push button switch.</p>	<p>Press the push button switch.</p>	<p>Press the push button switch.</p>
<p>5</p> <p>THERMO</p> 	<p>Set the ROOM TEMPERATURE CONTROL Switch to a desired temperature. The cooling temperature scale is on the left.</p>	<p>Set the ROOM TEMPERATURE CONTROL Switch to a desired temperature. The heating temperature scale is on the right.</p>	<p>This switch has no effect on blowing operation.</p>

To stop the air conditioner, press the ON/OFF button again.

● Operating Instructions

- Your air conditioner may not start cooling or heating immediately after the ON/OFF button is pressed. Allow for about 3 minutes to let the air conditioner start running automatically. Also, the air conditioner, when restarted, will only blow air for a period of about 3 minutes before cooling or heating operation is resumed.
- Avoid frequent mode transfers between cooling and heating, which may cause a trouble.
- The air conditioner is liable to malfunction due to abnormal signals caused by lightning or car radio. To protect against such malfunction, set the power switch to OFF, then to ON again.

● Auto-Defrost Operation

- During heating operation in the winter, the heat exchanger in the outdoor unit may be frosted under the condition of low ambient air temperature, with the result of declining heating capacity. The air conditioner automatically carries out defrosting in the winter.
- During defrosting operation, the DEFROST lamp stays on and the blowers in the indoor and outdoor units are stopped. An opaque, misty current of chilled air may be found to arise from the outdoor unit at this time, but this is not a sign of failure.
- Defrosting operation is completed in less than 10 minutes.
- The DEFROST lamp may also go on for a few minutes at the start of a cooling operation or under control of the THERMOSTAT switch. It simply indicates that the air conditioner is being preheated.

● Heating Operation

- If the room is not heated sufficiently during heating operation, check out the air conditioner to see if it has been set up correctly. (See page 11.)
- The use of a circulator is recommended to provide adequate circulation of heated air down to the floor level during heating operation. Check with the dealer from whom your air conditioner was purchased for installation of a circulator.

● Protective Device (High-Pressure Switch)

Automatically shuts down the air conditioner under the following conditions:

The protective device may be tripped in any of the following situations.

While Cooling

- The air intake or outlet of the outdoor unit is blocked.
- The ambient temperature at which the outdoor unit is in operation is 43°C or higher.
- The air conditioner has been run over extended periods of time at room temperatures above 32°C.
- The air outlet of the outdoor unit has been exposed to strong gusts of wind.

While Heating

- The ambient temperature at which the outdoor unit is in operation is 21°C or higher.
- The ambient temperature is high and the room temperature exceeds 28°C.
- The air filter is clogged with an unusually large amount of dust or dirt.
- The air outlet of the indoor unit is blocked.

To reset the protective device:

1. Turn off the power switch.
2. Remove the condition that caused the protective device to be tripped.
3. Turn on the power switch, and restart the air conditioner as instructed in OPERATION, page 5.

HINTS FOR EFFICIENT OPERATION

Follow these hints to condition the air of your room for optimal comfort.

Adjusting Airflow Directions

●Vertical Be sure to adjust the louvered grille

separately for cooling and heating operation.

Horizontal blowing

(Airflow being blown along the ceiling surface)

Be sure to have the louvered grille set in the horizontal direction in cooling operation.

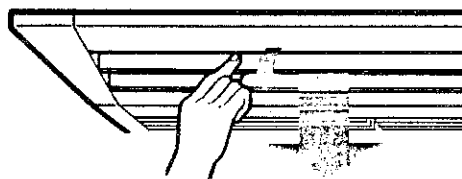


- Set the louvered grille knob to permit horizontal airflow.

Downward blowing

(Airflow being blown toward the floor)

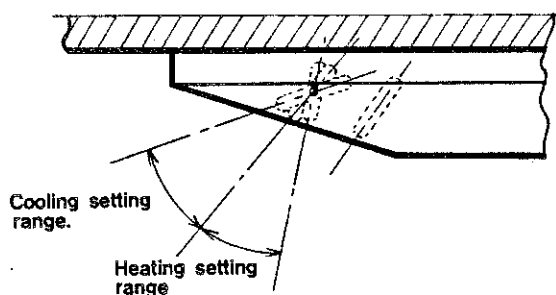
Be sure to have the louvered grille facing downward for maximum heating efficiency in heating operation.



- Adjust the louvered grille knob to permit downward airflow.

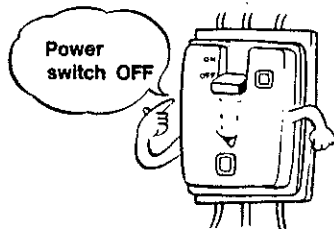
CAUTIONS

- Condensed dew may be dripped over the grille or louver surfaces during cooling operation with the louvered grille facing downward.
- Marked room temperature variations may result from heating operation with the louvered grille set in the horizontal direction.
- Use the louvered grille only within the indicated angle range.

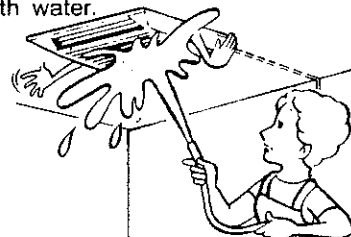


CAUTION

Turn the power switch off before starting to maintain your air conditioner.



To prevent degraded electrical insulation, never try to clean the air conditioner by directly spraying it with water.



Air Filter Maintenance

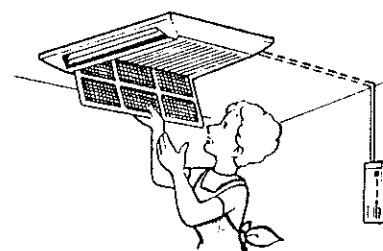
Airflow is reduced and cooling or heating efficiency is lost as the air filter is clogged with dust. Clean the air filter whenever the FILTER lamp goes on. It goes on automatically after about 120 hours of uninterrupted service. Clean the filter every two weeks if the air conditioner has been run in an especially dusty place.

CAUTION

The timer counter will be reset to 0 when a power failure occurs or when the main power switch is turned OFF during cooling or heating operation. As a result the FILTER lamp stays off even if the air conditioner has been run over about 120 hours.

● Removing the Air Filter

The air filter is found inside the air inlet of the internal unit. Lifting the inlet up, pull the filter out rearward.

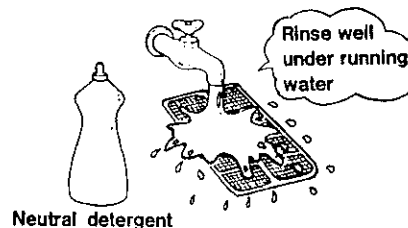
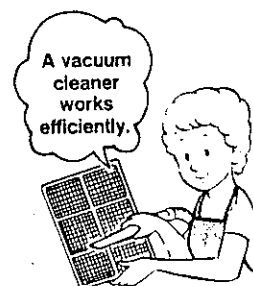


● Resetting the Filter

Press the filter RESET button after fitting the air filter into original position. (The FILTER lamp will go off and the timer counter is reset to 0.)

● Cleaning the Air Filter

To remove dust from the air filter, use a vacuum cleaner or tap it lightly. If the filter is very dirty, immerse in lukewarm water or cold water and wash it by moving it up and down. A neutral detergent solution may simplify this work. After washing, rinse the filter with water and leave it in the shade to dry thoroughly.



CAUTION

Avoid using hot water at a temperature of 40°C or higher, can cause the filter to be deformed or discolored.

Surface Dirt

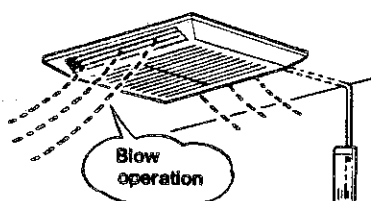
Surface dirt on the grille or cabinet can be easily wiped off with a soft cloth dipped with cold water or lukewarm water at a temperature of 40°C or below, or with neutral detergent solution if extra efficiency is desired. When a neutral detergent has been used, wipe it away thoroughly with a soft cloth wet with water.



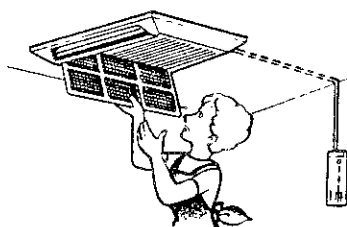
CAUTION

Never use gasoline, benzene, thinner or the like or spray a liquid insecticide on the plastic surfaces. These pharmaceuticals could cause the surface coating to be stripped or the plastic surfaces to be cracked or deformed.

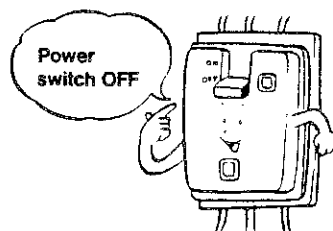
Season End Care



- Leave the air conditioner blowing air for about half a day to allow the interior to dry completely.

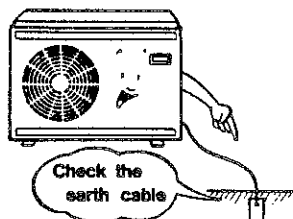


- Clean the air filter and install it in original position.



- Turn OFF the power switch.

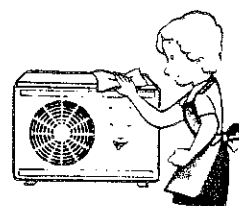
Season Start Care



- Check the earth cable for any defect.



- Read PRECAUTIONS.



- Remove dust from over the outdoor unit.

Maintenance Service

Apart from the user explained on pages 8 and 9, maintenance service is suggested, which is available at cost from the dealer from whom your air conditioner was purchased, for the interiors of the air conditioner could get dirty, with consequent loss of cooling or heating efficiency, over several seasons of operation.

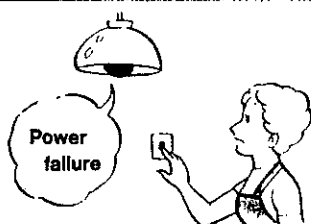
TROUBLESHOOTING

Before requesting service, check the following points.

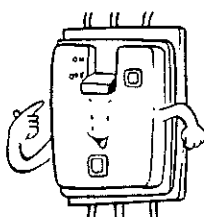
●These are not failures.

- In heating operation, the indoor and outdoor blowers may be stopped, with the outdoor unit being frosted, depending on the temperature and humidity of ambient air. Then, an opaque, misty current of chilled air may be found to arise from around the outdoor unit. This simply signals that the air conditioner is automatically defrosting.
- When heating operation restarts after it has been suspended with the auto-defroster at work, opaque, misty air or chilled air may blow off temporarily from the air outlet of the indoor unit.

●If your air conditioner does not run.

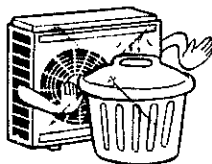


- Suspect a power failure.

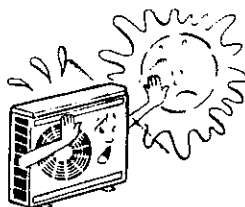


- Power fuse blown or circuit breaker tripped.

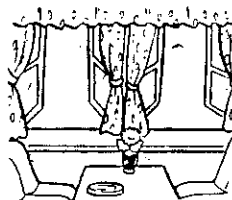
●If your air conditioner blows air but does not cool well.



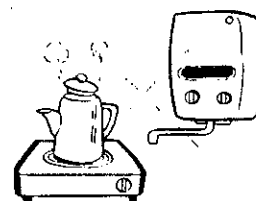
- Outdoor unit air intake or outlet blocked or poorly ventilated.



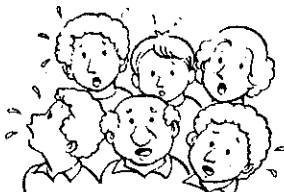
- Outdoor unit overheated under exposure to direct sunlight or heat sources.



- Door or window left open.



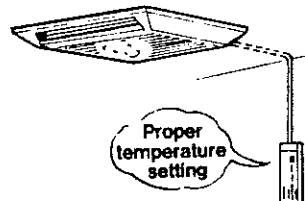
- Heating apparatus, such as a water heater and an oven, used in the room.



- Room overcrowded.

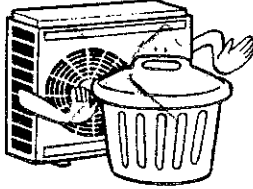


- Air filter clogged with dirt or dust.

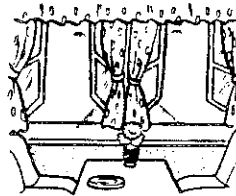


- SELECTOR switch at FAN position. With the SELECTOR switch being set at AUTO, LO, or HI at your choice, adjust the ROOM TEMPERATURE CONTROL switch to a lower temperature.

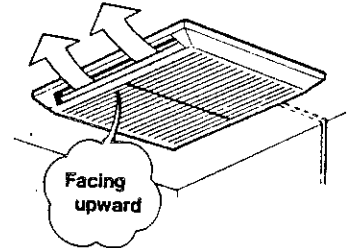
● If your air conditioner blows air but does not heat well.



- Outdoor unit air intake or outlet blocked or poorly ventilated.



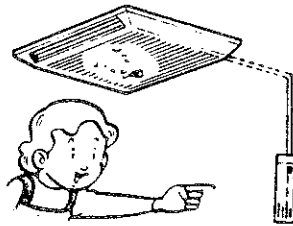
- Door or window left open.



- Air outlet facing upward.



- Air filter clogged with dirt or dust.



- SELECTOR switch at FAN position. With the SELECTOR switch being set at AUTO, LO, or HI at your choice, adjust the ROOM TEMPERATURE CONTROL switch to a higher temperature.

If the problem still exists after all these checkouts, turn OFF the main power switch and request diagnostics from the dealer from whom your air conditioner was purchased. The air conditioner is not customer serviceable.

INSTRUCTIONS FOR EXTENDED SERVICE LIFE

Take notice of the following instructions to use your air conditioner with both safety and comfort over extended time periods.

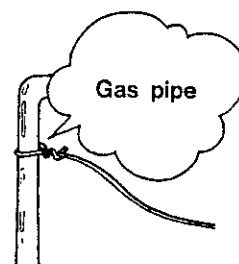
●LOCATION

- 1** Install both the indoor and outdoor units on a foundation capable of fully withstanding their weights and vibration.
- 2** Allow sufficient space around the air intake and outlet to provide adequate ventilation.
- 3** Your air conditioner removes moisture from room air when cooling. Allow the water to be drained completely.
- 4** Avoid installing the air conditioner in a place likely to be exposed to an inflammable gas.
- 5** The air conditioner is liable to be accelerated failure when used in certain special environments-such as places containing oils (including machine oils), salt (as on coastal areas), and sulphide gas (as in spa). The air conditioner, when installed in these places, requires special maintenance. Check with your dealer.
- 6** Locate the outdoor unit where its hot or chilled air and noise will not cause a nuisance to your neighbors.
- 7** Avoid installing the outdoor unit where strong winds could hit the air outlet.

●WIRING

- 1** Be sure to keep your air conditioner earthed to protect against electrical shock hazards. Check with your dealer for further details.
- 2** Operate the air conditioner from a dedicated power source.
- 3** Law also requires the installation of a circuit breaker. Check with your dealer or an electrical contractor.
- 4** When the power fuse blows out, replace with a fuse with the same rating. Never substitute a wire or copper wire, which could cause a malfunction or even fire.

- Where the earth cable is connected to water piping, adequate earthing will not be established if a PVC pipe is used in the course of the piping.
- Never connect the earth cable to a gas pipe.



●RELOCATION

Special techniques are involved in relocating the air conditioner. Relocation service is available at cost from your dealer.

SPECIFICATIONS

Model			RAV		RAV		RBC	
			Indoor Unit 450UHJE	Outdoor Unit S450HJE	Indoor Unit 450UHJE3	Outdoor Unit S450HJE3	Ceiling Panel U710PYE	
Power Supply		V-PH-Hz	220/240-1-50		240-1-50			
Cooling	Capacity	kcal/h (BTU/h)	4,000 (16,000)		4,000 (16,000)			
	Amps	A	9.7		9.5			
	Watts	kW	2.07		2.07			
Heating	Capacity	kcal/h (BTU/h)	4,500 (18,000)		4,500 (18,000)			
	Amps	A	9.2		8.8			
	Watts	kW	1.93		1.93			
Refrigerant charge (R-22)*		g	1,150		1,150			
Weight		kg	36	60	36	60	7	
Dimensions (Height x Width x Depth)		mm	395 x 690 x 640	740 x 880 x 310	395 x 690 x 640	740 x 880 x 310	70 x 840 x 790	

Model			RAV		RAV		RBC	
			Indoor Unit 450UHJE21	Outdoor Unit S451HJE21	Indoor Unit 710UHE8	Outdoor Unit S710HE8	Ceiling Panel U710PYE	
Power Supply		V-PH-Hz	200-1-50		380/415-3-50			
Cooling	Capacity	kcal/h (BTU/h)	4,000 (16,000)		6,300 (25,200)			
	Amps	A	11.0		4.7			
	Watts	kW	1.98		2.8			
Heating	Capacity	kcal/h (BTU/h)	4,500 (18,000)		6,800 (27,200)			
	Amps	A	10.3		4.4			
	Watts	kW	1.85		2.6			
Refrigerant charge (R-22)*		g	1,150		2,000			
Weight		kg	36	64	39	78	7	
Dimensions (Height x Width x Depth)		mm	395 x 690 x 640	740 x 880 x 310	395 x 690 x 640	790 x 880 x 310	70 x 840 x 790	

Specifications are subject to change without notice.

*The charges are for system with 5-meter interconnecting pipe.

The indicate room wet-bulb temperature of 19.5°C and ambient air temperature of 35°C comply with Japanese Industrial standard. (JIS B8615)

SPECIFICATIONS

Model			RAV		RAV		RBC	
			Indoor Unit 1000UHE8	Outdoor Unit S1000HE8	Indoor Unit 1250UHE8	Outdoor Unit S1250HE8	Ceiling Panel U1250PYE	
Power Supply		V-PH-Hz	380/415-3-50		380/415-3-50			
Cooling	Capacity	kcal/h (BTU/h)	9,000 (36,000)		11,600 (46,400)			
	Amps	A	6.2		8.0			
	Watts	kW	3.7		4.8			
Heating	Capacity	kcal/h (BTU/h)	9,300 (37,200)		11,900 (47,600)			
	Amps	A	5.7		7.6			
	Watts	kW	3.4		4.5			
Refrigerant charge (R-22)※		g	2,700		3,500			
Weight		kg	52	107	55	115	10	
Dimensions (Height×Width×Depth)		mm	395×1045×640	1240×930×385	395×1045×640	1240×930×385	70×1195×790	

Specifications are subject to change without notice.

※The charges are for system with 5-meter interconnecting pipe.



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