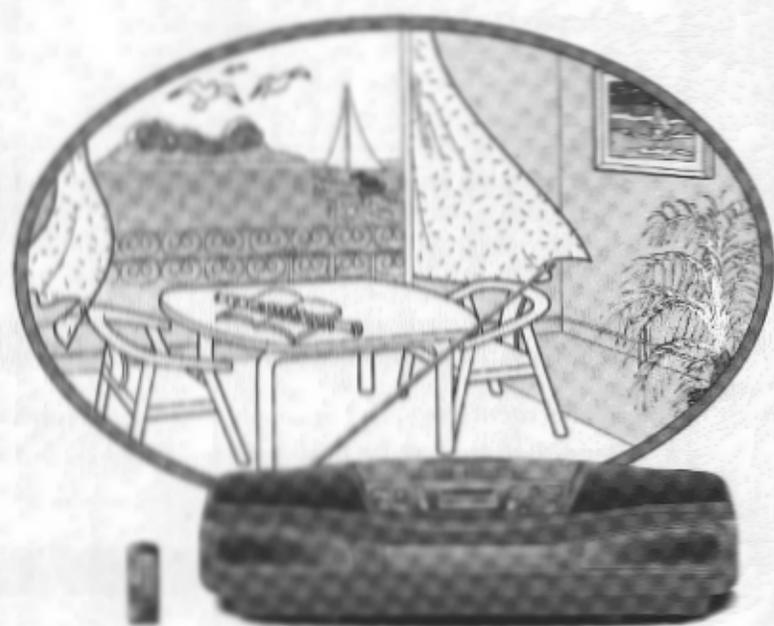


Portable Stereo CD System **RX-DS28**

Operating Instructions



COMPACT
disc
DIGITAL AUDIO

Panasonic®

Before connecting, operating or adjusting the product, please read these instructions completely. Thank you for your purchase.

Precautions

Before using this unit please read these operating instructions carefully. Take special care to follow the warnings indicated on the unit itself as well as the safety suggestions listed below. Afterwards keep them handy for future reference.

Safety

1. **Power Source**—The unit should be connected to power supply only of the type described in the operating instructions or as marked on the unit.
2. **Polarization**—If the unit is equipped with a polarized AC power plug (a plug having one blade wider than the other), that plug will fit into the AC outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
3. **Power Cord Protection**—AC power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Never take hold of the plug or cord if your hand is wet, and always grasp the plug body when connecting or disconnecting it.
4. **Nonuse Periods**—When the unit is not used, turn the power off. When left unused for a long period of time, the unit should be unplugged from the household AC outlet.

Installation

Environment

1. **Water and Moisture**—Do not use this unit near water—for example, near a bathtub, washbowl, swimming pool, or the like. Damp basements should also be avoided.
2. **Condensation**—Moisture may form on the lens in the following conditions...
 - immediately after a heater has been turned on.
 - in a steamy or very humid room.
 - when the unit is suddenly moved from a cold environment to a warm one.If moisture forms inside this unit, it may not operate properly. To correct this problem, turn on the power and wait about one hour for the moisture to evaporate.
3. **Heat**—The unit should be situated away from heat sources such as radiators and the like. It also should not be placed in temperatures less than 5°C (41°F) or greater than 35°C (95°F).

Placement

1. **Ventilation**—The unit should be situated so that its location or position does not interfere with its proper ventilation. Allow 10 cm (4") clearance from the rear of the unit.
2. **Foreign Material**—Care should be taken so that objects do not fall into and liquids are not spilled into the unit. Do not subject this unit to excessive smoke, dust, mechanical vibration, or shock.
3. **Magnetism**—The unit should be situated away from equipment or devices that generate strong magnetic fields.
4. **Stacking**—Do not place heavy objects, other than system components, on top of the unit.
5. **Surface**—Place the unit on a flat, level surface.
6. **Carts and Stands**—The unit should be used only with a cart or stand that is recommended by the manufacturer. The unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
7. **Wall or Ceiling Mounting**—The unit should not be mounted to a wall or ceiling, unless specified in this operating instructions.



Maintenance

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

Service

1. **Damage Requiring Service**—The unit should be serviced by qualified service personnel when:
 - (a) The AC power supply cord or the plug has been damaged; or
 - (b) Objects have fallen or liquid has been spilled into the unit; or
 - (c) The unit has been exposed to rain; or
 - (d) The unit does not appear to operate normally or exhibits a marked change in performance; or
 - (e) The unit has been dropped, or the enclosure damaged.
2. **Servicing**—The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to an authorized service personnel.

For the address of an authorized servicer:

In the U.S.A. 1-800-211-7262 or web site (<http://www.panasonic.com>)
In Canada 905-624-5505 or web site (www.panasonic.ca/fdbckca.htm)

THE FOLLOWING APPLIES ONLY IN THE U.S.A.:

CAUTION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Notice: This system complies with new Part 15, except for the radio receiver, which complies with old Part 15, Subpart C of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. The radio receiver is not subject to above item (2).

Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

Precautions

Listening caution



Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

We recommend you to avoid prolonged exposure to excessive noise.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing.

Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level:

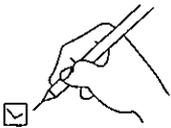
- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Supplied accessories



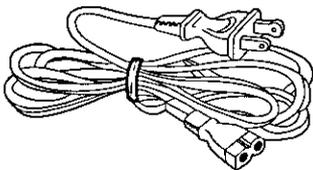
Please check and identify the supplied accessories.

Use numbers indicated in parentheses when asking for replacement parts.

(Only for U.S.A.)

To order accessories contact 1-800-211-7262 or web site (<http://www.panasonic.com>).

- AC power supply cord (polarized) 1 pc. (SJA172)

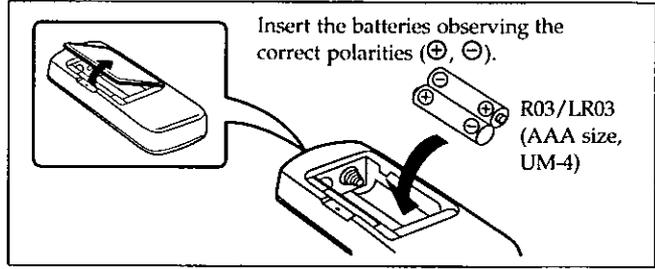


- Remote control transmitter 1 pc. (EUR646552)



Concerning the remote control

Battery installation



Use of batteries

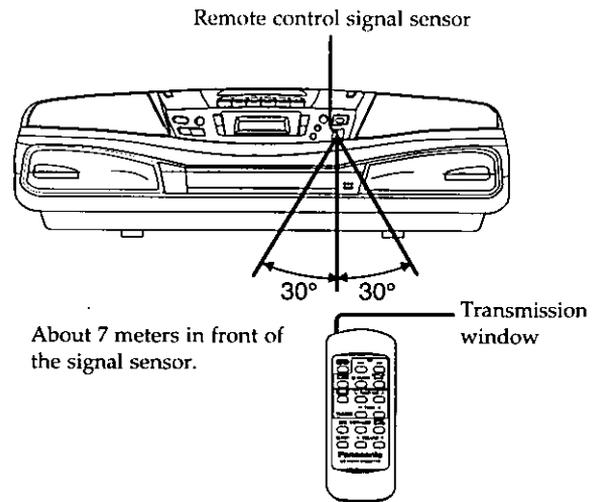
- Do not mix old and new batteries, or batteries of different types (manganese and alkaline, etc.).
- Never subject batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote control is not to be used for a long period of time, remove the batteries and store them in a cool, dark place.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use rechargeable type batteries.

Battery life

The battery life is about one year.

The batteries should be replaced if commands from the remote control transmitter do not operate the unit even when the transmitter is held close to the front panel.

Correct method of use



Operation notes

- Do not place obstacles between the remote control signal sensor and remote control unit.
- Do not expose the remote control signal sensor to direct sunlight or to the bright light of an inverter fluorescent light.
- Take care to keep the remote control signal sensor and end of the remote control unit free from dust.

Power sources

Using a household AC outlet A

Connect the included AC power cord to the AC IN~ socket of the unit and your household AC outlet.

Notes

- Before connecting or disconnecting the AC power cord to the unit, make sure the unit is switched off by pressing **TAPE**/OFF. (If the tape is travelling, press **■/▲** STOP/EJECT as well.)
- If the unit is not going to be used for a prolonged period of time, disconnect the AC power cord to conserve power.

Using batteries (not included) B

Disconnect the AC power cord from the AC IN~ socket of the unit, and insert eight R20/LR20 (D, UM-1, not included) batteries in the illustrated order.

When to replace the batteries

When the batteries are weak:

The unit automatically turns itself off, then "U01" and "  " appear on the display.

Be sure to replace all batteries with new ones.

How to remove the batteries C

Remove batteries by inserting your finger into opening on the bottom of the unit and pushing out.

Memory back-up batteries (not included)

In the event of a power failure, or if the AC power cord is disconnected from the household AC outlet (during AC operation), or should the batteries fail, the memory back-up batteries will preserve the preset memory of this unit.

Battery installation D

Insert four R6/LR6 (AA, UM-3, not included) batteries into the battery compartment, making sure that the batteries are installed in the designated numerical order and that the proper polarities are maintained.

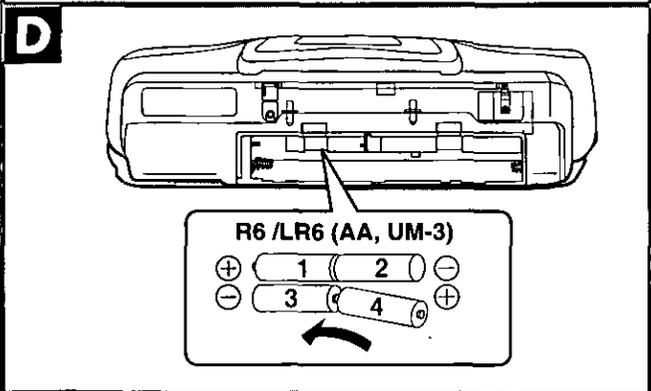
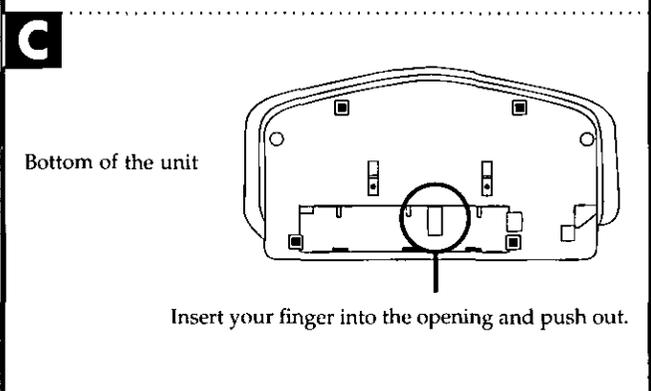
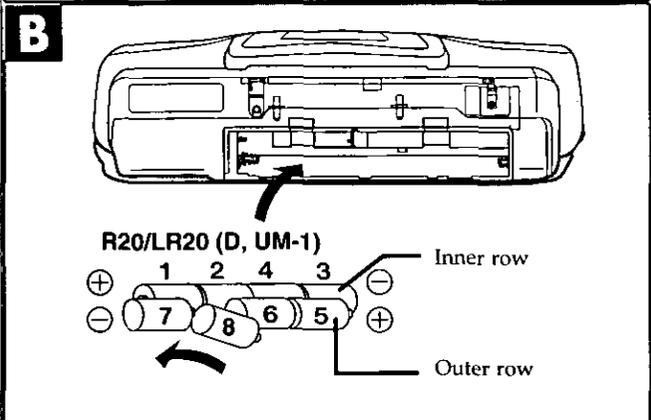
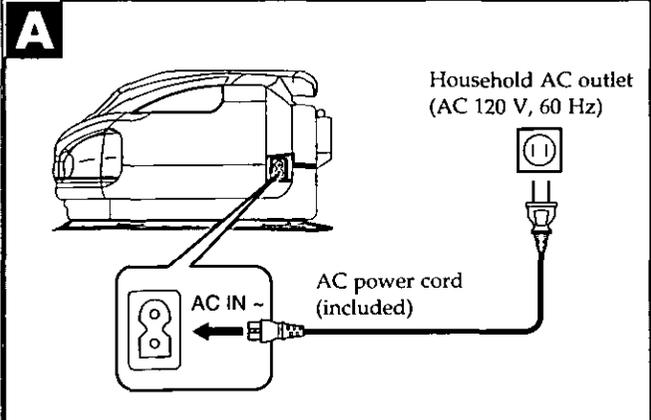
- The life of the memory back-up batteries can be prolonged by keeping the AC power cord plugged in the household AC outlet at all times.
- When disconnecting the AC power cord, switch off the power first by pressing **TAPE**/OFF. (If the tape is travelling, press **■/▲** STOP/EJECT as well.) The life of the memory back-up batteries is reduced if the AC power cord is disconnected from a household AC outlet with the power still supplied.

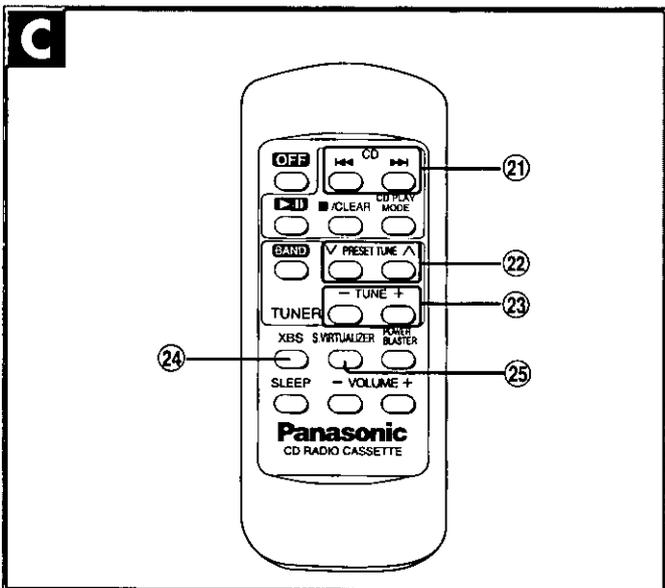
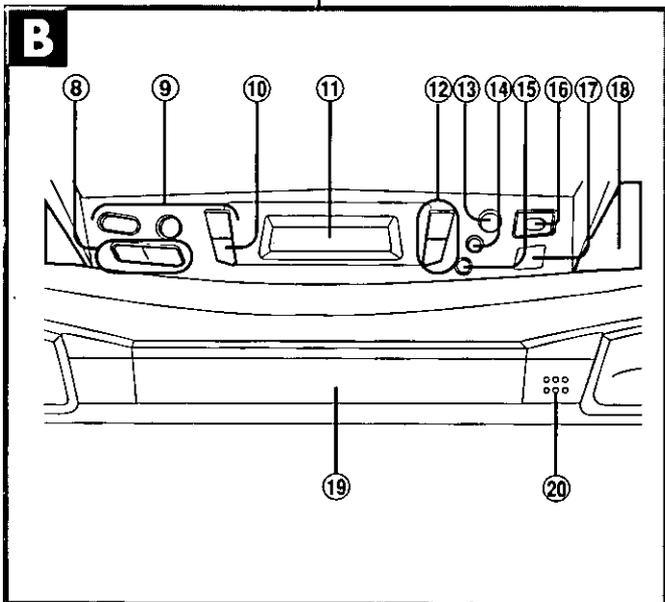
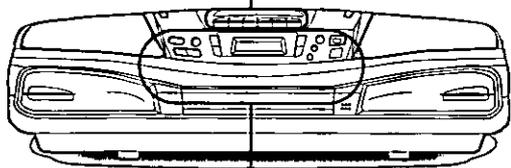
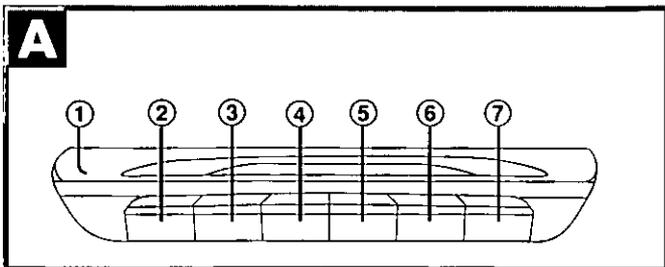
Battery removal

Lift the negative end of the number 4 battery to remove batteries.

Battery life

The life of the memory back-up batteries is about one year.





Location of controls

Main unit

A	Number	Designation	Reference page
	①	Deck (Recording/playback)	
	②	Recording button (● REC)	14
	③	Playback button (▶ PLAY)	7, 12
	④	Rewind/review button (◀◀ REW/REV)	12
	⑤	Fast forward/cue button (▶▶ FF/CUE)	12
	⑥	Stop/eject button (■/▲ STOP/EJECT)	7, 12
	⑦	Pause button (PAUSE)	12
B	⑧	Tuning/CD skip, search buttons (TUNE/SKIP/SEARCH -/◀◀, +/▶▶)	8-11
	⑨	Function select buttons <ul style="list-style-type: none"> • Tape/power standby button (TAPES/OFF) 5, 7 Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power. • Tuner/band button (BAND) 7-9 • CD play/pause button (▶/) 7, 10, 11 	
	⑩	CD stop/program clear, tuning mode select button (■ CLEAR/TUNE MODE) 9-11	
	⑪	Display panel	
	⑫	Volume control buttons (VOLUME +, -) 9, 10, 12	
	⑬	Sleep timer button (SLEEP) 15	
	⑭	CD program, tuner preset button (MEMORY) 8, 11	
	⑮	Stereo/monaural, beat proof button (FM MODE/BP) 9, 14 CD play mode select button (CD PLAY MODE) 10	
	⑯	Power blaster button (POWER BLASTER) 13	
	⑰	Remote control signal sensor (SENSOR) 4	
	⑱	Speaker	
	⑲	CD tray	
	⑳	CD tray open button (▲ CD OPEN) 10, 14	

Remote control

The functions of the buttons without numbers are the same as on the main unit.

C	Number	Designation	Reference page
	⑲	CD skip, search buttons (◀◀, ▶▶)	10, 11
	⑳	Preset tuning buttons (∨ PRESET TUNE ∧) 8, 9 Press to select the preset channel when presetting radio broadcasts and in preset tuning.	
	㉑	Tuning buttons (- TUNE +) 8, 9 Press to tune in the station when presetting radio broadcasts and in manual tuning.	
	㉒	XBS button (XBS) 13	
	㉓	Sound virtualizer button (S.VIRTUALIZER) 13	

One-touch play **A**

When the unit is on standby, play starts automatically when you press one of the buttons (a), (b), (c) illustrated on left.

Listening to radio broadcasts (a)	The station heard previously is tuned in.
Listening to CDs (b)	Play starts from the first track of the inserted CD. "NO DISC" appears when no CD is loaded. B
Listening to tapes (c)	Playback starts from the position of tape inserted in the deck.

To turn off the unit:

When listening to radio broadcasts or CDs	Press TAPE/OFF . (d) (If the tape is travelling, press STOP/EJECT as well.)
When listening to tapes	Press STOP/EJECT . (e)

References

- To change to tape play when listening to CDs or the radio, press **TAPE/OFF**, then press **PLAY**.
- If the tape is already travelling when listening to CDs or the radio broadcasts, then the tape begins to play when **TAPE/OFF** is pressed.
- If you press **STOP/EJECT** or **BAND** when a tape is playing, then the unit will switch to play a CD or the radio.

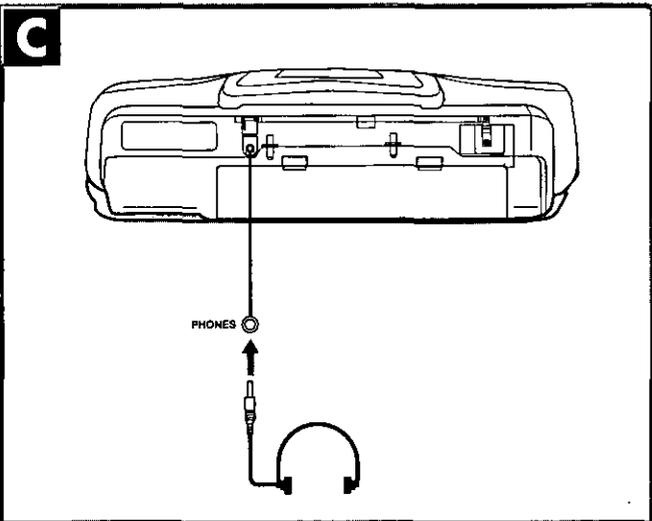
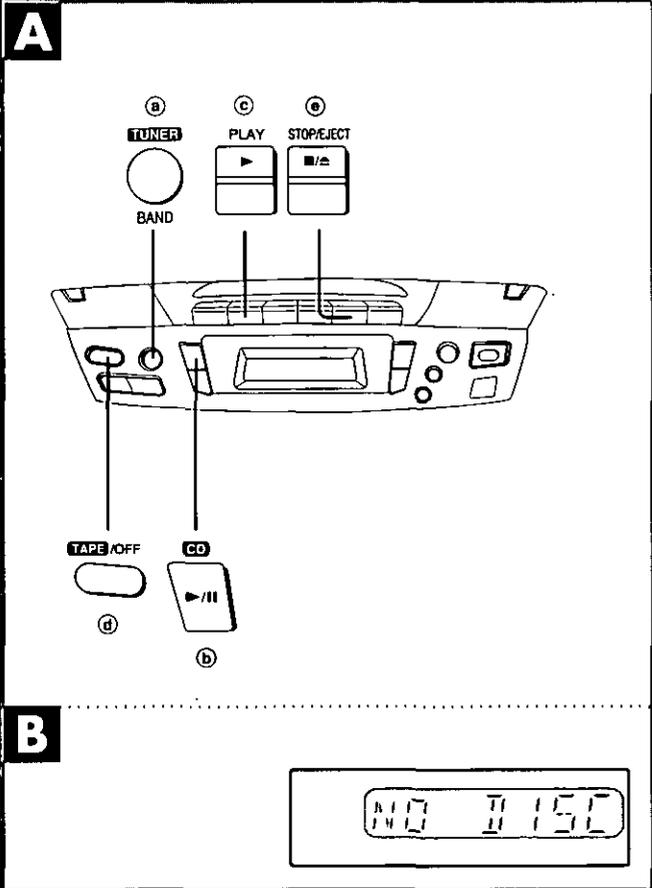
To listen through headphones (not included) **C**

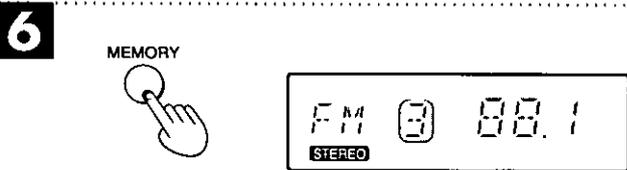
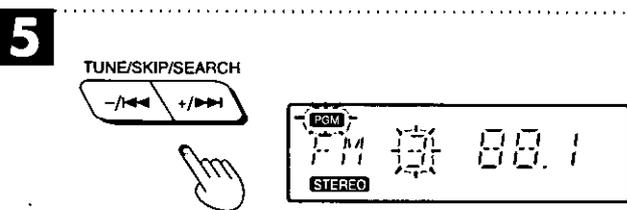
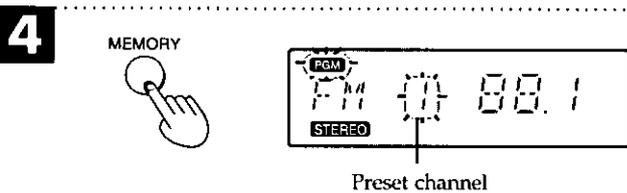
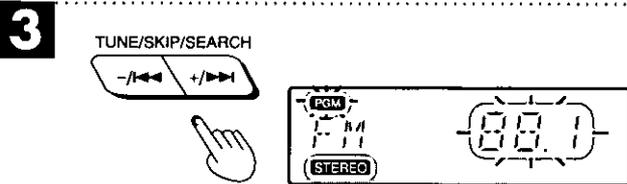
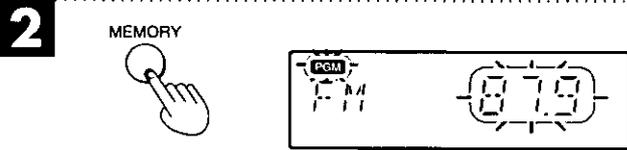
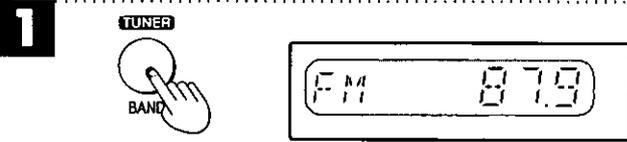
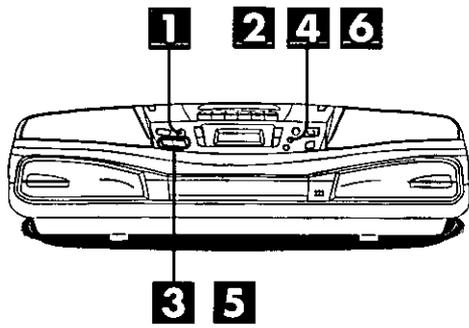
Turn down the volume and connect the headphones to the PHONES jack.

Plug type : 3.5 mm stereo

Note

Avoid listening for prolonged periods of time to prevent hearing damage.





Presetting radio broadcasts

- Up to ten FM and AM stations each can be programmed.
- If broadcast frequencies are preset in the memory, you can easily tune in any of these frequencies.
- You can preset just those stations you like.

1 Press **BAND** to select "FM" or "AM".
Every time you press the button: FM ↔ AM

2 Press **MEMORY**.
"PGM" and the frequency flash.

3 While "PGM" and the frequency are flashing:
Press **-/◀** or **+/▶** to select the desired station.
"STEREO" lights when an FM stereo program is being received.

Reference

You can select the desired broadcast by using "Automatic tuning". (See page 9.)

4 Press **MEMORY**.
"PGM" and the preset channel number flash.

5 While "PGM" and the preset channel number are flashing:
Press **-/◀** or **+/▶** to select the preset channel.

6 Press **MEMORY**.
If the "PGM" indicator goes off during programming, return to step 2.

7 Repeat steps 2 to 6 to program other stations.

To erase an unwanted preset channel

e.g. erasing preset channel 3.

1. Select preset channel 3 (see page 9).
2. Press **MEMORY** twice ("PGM" and the preset channel number flash).
3. While "PGM" and the preset channel number are flashing:
Press **-/◀** or **+/▶** repeatedly until the preset channel display indicates "--".
4. Press **MEMORY**.

The erased preset channel will now be skipped when selecting preset channels. (e.g. 1→2→4→5...)

FM allocation setting

By adjusting the allocation, you can enable this tuner to receive FM broadcasts allocated in 0.1 MHz steps.

1. Press and hold **BAND** for approximately 5 seconds during AM display. The frequency display will be returned to the minimum frequency of the FM band and the display will begin to flash. Keep holding for approximately 5 more seconds.
2. When the display stops flashing and indicates a different frequency number, release **BAND**.

To return to the original frequency, repeat steps 1 and 2 above.

Note

After changing the "allocation" setting, the frequencies you previously preset in the memory will be cleared.

Listening to radio broadcasts

Listening to programmed stations (Preset tuning) A

Make sure you have completed the procedure for "Presetting radio broadcasts" (on page 8).

- 1** Press **BAND** to select "FM" or "AM".
Every time you press the button: FM ↔ AM
- 2** Press **TUNE MODE** to display the preset indicator.
The unit is set to the preset tuning mode.
- 3** Press **-/◀◀** or **+/▶▶** to select the preset channel.
- 4** Adjust the volume.

Listening to broadcast stations which have not been programmed (Manual tuning) B

- 1** Press **BAND** to select "FM" or "AM".
Every time you press the button: FM ↔ AM
- 2** Press **TUNE MODE** to clear the preset indicator.
The unit is set to the manual tuning mode.
- 3** Press **-/◀◀** or **+/▶▶** to tune in the station.
- 4** Adjust the volume.

Automatic tuning:

This is a simple way of tuning in stations that have not been preset. Keep **-/◀◀** or **+/▶▶** depressed, and release it when the frequency display starts to change. A station with good reception is automatically selected and the selection process then stops.

To stop automatic tuning, press **-/◀◀** or **+/▶▶** again.

Hint

Automatic tuning may stop without a station having been tuned in when interference is encountered on neighbouring airwaves. In such a case, tune in a station by tapping **-/◀◀** or **+/▶▶**.

Adjusting the antennas C

For FM reception:

Pull out the telescopic antenna and adjust its length and angle for optimum reception.

For AM reception:

Turn the unit in the direction which gives the best results.

Reference

Radio broadcasts may be hard to receive in a moving vehicle or in a building because the signal may be weakened. In such cases, use the unit near a window.

When there is a lot of noise in an FM stereo broadcast D

Reduce the interference by setting the sound to monaural.

Example:

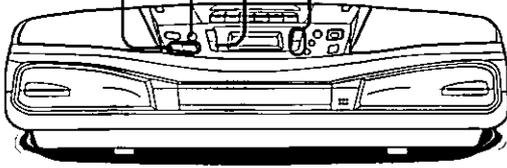
When an FM stereo program is being received;

Press **FM MODE/BP**.

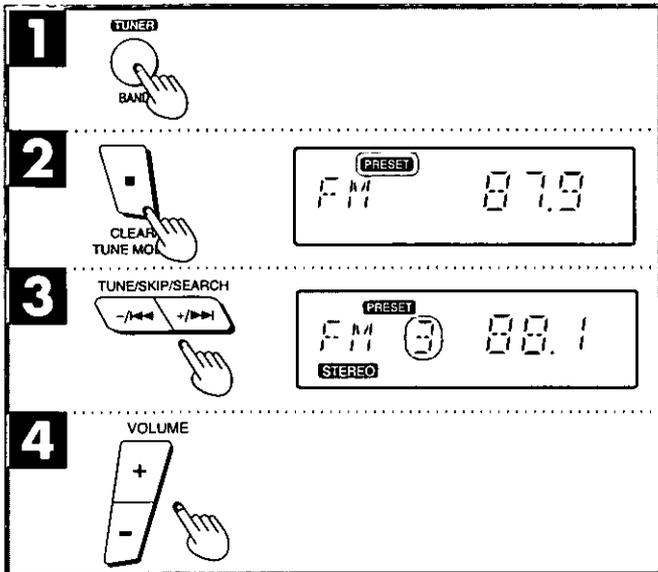
"**MONO**" is displayed.

To return to stereo reception, repeat the same procedure and turn off the **MONO** display.

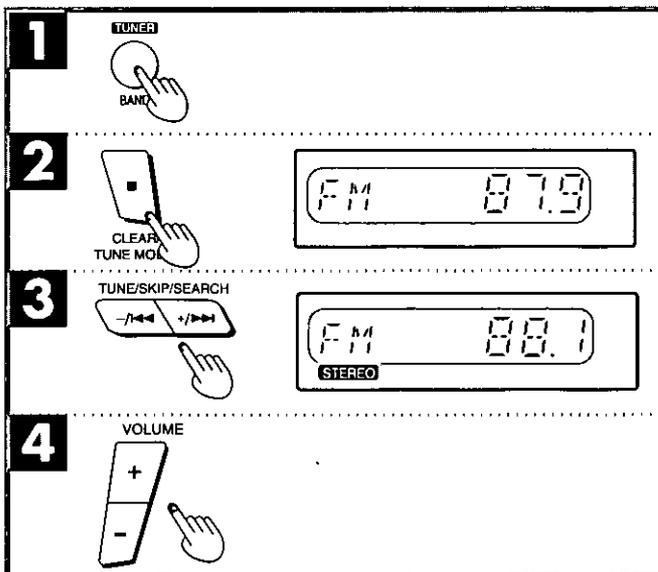
3 1 2 4



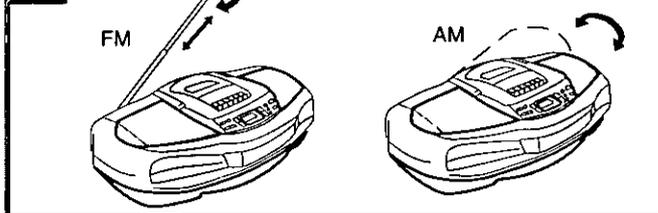
A



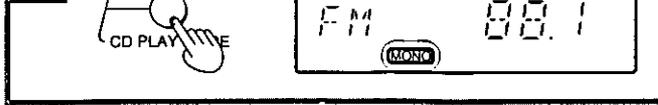
B

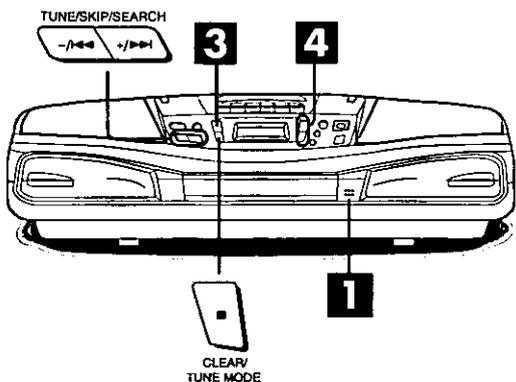


C



D





1

Label must face upward

2

3

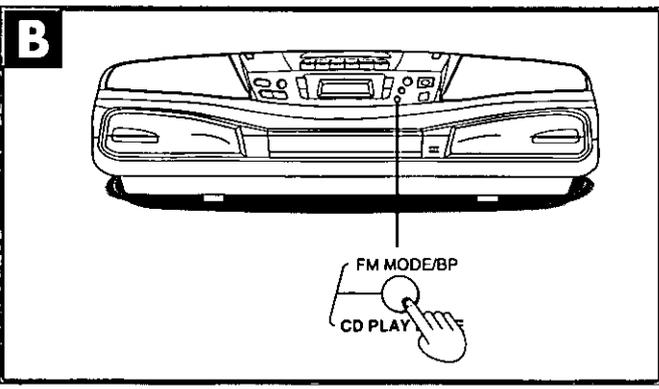
Elapsed play time of track in play

Track number in play

4

VOLUME

A



Listening to CDs

Sequential play

- 1** Press **▲ CD OPEN**, then insert the CD.
- 2** Push the CD tray to close it.
- 3** Press **▶/||** to start play.
Play starts from the first track and continues to the last track, after which it automatically stops.
- 4** Adjust the volume.

To stop the disc:

Press **■ CLEAR**.

To pause	Press ▶/ during playback. To resume playback, press ▶/ .
To search forward/backward	Hold down -/◀◀ (backward) or +/▶▶ (forward) during playback.
To skip forward/backward	Press -/◀◀ (backward) or +/▶▶ (forward) during playback.

Notes

- If interference occurs to radios or televisions, place the unit as far as possible from this equipment.
- Do not press **▲ CD OPEN** during play, pause or immediately after when you inserted the CD and closed the CD tray. CD may be scratched.

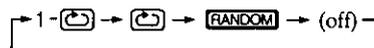
To prevent damage **A**

Do not use irregular shape CDs (heart-shape, octagonal, etc.).

Repeat play and random play

Press CD PLAY MODE before or during play. **B**

Press **▶/||** to begin play if you are in the stop mode. Every time you press the button:



To repeat just one track:

Press CD PLAY MODE to select "1-(Repeat)".

To repeat all tracks:

Press CD PLAY MODE to select "(Repeat)".

To start random play:

Press CD PLAY MODE to select "RANDOM". All tracks on the loaded CD will be played in random order. Playback will stop automatically when all tracks have been played.

To cancel repeat play and random play:

Press CD PLAY MODE to clear "1-(Repeat)", "(Repeat)" and "RANDOM". Pressing **▲ CD OPEN** also cancels repeat play and random play.

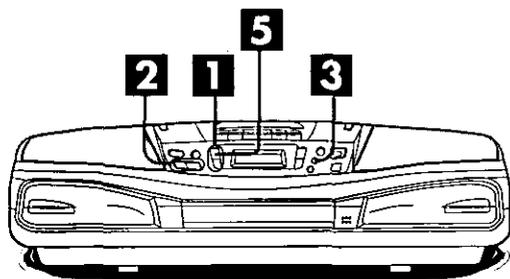
To repeat programmed tracks:

1. Program desired tracks (steps 1 to 4 on page 11).
2. Press CD PLAY MODE to display "(Repeat)".
3. Press **▶/||** to begin play.

Notes

- During random play, you cannot skip to tracks which have already been played.
- During random play, you can search forward or backward only within the current tracks.
- Random play cannot be used in combination with program play.

Listening to CDs



Program play

You can program up to 24 tracks.

Before operation:

Program play cannot be used in combination with random play. When "RANDOM" is displayed, press CD PLAY MODE to clear the display.

1 Press **CD**, then press **■ CLEAR** after the track number has been displayed.

The total number of tracks and total play time of the CD are displayed.

2 Press **-/◀◀** or **+/▶▶** to select the desired track.

3 Press **MEMORY**.
"PGM" is displayed.

4 Repeat steps 2 and 3 until you have programmed all the tracks you want.

5 Press **▶/||**.
Play will start in the programmed sequence.

When all programmed tracks have been played, "Cd-P" and the total play time will be displayed. **A**

To cancel program play:

Press **■ CLEAR** in the stop mode to display "CLR".
Pressing **▲ CD OPEN** will cancel program play.

When "--:--" appears: **B**

This means that the total play time of the programmed tracks has exceeded 120 minutes. Tracks can still be programmed and played.

When "FULL" appears: **C**

The number of programmed tracks is limited to 24. No further tracks can be programmed.

To check what has been programmed:

Press **-/◀◀** or **+/▶▶** when "Cd-P" is displayed at the end of the program.
The display will show the track number and programmed sequence.

Memory retention of programmed tracks:

The memory retains the program even if play is stopped or the unit is turned off.

Notes

- During program play, you can search forward or backward only within the current track.
- During program play, skipping is always in the programmed order, whether forward or backward.

1 Press **CD**, then press **■ CLEAR** after the track number has been displayed. The total number of tracks and total play time of the CD are displayed.

2 Press **-/◀◀** or **+/▶▶** to select the desired track.

3 Press **MEMORY**. "PGM" is displayed.

4 Repeat steps 2 and 3 until you have programmed all the tracks you want.

5 Press **▶/||**. Play will start in the programmed sequence.

When all programmed tracks have been played, "Cd-P" and the total play time will be displayed. **A**

To cancel program play:
Press **■ CLEAR** in the stop mode to display "CLR".
Pressing **▲ CD OPEN** will cancel program play.

When "--:--" appears: **B**
This means that the total play time of the programmed tracks has exceeded 120 minutes. Tracks can still be programmed and played.

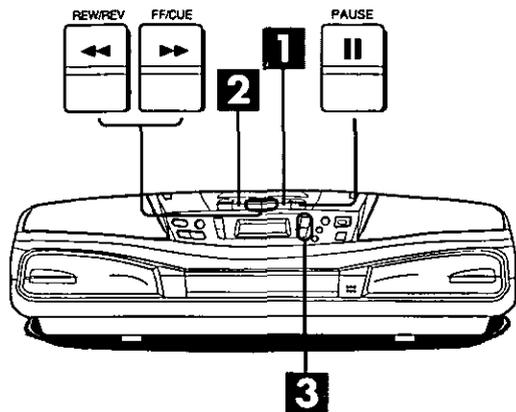
When "FULL" appears: **C**
The number of programmed tracks is limited to 24. No further tracks can be programmed.

To check what has been programmed:
Press **-/◀◀** or **+/▶▶** when "Cd-P" is displayed at the end of the program.
The display will show the track number and programmed sequence.

Memory retention of programmed tracks:
The memory retains the program even if play is stopped or the unit is turned off.

Notes

- During program play, you can search forward or backward only within the current track.
- During program play, skipping is always in the programmed order, whether forward or backward.



1

STOP/EJECT

Side to be played facing upward.

Insert the tape with the exposed tape facing you.

2

PLAY

TAPE

3

VOLUME

A

REW/REV FF/CUE

Listening to tapes

Types of tapes which can be played on this unit:

Normal position/TYPE I	○
High position/TYPE II	×
Metal position/TYPE IV	×

This unit will not be able to do full justice to characteristics of high-position tapes and metal position tapes even if they are played back.

1 Press **■/▲** STOP/EJECT, load the tape and close the lid.

2 Press **▶** PLAY to start play.

Reference

Press **TAPE** /OFF, then **▶** PLAY to switch from listening to a CD or the radio.

3 Adjust the volume.

To stop play:

Press **■/▲** STOP/EJECT.

To stop play temporarily:

Press **||** PAUSE.

To resume play:

Press **||** PAUSE again.

The unit's power is on in the pause mode. Stop tape and turn the unit off by pressing **■/▲** STOP/EJECT when leaving the unit.

To fast-forward or rewind the tape **A**

Press **◀◀** REW/REV or **▶▶** FF/CUE in the stop mode.

To rewind	To fast-forward
◀◀ REW/REV	▶▶ FF/CUE

Note.

Do not press **▶** PLAY when rewinding or fast forwarding, as this may jam the tape.

Be sure to press **■/▲** STOP/EJECT before the next operation.

To find a particular spot on a tape **A**

Press **◀◀** REW/REV or **▶▶** FF/CUE during playback.

Tape play is resumed when the button is released.

To search backward	To search forward
◀◀ REW/REV	▶▶ FF/CUE

Full auto-stop:

The automatic stop system will release the buttons when the tape reaches the end during play or when recording, fast forwarding or rewinding.

Changing the sound quality

Adjusting the POWER BLASTER

When the POWER BLASTER is on, the level of the sound is boosted.

Press POWER BLASTER.

POWER BLASTER indicator lights when this function is activated.

To cancel POWER BLASTER function:

Press POWER BLASTER to turn the indicator off.

To resume Power Blaster, press the button again.

Notes

- When listening through headphones
Turning Power Blaster on heighten the volume. Take care not to damage your hearing.
- Turning Power Blaster on/off will not affect the recording.

Adjusting the deep-bass (XBS)

by remote control only

When the XBS level control is adjusted, the level of the dynamic low frequency sound range is boosted.

Press XBS.

Every time you press the button: XBS ↔ XBS OFF

Using the "live" effect (Sound Virtualizer)

by remote control only

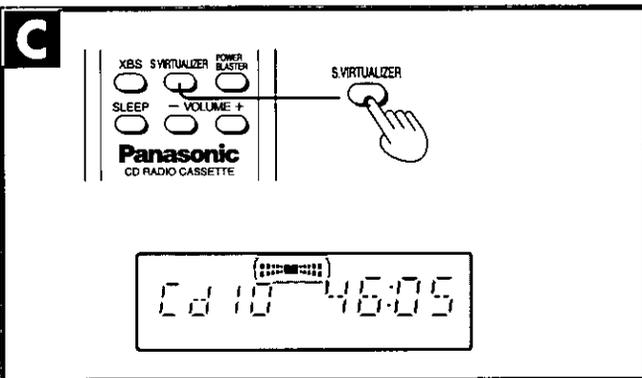
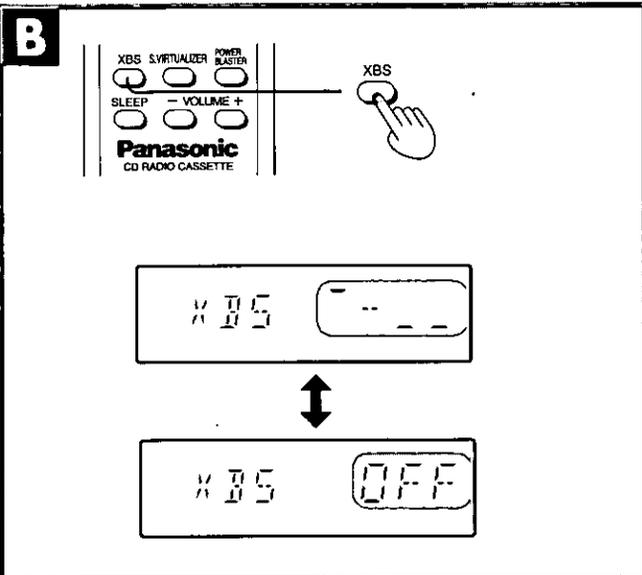
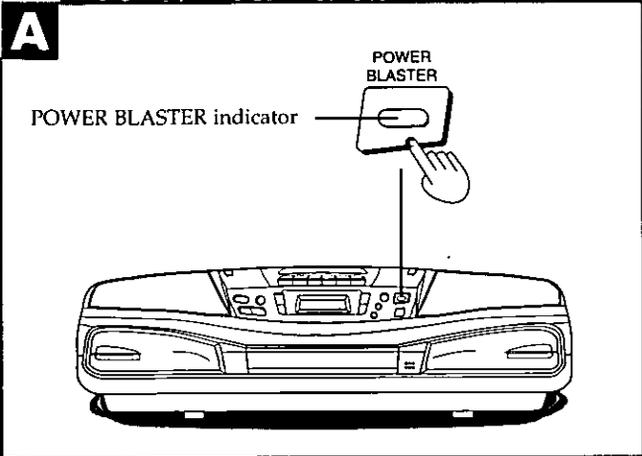
The "live" effect allows enjoyment of the 3-D feeling of listening to live music. Compared with earlier surround sound systems, the sound virtualizer leaves middle-range sounds such as vocals clear and gives natural width and depth to music. Sound virtualizer is only effective with stereo sound.

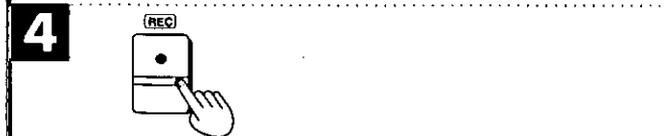
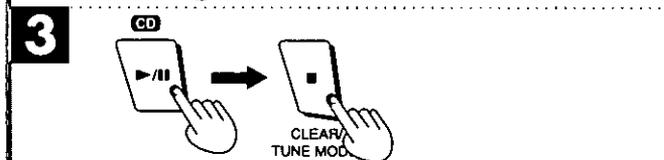
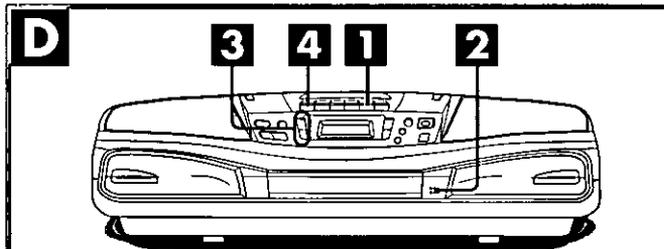
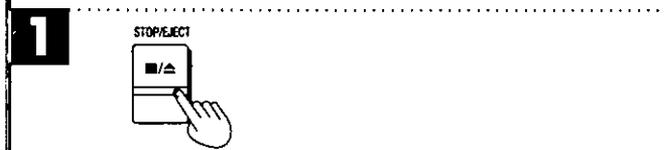
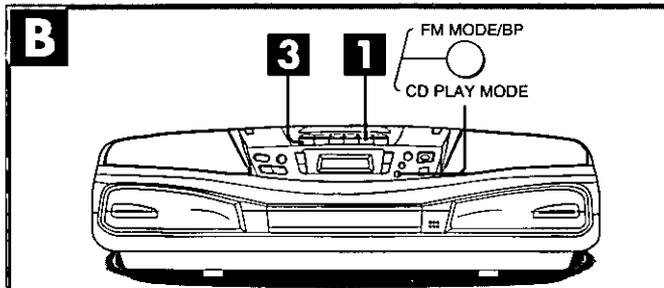
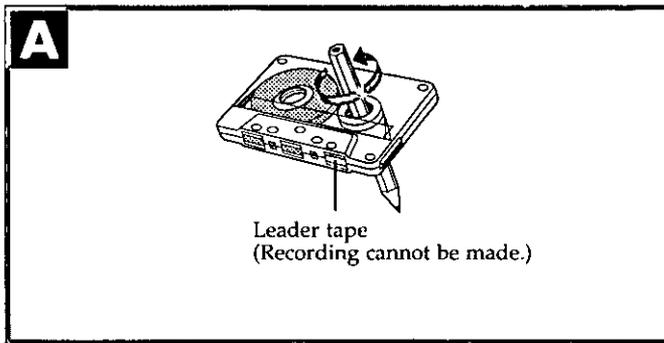
Press S.VIRTUALIZER to display the sound virtualizer indicator.

To cancel:

Press S.VIRTUALIZER to clear the sound virtualizer indicator.

- **When listening through headphones**
The effect is less discernable than through the unit speakers.
- **When excessive interference in FM stereo reception occurs**
If interference increases, cancel the sound virtualizer effect.





Before recording

To take up the leader tape: **A**

Only normal tapes can be used.
The sound may not be recorded properly if high position tapes and metal position tapes are used with this unit.

References

- Any changes made to the volume or sound quality during recording will not affect the recording.
- In order to prevent trouble caused by flat batteries, it is recommended that you either supply power to the unit from the household AC outlet or replace all the batteries with new ones when you are recording something which is important to you.
- The recording level is set automatically.

Note

If the unit is brought near a TV set during recording, noise may be recorded due to the effects of the signals from the TV set. Maintain a distance of at least 1.5 meters between the unit and a TV set.

To make a blank tape:

1. Load the recorded tape with the side to be erased facing upward.
2. Press **TAPE/OFF**.
3. Press ● **REC**.
▶ **PLAY** is also depressed with ● **REC**.

Recording from radio broadcasts **B**

- 1** Press **STOP/EJECT** and load the tape.
Load the tape with the side to be recorded facing upward.
- 2** Tune in the broadcast station.
(See page 9.)
- 3** Press ● **REC** to start recording.
▶ **PLAY** is also depressed with ● **REC**.

To stop the recording:

Press **STOP/EJECT**.

To stop the recording temporarily:

Press **PAUSE**.

To resume recording, press **PAUSE** again.

To reduce noise while recording an AM broadcast (Beat proof function): **C**

Press **FM MODE/BP** when recording or in the recording standby mode. Each time you press the button, "bP1" and "bP2" will be displayed alternately. Select the position with the least noise.

Recording from CDs **D**

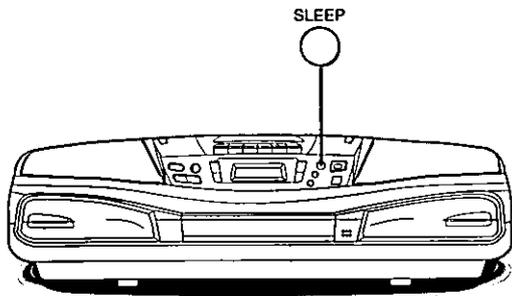
- 1** Press **STOP/EJECT** and load the tape.
Load the tape with the side to be recorded facing upward.
- 2** Press **CD OPEN** and insert the CD.
- 3** Press **CD**, then press **CLEAR** after the track number has been displayed.
The total number of tracks and total play time of the CD are displayed.
- 4** Press ● **REC** to start recording.
▶ **PLAY** is also depressed with ● **REC**.
CD play starts simultaneously.

To stop the recording:

Press **CLEAR** and **STOP/EJECT**.

Recording favourite tracks

Program desired tracks (refer to steps 2 to 4 on page 11) after step 3.



Using the sleep timer

(Available only when you are listening to the radio or a CD)

This timer turns power of your unit OFF at the set time (Max. 2 hours, settable at 30-minute intervals). It lets you fall asleep while listening to music.

While enjoying the desired source:
Press SLEEP to select the desired time. **A**

Every time you press the button:

→ 30 → 60 → 90 → 120 → OFF

After the set time has elapsed, the radio or CD will be stopped. The unit will be turned off if the tape is not travelling (all the indicators on the display will go off).

Notes

- Be sure to stop the tape when using the sleep timer, except if you are recording.
- If **TAPE** /OFF is pressed, the set time is cancelled.

To cancel the sleep timer:

Press SLEEP repeatedly until "OFF" appears.

To confirm the remaining time:

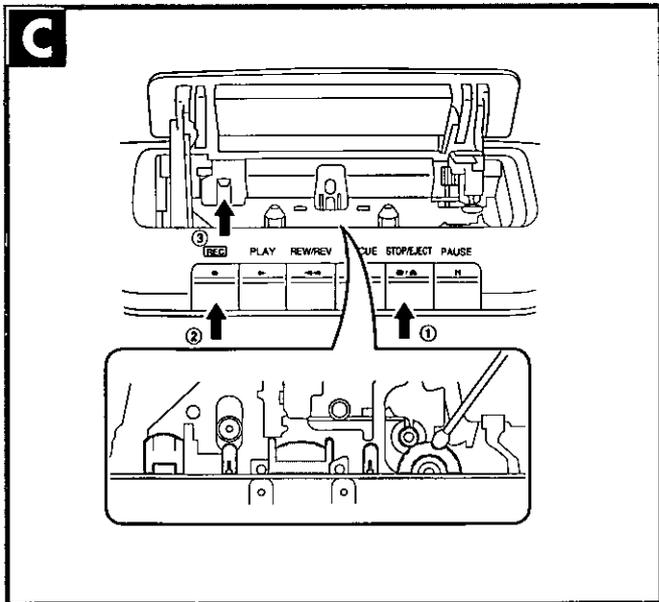
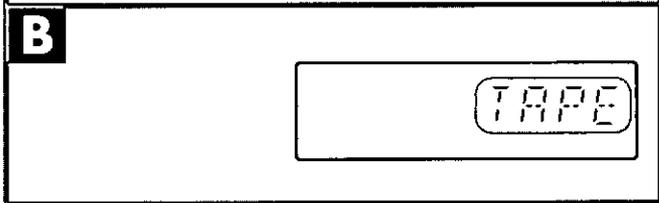
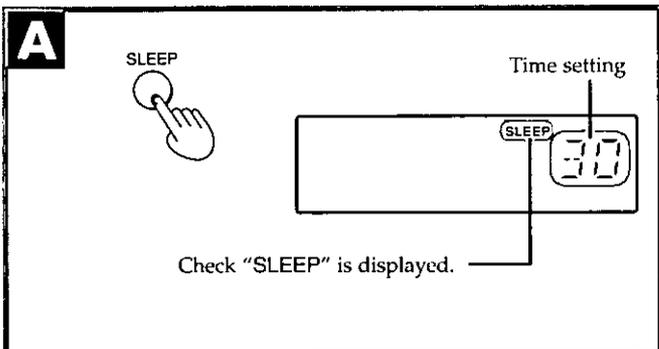
Press SLEEP.

To change the time remaining during operation:

Press SLEEP to show the remaining time then press SLEEP to select the desired time.

If you are recording during sleep operation:

When the sleep timer reaches its set time, the radio or CD will stop, but the tape will continue until it reaches the end of the tape. **B**



Maintenance

If the surfaces are dirty

To clean this unit, wipe with a soft, dry cloth.

If the surfaces are extremely dirty, use a soft cloth dipped in a soap-and-water solution or a weak detergent solution.

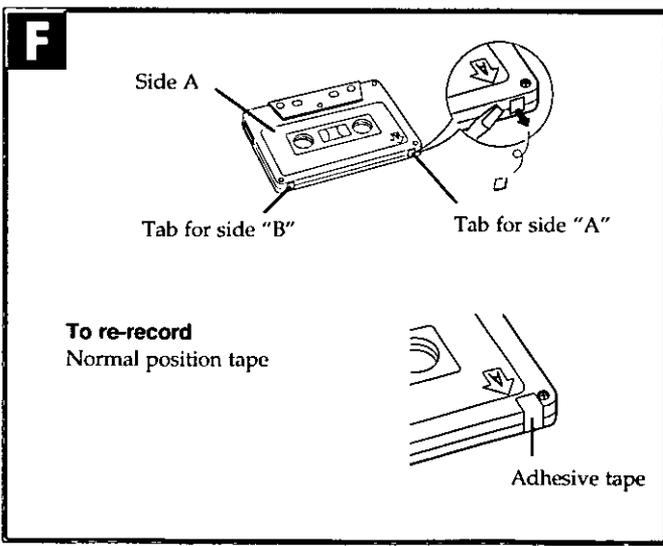
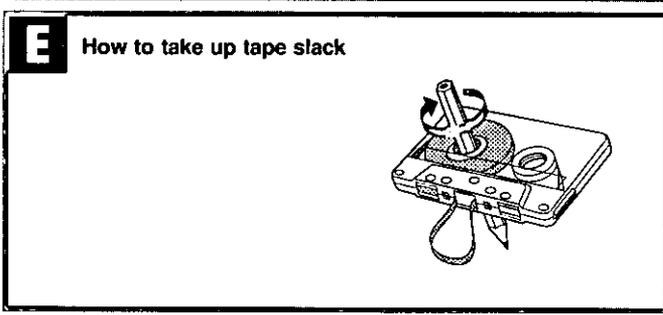
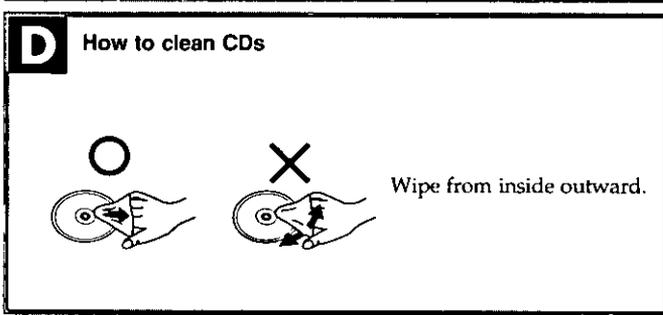
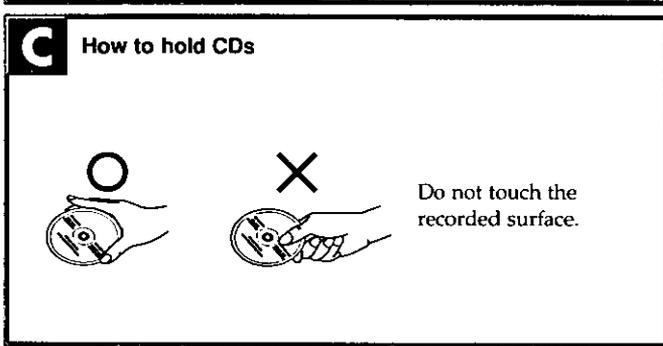
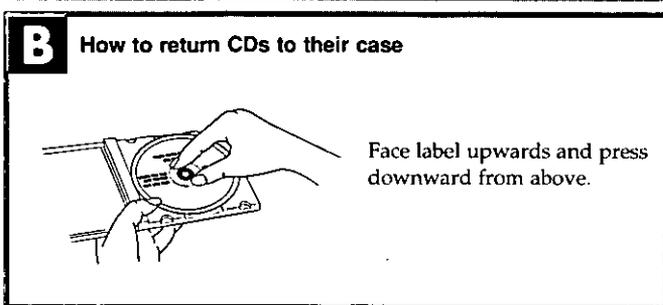
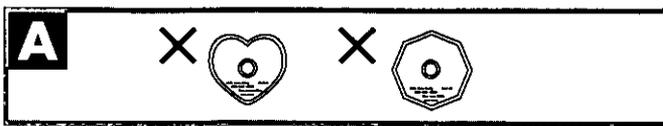
- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically impregnated cloth, read the instructions that came with the cloth carefully.

For a cleaner, crisper sound **C**

We recommend that you periodically clean parts (the shaded portions in the figure) the tape contacts, like the heads.

Do not use any solution other than alcohol for head cleaning.

1. Open the cassette cover by pressing **■/▲** STOP/EJECT (①).
2. Press **●** **REC** (②), holding the tab inside the deck (③).
3. Clean the heads with a cotton swab which has been dipped in alcohol.



Concerning CDs

With this unit, you can only play CDs having this mark. However, do not use irregular shape CDs (heart-shape, octagonal, etc.). CDs of the sort can damage the unit. **A**



Handling precautions

Be sure to handle CDs according to the precautions shown on the left (**B** - **D**). Failure to do so may damage the CD or the unit.

- If you are taking the CD from a cold to a warm environment, moisture may form on the CD. Wipe this off with a soft, dry, lint-free cloth before using the CD.
- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to CDs. (Do not use CDs with exposed adhesive from tape or left over peeled off stickers.)
- Do not use scratch-proof protectors or covers other than those specified for use with this unit.

Storage precautions

Be sure to store CDs in their cases to protect them from dust, scratches, and warping.

Do not place or store CDs in the following places:

- Locations exposed to direct sunlight.
- Humid or dusty locations.
- Locations directly exposed to a heat vent or heating appliance.
- In the glove compartment or on the rear deck of an automobile.

Concerning cassette tapes

Selection of cassette tapes

Tapes can get caught on the capstans. Use caution with the following types of tapes.

Cassette tapes exceeding 100 minutes:

Tapes are made of a thin film material. Do not repeatedly advance and stop the tape, fast-forward it or rewind it.

Endless-tapes:

Failure to operate these tapes correctly may cause the tape to wind around the revolving parts.

Always read the instructions provided with your tapes.

Tape slack **E**

Tape slack may cause the tape to break.

Erasure prevention **F**

Use a screwdriver or similar object to break out the tab.

Storage precautions

Do not place or store tapes in the following places:

- In high temperature (35°C or higher) or high humidity (80% or higher) areas.
- In a strong magnetic field (near a speaker, on top of a TV, etc.). This can erase a recording.
- Locations exposed to direct sunlight.

Troubleshooting guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions. For detailed instructions, contact an authorized servicenter in the U.S.A. and Panasonic Canada Inc. Customer Care Center in Canada. In the U.S.A. 1-800-211-7262 or web site (<http://www.panasonic.com>) In Canada 905-624-5505 or web site (www.panasonic.ca/faq.html)

Problem	Probable cause(s)	Suggested remedy	Page
Common problems			
No operation when the unit is powered by batteries.	Is the AC power cord still connected to the unit but disconnected from a household AC outlet while batteries are being used?	Disconnect the AC power cord from the unit.	5
	Are the batteries flat?	Replace them with new ones. Alternatively, use a household AC outlet as the power source.	
	Have the batteries been installed incorrectly with their (+) and (-) polarities reversed?	Align the (+) and (-) polarities properly.	
"U01" appears.	Are the batteries flat?	Replace them with new ones. Alternatively, use a household AC outlet as the power source.	
"U02" appears.	Have preparations been made to supply power to the unit?	Install the batteries or connect the AC power cord.	
	When the memory back-up batteries have not been installed, "U02" does not appear.		
When listening to the radio or CDs, the unit suddenly switches to playing a tape.	Has the sleep timer reached its set time when the tape is playing?	Press ■/▲ STOP/EJECT to stop the tape.	15
While listening to CDs			
Play does not start. No display of track numbers, etc.	Has the CD been installed upside down?	Install the CD with the label side facing up.	10
	Has there been a sudden change in temperature? For instance, was the unit brought straight from a cold place into a warm location?	Condensation may have formed on the lens unit. Leave it for about an hour before attempting operation again.	
Certain sections are not played properly.	Is the CD dirty?	Wipe with a soft cloth.	16
	Is the CD scratched?	Replace with a new CD.	
While listening to tapes			
No recording.	Has the tape's accidental erasure-prevention tabs been broken off?	Cover the holes with adhesive tape.	16
High level of noise; poor sound quality.	Are the heads dirty?	Clean them.	15
Tape is not ejected. The lid cannot be closed when loading the tape.	Are the batteries flat?	Replace them with new ones or, alternatively, use a household AC outlet as the power source and press ■/▲ STOP/EJECT after pressing ► PLAY.	5
While listening to the radio			
High level of noise; stations cannot be tuned in well.	Has the antenna been adjusted properly?	Try changing its direction.	9
Noise heard during AM reception.	Are you using the remote control of another appliance near the unit?	Use the remote control at a distance.	
	Are you operating the unit and a TV set at the same time?	Place the unit at a distance from the TV. Alternatively, turn off the TV's power.	14
While using the remote control transmitter			
No operation.	Are the batteries flat?	Replace them with new ones.	4
	Have the batteries been installed with their (+) and (-) polarities aligned properly?	Align the (+) and (-) polarities properly.	
	Is the remote control pointed toward the unit's sensor?	Check whether anything is obstructing the path between the remote control and the unit. Point the remote control properly at the unit's sensor, and operate.	
	Is the unit's sensor exposed to direct sunlight, fluorescent light or another strong source of light?	Shield the sensor from strong sources of light.	

Technical specifications

Radio

Frequency range	
FM	87.9–107.9 MHz (200 kHz steps) 87.5–108.0 MHz (100 kHz steps)
AM	520–1710 kHz (10 kHz steps)

CD player

Sampling frequency	44.1 kHz
Decoding	16 bit linear
Beam source	Semiconductor laser (wavelength 780 nm)
No. of channels	2 channel, stereo
Wow and flutter	Less than possible measurement data
D/A converter	MASH (1 bit DAC)

Tape recorder

Track system	4 track, 2 channel, stereo
Monitor system	Variable sound monitor
Recording system	AC bias
Erasing system	Multi Pole magnet
Frequency range	
Normal position	60–14000 Hz

General

Speakers	10 cm (4") 6Ω x 2
Jacks	
Output	PHONES: 3.5 mm stereo (16-32 Ω)
Power requirement	
AC	120 V, 60 Hz Power consumption: 48 W
Battery	12 V (Eight R20/LR20, D, UM-1 batteries) • Do not use rechargeable type batteries.
Memory back-up for computer	6 V (Four R6/LR6, AA, UM-3 batteries) • Do not use rechargeable type batteries.
Dimensions (WxHxD)	500 x 146 x 263 mm (19 ⁵³ / ₆₄ " x 5 ³ / ₄ " x 10 ²³ / ₆₄ "
Weight	4.0 kg (8 lb 13 oz) without batteries

Note

Specifications are subject to change without notice.
Weight and dimensions are approximate.

MASH is a trademark of NTT.

Product service

Do not attempt to remove the cover(s) or repair the unit yourself.
Refer servicing to qualified personnel only.

Product information

For product service, product information or assistance with product operation, refer to the servicentre directory.

MEMO

**Panasonic Consumer Electronics
Company, Division of Matsushita
Electric Corporation of America**
One Panasonic Way Secaucus,
New Jersey 07094

**Panasonic Sales Company,
Division of Matsushita Electric of
Puerto Rico, Inc. ("PSC")**
Ave. 65 de Infantería, Km. 9.5
San Gabriel Industrial Park, Carolina,
Puerto Rico 00985

Panasonic Canada Inc.
5770 Ambler Drive,
Mississauga, Ontario
L4W 2T3



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