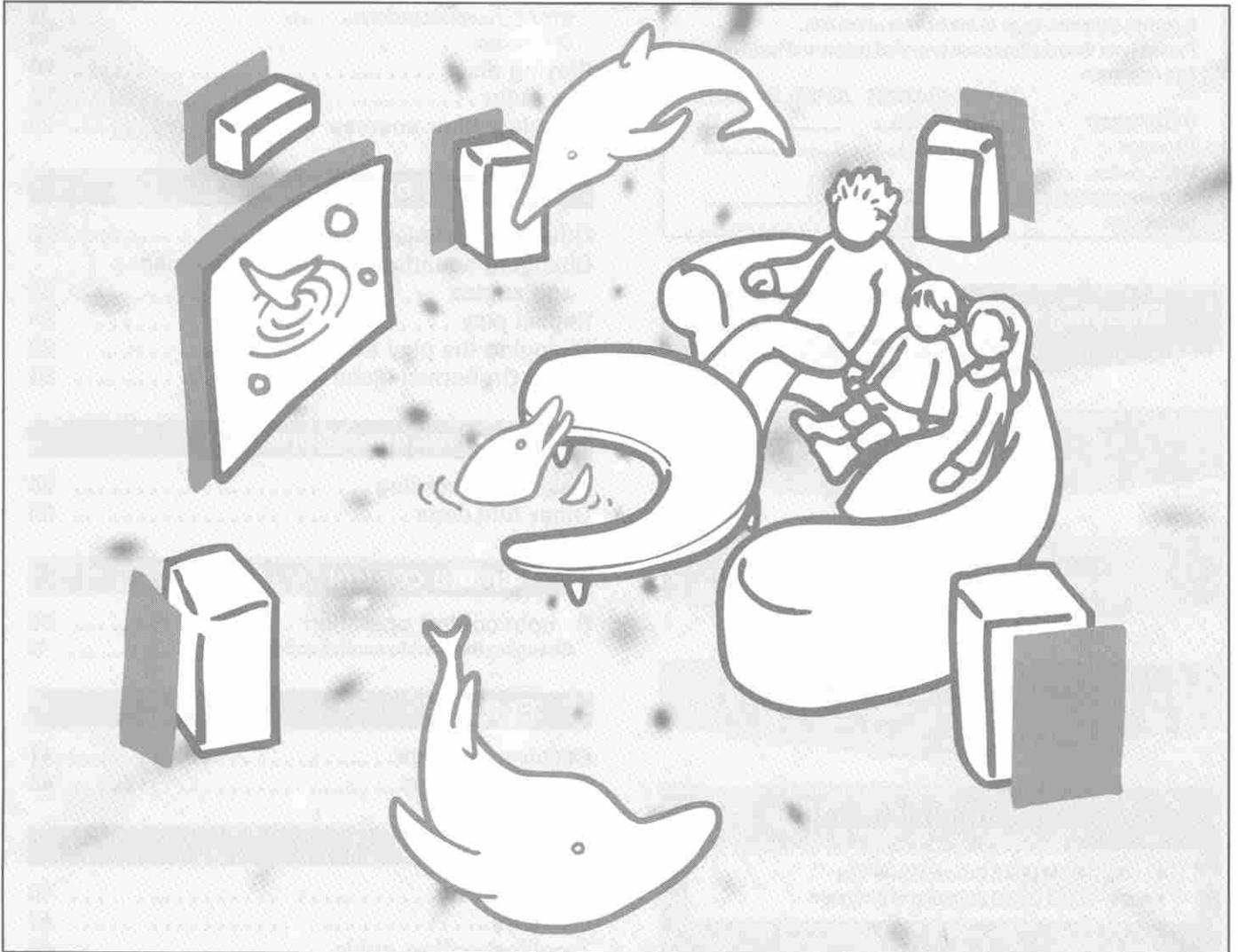
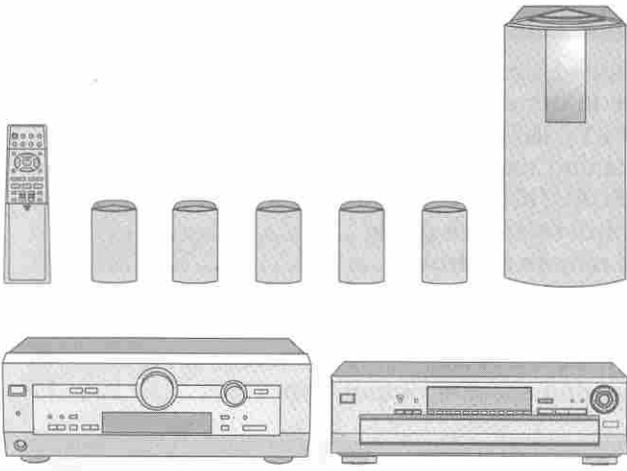


Panasonic

DVD Home Theater Sound System

Operating Instructions

Model No. **SC-HT290**



Before connecting, operating or adjusting this product, please read these instructions completely.

Please keep this manual for future reference.

For U.S.A. only

The servicenter list and warranty can be found on pages 54 and 55.

Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these instructions carefully.

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____

TELEPHONE NUMBER _____

System	SC-HT290
DVD changer	DVD-CV290
Receiver	SA-HT290
Front, center, and surround speakers	SB-AFC280
Subwoofer	SB-W280

The model number and serial number of this product can be found on either the back or the bottom of the unit. Please note them in the space provided below and keep for future reference.

	MODEL NUMBER	SERIAL NUMBER
DVD changer	DVD-CV290	_____
Receiver:	SA-HT290	_____
Front, center, surround speakers:	SB-AFC280	_____
Subwoofer:	SB-W280	_____

Enjoying home theater with DVDs

Set up the speakers

10-12

Connect your equipment

13-15

Adjust speaker output level

17

Select Digital output

- Audio—PCM Down Conversion ⇒ Yes
- Audio—DTS Digital Surround ⇒ Bitstream

43 and 45

Sit back and enjoy the experience

20

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Reference

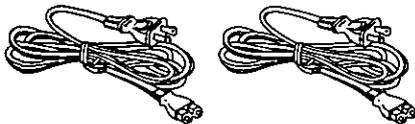
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Supplied accessories

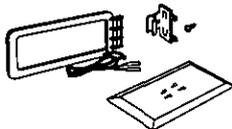


Please check and identify the supplied accessories.

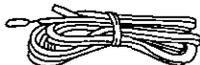
- AC power supply cord (RJA0065-A) 2



- AM loop antenna set (RSA0021-1) 1 set



- FM indoor antenna (RSA0006-L) 1



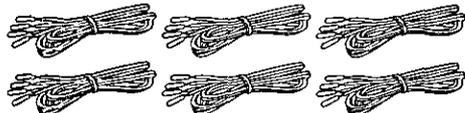
- Video connection cable 2
(RJL1P016B15A)



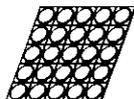
- Optical fiber cable 1
(RJL1X009B08)



- Speaker cords (REE0970A) 6



- Speaker feet 1 sheet (25 feet)



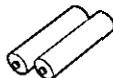
Replacements sold in 1-sheet lots (4 feet per sheet).
(RFA0631A-K)

- Speaker stickers 1 sheet (2 sets)



These sheets cannot be purchased separately.

- Batteries 2



- Remote control (EUR7502X50) 1



Use the numbers indicated in parentheses when asking for replacement parts.

(Only for U.S.A.)

To order accessories contact 1-800-332-5368 or web site (<http://www.panasonic.com>).

Disc information

Discs that can be played

Disc type	Logo	Region number	Video system	Indication used in instructions
DVD-Video		 	NTSC	DVD
Video CD		—	NTSC	VCD
Audio CD		—	—	CD

Discs that cannot be played

DVD-Audio, PAL discs, DVD-ROM, DVD-R/DVD-RAM, CD-ROM, VSD, CDV, CD-G, +RW, DVD-RW, CVD, SVCD, SACD, Divx Video Discs, and Photo CD.

Sound formats that can be played

This unit has a Dolby Digital decoder so you can play DIGITAL DVDs with this mark.



This unit has a DTS decoder so you can play discs with this mark.

Region Management Information (DVD only)

The changer responds to the Region Management Information recorded on DVDs. Its region number is "1". You cannot play the disc if the region number on the DVD does not correspond to the region number on the changer.

You can play discs with labels containing the region number "1" and "ALL". Read the disc's instructions carefully.

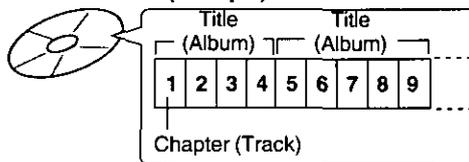
Playing DVDs and Video CDs

The producer of the material can control how these discs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's instructions carefully.

MP3 playback

You can use this unit to play MP3 format audio recorded for personal use with a computer etc. onto CD-R or CD-RW. Play may not be possible in some cases due to the condition of the recording. Discs recorded using MP3 differ to CDs in the following ways.

Structure of the disc (example)



Starting play from a selected chapter

Select the disc (→ page 21). While stopped, press the numbered buttons and press [ENTER].

Repeat play

You can use chapter repeat, title repeat, or sequential (all discs) repeat.

Program play, random play

You cannot use program play or random play.

Display during play



On-Screen Menu Icons for disc information during play

Total number of chapters



Current chapter

Elapsed play time

(display only, cannot be changed)

Before use

SAFETY INFORMATION

CAUTION!

THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC80075-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FASCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERMAITELYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	- SYNLIG OCH USYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRALUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光照射。
注意	- ここを開くと可視及び不可視のレーザー光が出ます。ビームを直接見たり、照らしたりしないでください。 ROL50233

Inside of changer

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.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPLIANCE TO RAIN, SPLASHING, DRIPPING OR MOISTURE.

CAUTION:

TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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.

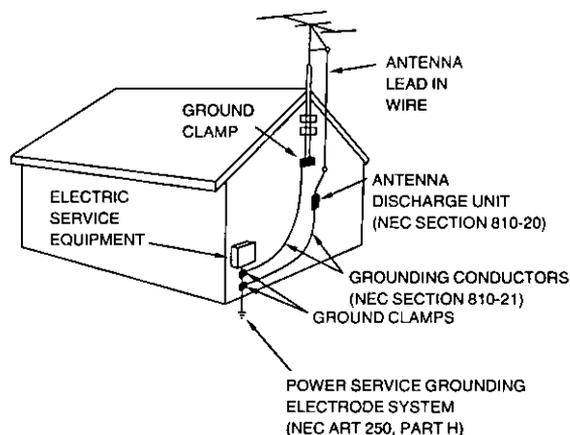
Safety

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. **Outdoor Antenna Grounding**—If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1990, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See figure below.



NEC—NATIONAL ELECTRICAL CODE

2. **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.

Do not place the changer on the receiver or other equipment that may become hot.
The heat can damage the unit.

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).
4. **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.

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 these operating instructions.



Maintenance

(See page 51 for details.)

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 benzene.

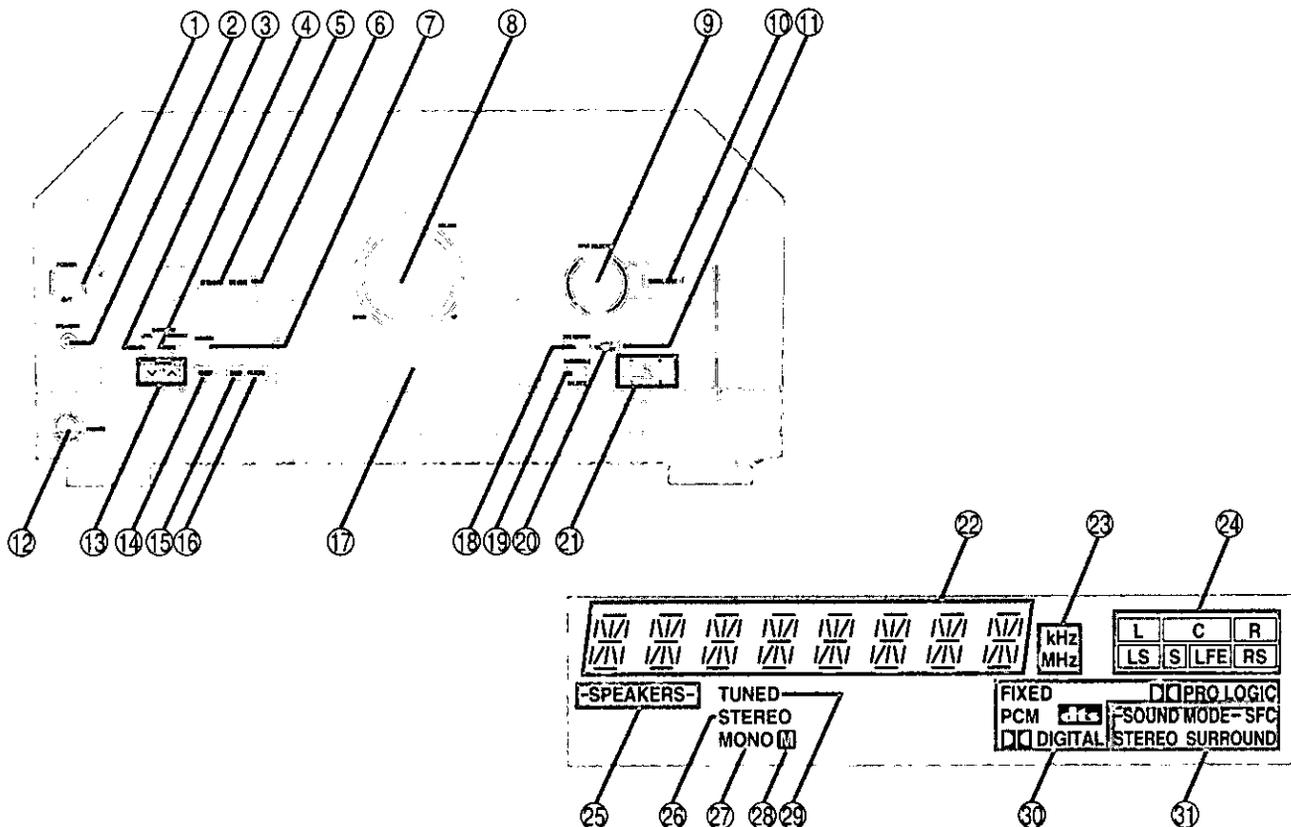
Service

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. **Service**—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.
In the U.S.A., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or web site (<http://www.panasonic.com>).
In Canada, contact Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, or web site (www.panasonic.ca), or an authorized Servicentre nearest you.

Before moving the changer, ensure the disc trays are empty.
Failure to do so will risk severely damaging the discs and the changer.

Before use

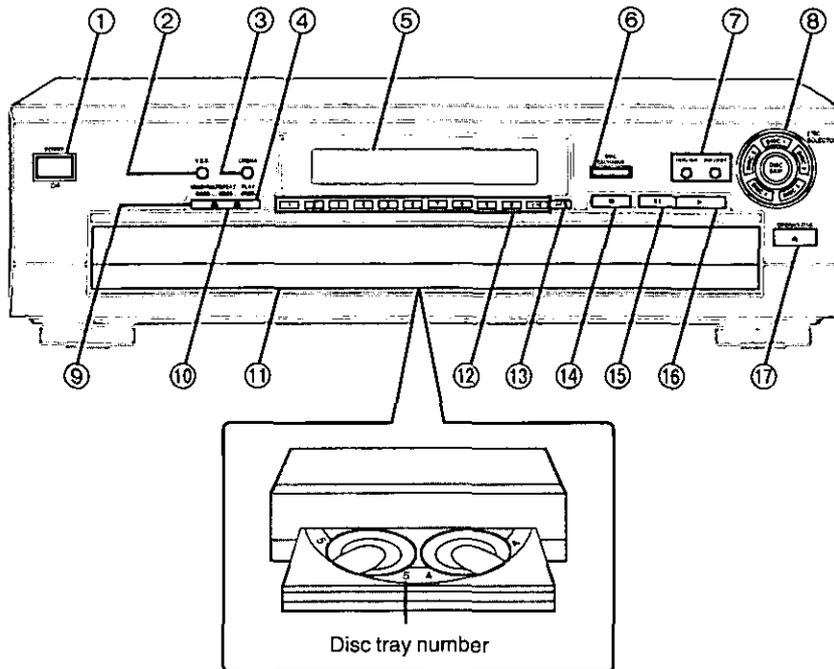
Control reference guide



Receiver

	Page
① Standby/on button [POWER, \odot/\updownarrow]	17, 20
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.	
② Speaker on/off button [SPEAKERS]	17, 20
③ Subwoofer level button [SUBWOOFER LEVEL]	35
④ Subwoofer frequency button [SUBWOOFER FREQUENCY]	35
⑤ DSP sound mode select button [DSP SOUND MODE]	18, 20
⑥ SFC mode select button [SFC MODE]	19, 20
⑦ Memory button [MEMORY]	24
⑧ Volume control [VOLUME]	21
⑨ Input selector [INPUT SELECTOR]	20, 25
⑩ Digital input select button/indicator [DIGITAL INPUT]	20, 25
⑪ Help/reset button [-HELP/-RESET]	51
⑫ Headphone jack [PHONES]	35
⑬ Tuning buttons [TUNING, \vee , \wedge]	23, 24
⑭ Preset channel button [PRESET]	24
⑮ Band select button [BAND]	23
⑯ FM mode select button [FM MODE]	23
⑰ Display section	
⑱ Tape monitor button [TAPE MONITOR]	34
⑲ Tone and balance select button [BASS/TREBLE, BALANCE]	35
⑳ Tape monitor indicator	34
㉑ Tone and balance adjust buttons [-, +, L, R]	35

	Page
㉒ Display	
㉓ Frequency unit indicators [kHz, MHz]	23, 24
㉔ Program format indicators [L, C, R, LS, S, LFE, RS]	22
㉕ Speaker Indicator [-SPEAKERS-]	17
㉖ Stereo indicator [STEREO]	23
㉗ Monaural indicator [MONO]	23
㉘ Memory indicator [M]	24
㉙ Tuned indicator [TUNED]	23
㉚ Signal format indicators [FIXED, PCM, $\square\square$ DIGITAL, $\square\square$ PRO LOGIC, \square DTS]	22
㉛ DSP sound mode indicators [-SOUND MODE-, SFC, STEREO, SURROUND]	18

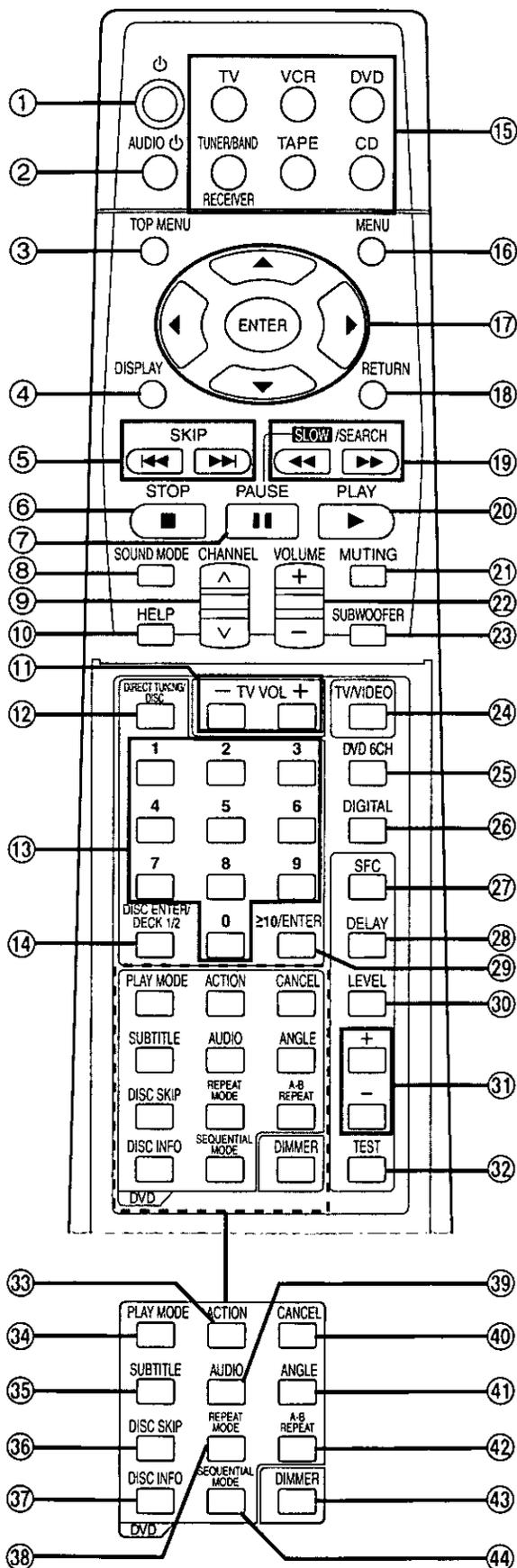


Changer

	Page		Page
① Power button (POWER, P/I)	20	⑧ Disc 1–5 buttons/indicators, Disc skip button (DISC 1–5, DISC SKIP)	21
② V.S.S. button/indicator (V.S.S.)	33	⑨ Sequential mode button (SEQUENTIAL MODE)	26
③ Cinema button/indicator (CINEMA)	33	⑩ Repeat mode button (REPEAT MODE)	29
④ Play mode button (PLAY MODE)	26, 29, 30	⑪ Drawer	20
⑤ Display		⑫ Numbered buttons (1–9, 0, ≥ 10)	22
⑥ Disc exchange button (DISC EXCHANGE)	21	⑬ Cancel button (CANCEL)	37
⑦ Skip/Search buttons ($\text{I} \ll / \ll, \gg / \text{I}$)	27	⑭ Stop button (■)	21
		⑮ Pause button ()	21
		⑯ Play button (▶)	21
		⑰ Drawer open/close button (OPEN/CLOSE \blacktriangle)	20

Remote control

Page



①	Power button (⏻)	20
②	Audio power button (AUDIO ⏻)	36
③	Top menu button (TOP MENU)	26
④	Display button (DISPLAY)	31
⑤	Skip button (SKIP ◀▶)	27
⑥	Stop button (STOP ■)	21, 26
⑦	Pause button (PAUSE)	21
⑧	DSP sound mode select button (SOUND MODE)	18
⑨	Channel up/down buttons (CHANNEL ▲, ▼)	24
⑩	Help button (HELP)	51
⑪	TV volume buttons (- TV VOL +)	38
⑫	Direct tuning/disc button (DIRECT TUNING/DISC)	22, 23
⑬	Numbered buttons	22
⑭	Disc/deck 1/2 select button (DISC ENTER/DECK 1/2)	38, 39
⑮	Input select buttons (TV, VCR, DVD, TUNER/BAND, TAPE, CD)	36
⑯	Menu button (MENU)	26
⑰	Cursor/enter buttons	31, 37
⑱	Return button (RETURN)	31, 37
⑲	Slow/Search button (SLOW/SEARCH ◀▶)	27
⑳	Play button (PLAY ▶)	21
㉑	Muting button (MUTING)	34
㉒	Volume buttons (VOLUME +, -)	17
㉓	Subwoofer level button (SUBWOOFER)	35
㉔	TV/video select button (TV/VIDEO)	38
㉕	DVD 6ch input button (DVD 6CH)	25
㉖	Digital input select button (DIGITAL)	20, 25
㉗	SFC mode select button (SFC)	19
㉘	Delay time button (DELAY)	19, 36
㉙	≥10/enter button (≥10/ENTER)	22
㉚	Speaker channel select button (LEVEL)	17, 19
㉛	Delay time/level adjust buttons (+, -)	17, 19
㉜	Test button (TEST)	17
㉝	Action button (ACTION)	43
㉞	Play mode button (PLAY MODE)	26, 29, 30
㉟	Subtitle select button (SUBTITLE)	28
㊱	Disc skip button (DISC SKIP)	21
㊲	Disc information button (DISC INFO)	32
㊳	Repeat mode button (REPEAT MODE)	29
㊴	Sound track select button (AUDIO)	28
㊵	Cancel button (CANCEL)	37, 44
㊶	Angle select button (ANGLE)	28
㊷	A-B repeat button (A-B REPEAT)	29
㊸	Dimmer button (DIMMER)	34
㊹	Sequential mode button (SEQUENTIAL MODE)	26

The remote control

Apart from the receiver and changer, this remote control can also operate Panasonic or Technics cassette decks, CD players, televisions, and video decks, provided they have remote control sensors.

- For details on operating other equipment, see the instruction manual provided with the specific unit.
- Some models cannot be operated by this remote control.
- Actual operations depend on your equipment and software. You can also change the remote control code to operate televisions and video decks manufactured by other companies (→ page 40).

A Batteries

- Insert so the poles (+ and -) match those in the remote control.
- Do not use rechargeable type batteries.

Do not;

- mix old and new batteries.
 - use different types at the same time.
 - heat or expose to flame.
 - take apart or short circuit.
 - attempt to recharge alkaline or manganese batteries.
 - use batteries if the covering has been peeled off.
- Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire. If electrolyte leaks from the batteries, consult your dealer. Wash thoroughly with water if electrolyte comes in contact with any part of your body. Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place. Replace if the unit does not respond to the remote control even when held close to the front panel.

B Use

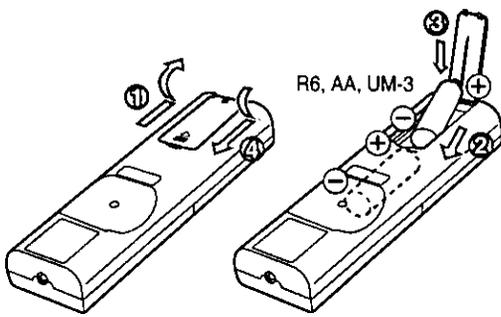
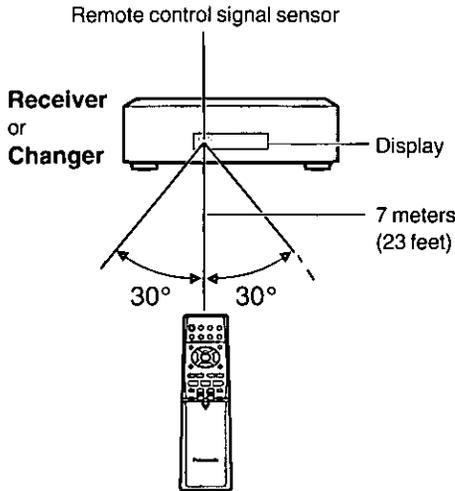
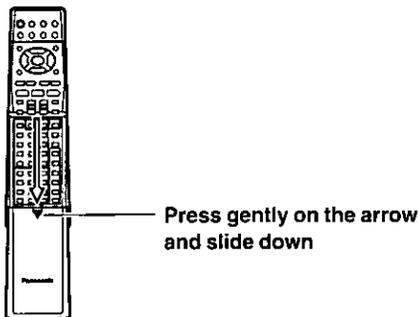
Aim at the sensor, avoiding obstacles, at a maximum range of 7 meters (23 feet) directly in front of the unit.

- Keep the transmission window and the unit's sensor free from dust.
- Operation can be affected by strong light sources, such as direct sunlight, and the glass doors on cabinets.

Do not;

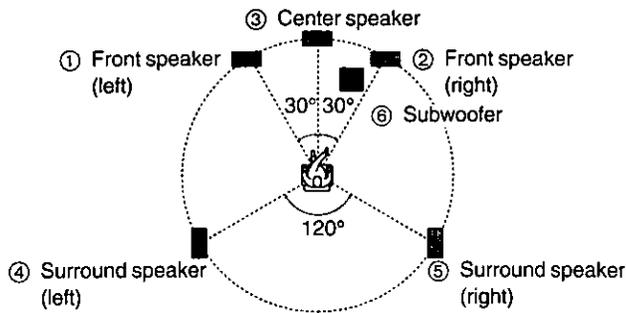
- put heavy objects on the remote control.
- take the remote control apart.
- spill liquids onto the remote control.

C How to open the remote control cover

A**B****C**

Before use

Speaker set-up

A

A Placement of speakers

The ideal positioning of the five small speakers is in a circle centering on the seating position, as shown in the diagram. (The angles are approximate.) As this is not possible due to the layout of most rooms, the receiver's DISTANCE settings allow you to make up for any differences (→ page 41).

Front speakers (1 2)

Place on the left and right of the TV at seated ear height so that there is good coherency between the picture and sound.

Center speaker (3)

Place underneath or above the center of the TV. Aim the speaker at the seating area.

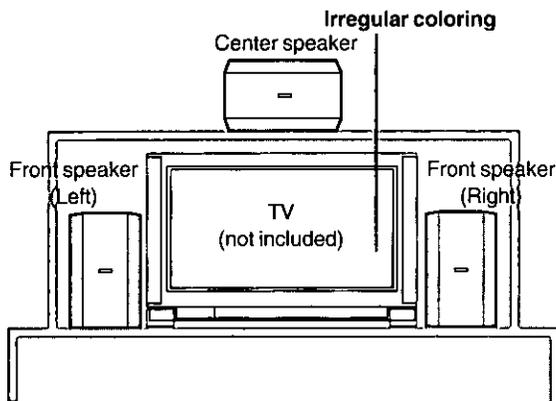
Surround speakers (4 5)

Place on the side of or slightly behind the listening position, about one meter (4 feet) higher than ear level.

Subwoofer (6)

The subwoofer can be placed in any position as long as it is at a reasonable distance from the TV.

Note that some experimentation can yield the smoothest low frequency performance. Placement near a corner can increase the apparent output level, but can result in unnatural bass.

B

Speaker notes

- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- Reduce the volume in the following cases to avoid damage.
 - When playing distorted sound.
 - When the speakers are receiving howling from a microphone or record player, noise from FM broadcasts, or continuous signals from an oscillator, test disc, or electronic instrument.
 - When adjusting the sound quality.
 - When turning the unit on or off.

Positioning for best effect

How you set up your speakers can affect the bass and the sound field. Note the following points.

- Place speakers on flat secure bases.
- Placing speakers too close to floors, walls, and corners can result in excessive bass. Cover walls and windows with thick curtain.

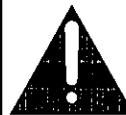
B If irregular coloring occurs on your television

These speakers are designed to be used close to a television, but the picture may be affected with some televisions and set-up combinations.

If this occur, turn the television off for about 30 minutes.

The television's demagnetizing function should correct the problem.

If it persists, move the speakers further away from the television.

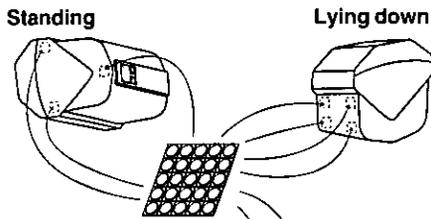


Caution

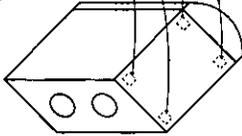
- Use the speakers only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speakers, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.
- Do not attempt to attach these speakers to walls using methods other than those described in this manual.

Free-standing

Small speaker



Big speaker



Attach these rubber feet to prevent vibration causing the speakers to move or fall over.

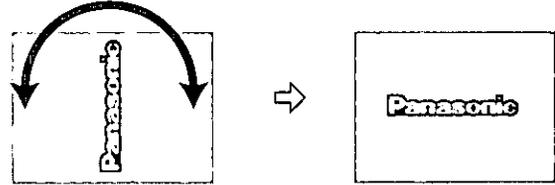
One sheet of 25 rubber feet is included. Use 3 or 4 feet per speaker.

Moving the brand badge

You can turn the brand badge if you want to set up the small speakers horizontally.

Rotate the badge to the required position.

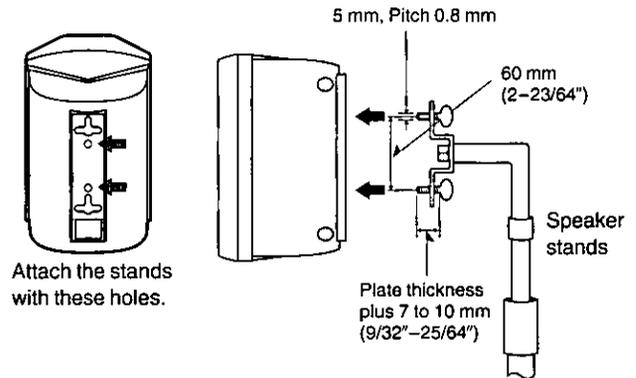
- The speaker nets cannot be removed.



Attaching to speaker stands

Ensure the following conditions are met when you purchase your speaker stands.

- Screw; diameter: 5 mm, pitch: 0.8 mm, length: thickness of stand plate plus between 7 and 10 mm.
- Distance between the centers of the holes; 60 mm
- The stands must be able to support over 10 kg (22 lb).
- The stands must be stable even if the speakers are in a high position.

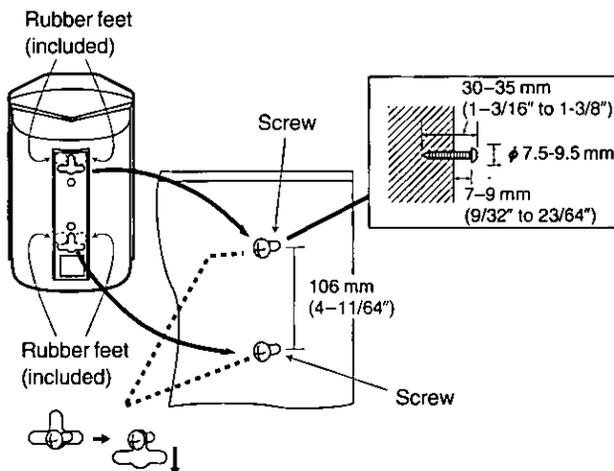


Note

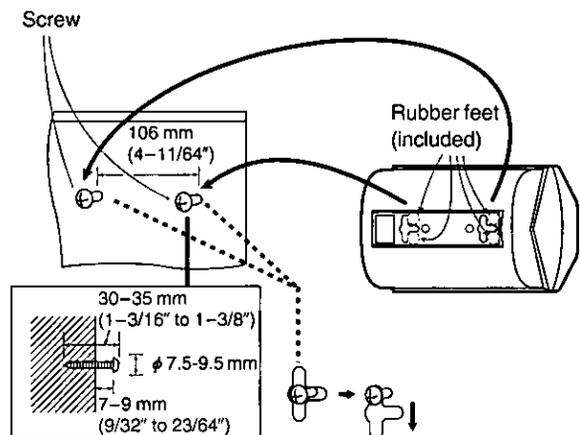
- Set the speakers up on an even surface to prevent them from falling. Take proper precautions to prevent the speakers from falling if you cannot set them up on an even surface.
- Keep your speakers at least 10 mm (13/32") away from the system for proper ventilation.

Attaching to a wall

To attach vertically



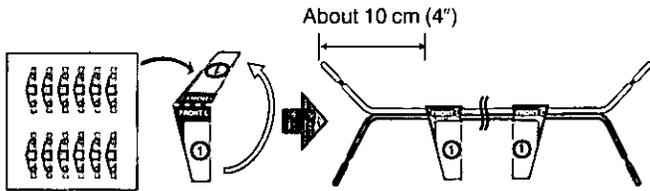
To attach horizontally



Note

Attach four rubber feet to each speaker, ensuring they do not cover the holes. Screw the wood screw into a thick and hard part of the wall. The surface you attach the speakers to must be able to support over 10 kg (22 lb). Consult your dealer for details.

1 Attach the stickers to the speaker cords

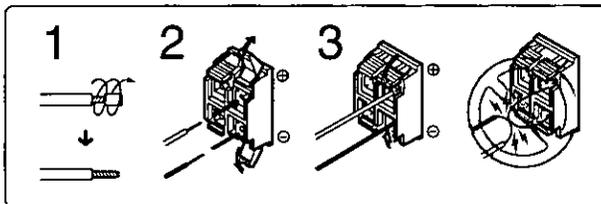


The 6 speaker cords are all the same.

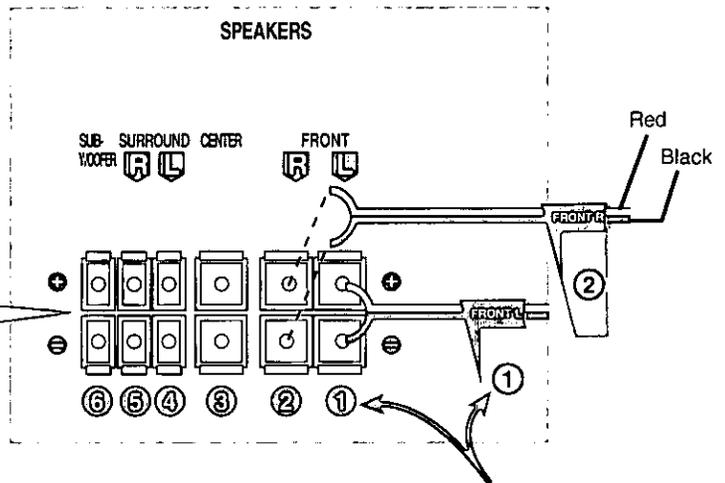
2 Connect the cords to the receiver

Speaker cords

- Connect the cords so the numbers on the stickers match the numbers under the terminals.
- Connect the red cords to the red terminals (+) and the black cords to the black terminals (-).
- Ensure the wires of the cords are fully inserted so they do not touch each other and short circuit.

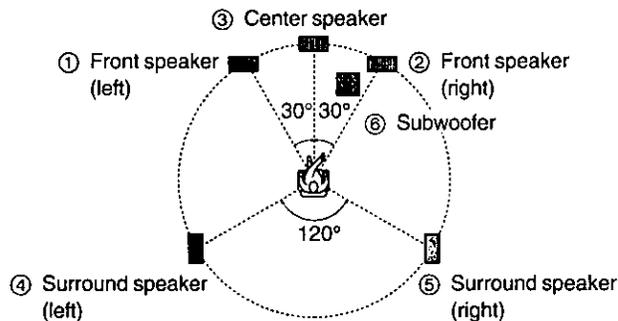


Rear of receiver



Connect so the numbers on the stickers match the numbers under the terminals.

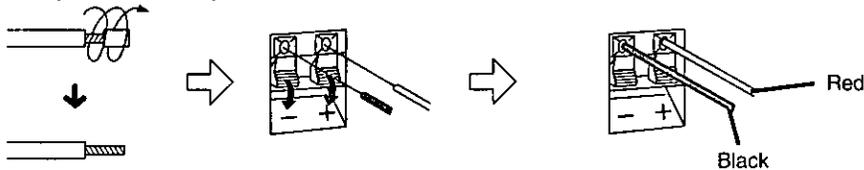
3 Connect the cords to the speakers



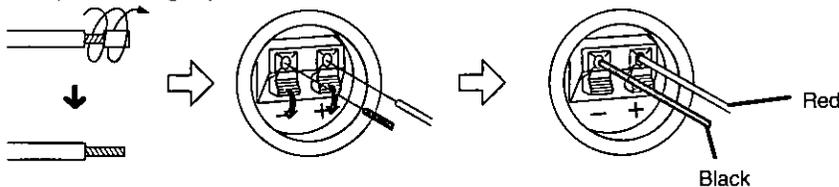
The 5 small speakers are the same.

Connect the cords with stickers ① to ⑤ attached to the small speakers: 2×front, 2×surround, and 1×center. Connect the cord with sticker ⑥ attached to the large speaker: subwoofer.

Rear panel of small speakers



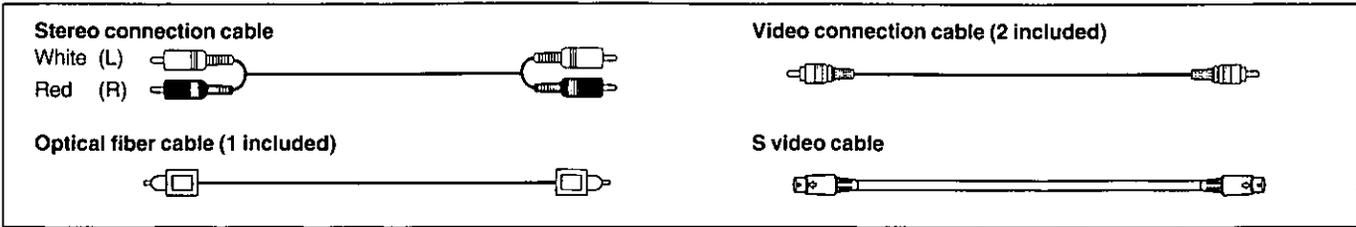
Rear panel of large speaker



Note

After you have completed set-up and connection, wind the excess cord and keep together with string.

Equipment connections



Make sure that the power supply for all components has been turned off before making any connections.

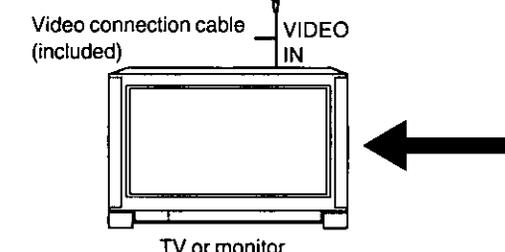
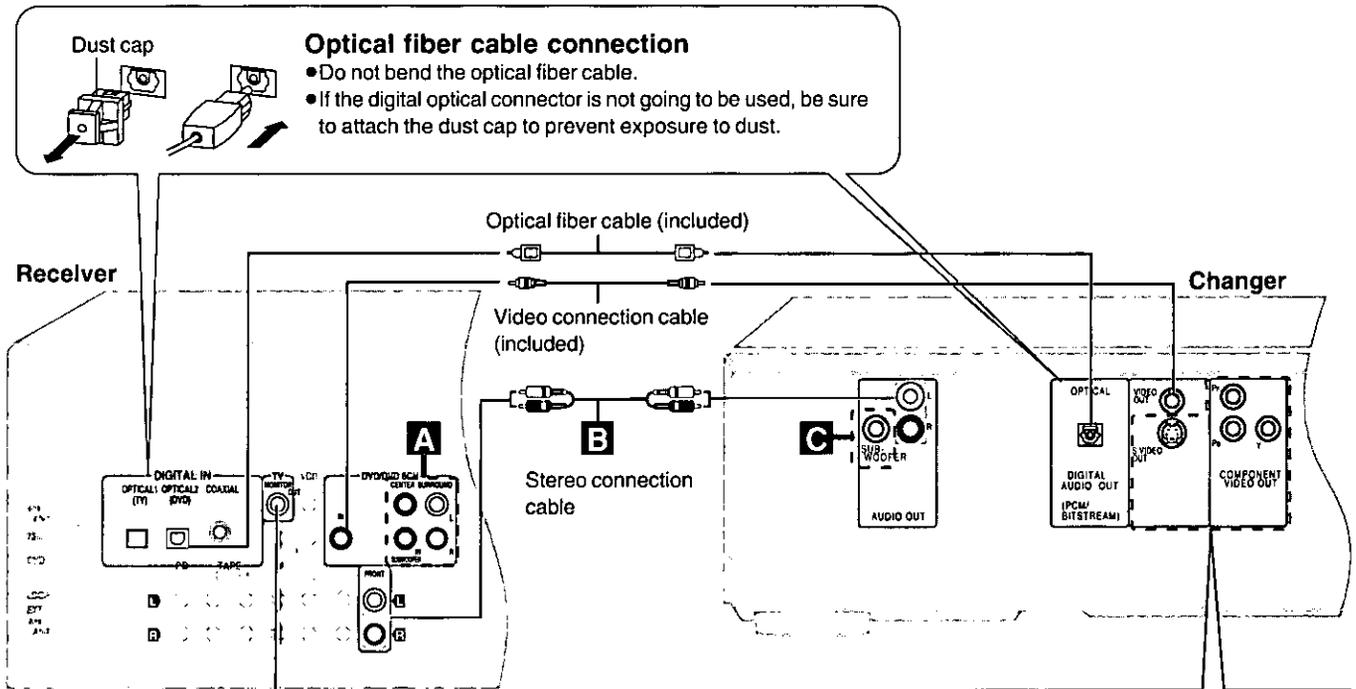
To connect equipment, refer to the appropriate operating instructions.

Peripheral equipment and cables sold separately unless otherwise indicated.

Do not connect the changer through your video cassette recorder

The picture may not be played correctly due to the copy guard.

Connecting the receiver, changer and TV



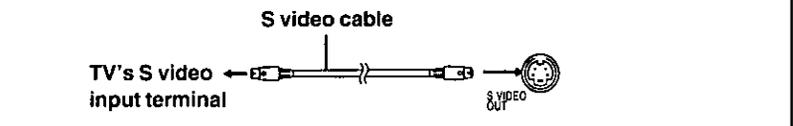
A CENTER, SURROUND (L/R) SUBWOOFER IN

Connect a DVD-Audio player with 6-channel (5.1-channel) output here. When you do this, you will have to disconnect the changer from the FRONT terminals.

B This connection is necessary if you intend to record from the changer (⇒ page 34) and to play audio with high sampling frequencies (⇒ page 25).

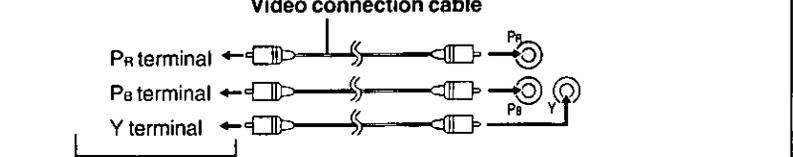
C If you ever separate the changer from the receiver, you can connect an active subwoofer here.

■ S VIDEO OUT terminal



The S-video terminal achieves a more vivid picture than the video output terminal by separating the chrominance (C) and luminance (Y) signals. (Actual results depend on the television.)

■ COMPONENT VIDEO OUT terminal



Connection using these terminals outputs the color difference signals (Pa/Pa) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

• The description of the component video input terminals depends on the television or monitor (e.g. Y/Pa/Pa, Y/B-Y/R-Y, Y/Ca/Ca). Connect to terminals of the same color.

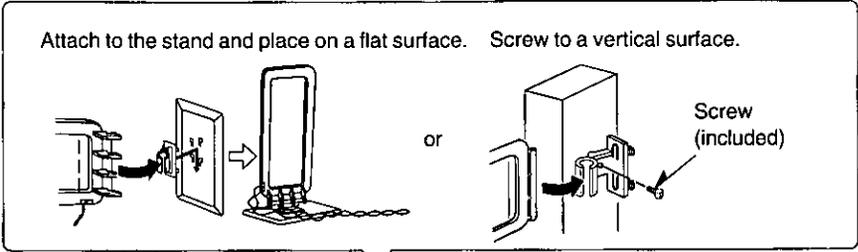
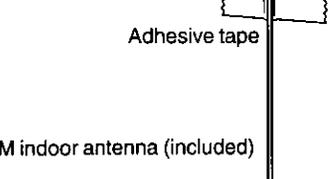
• After making this connection, change the black level for a better picture (⇒ Video—Black Level Control, page 46).

Before use

Connecting the antennas

FM antenna

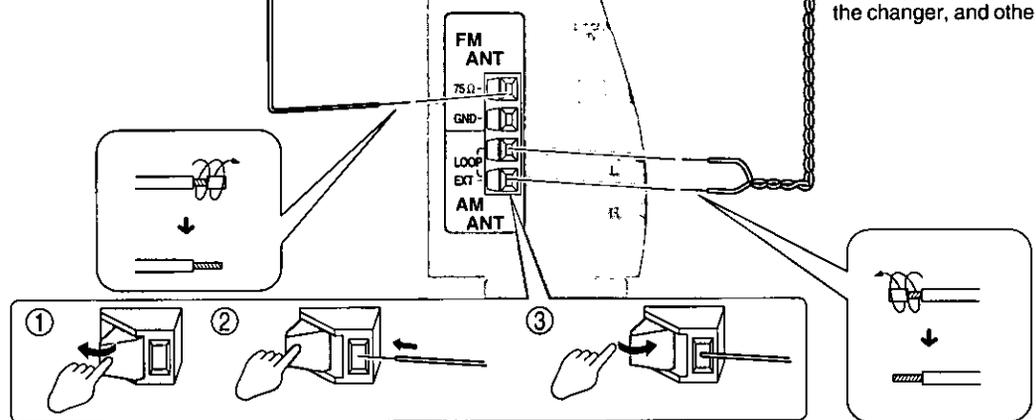
Fix the other end of the antenna where reception is best.



AM loop antenna (included)

AM loop antenna

Keep the antenna cord away from tape decks, the changer, and other cords.



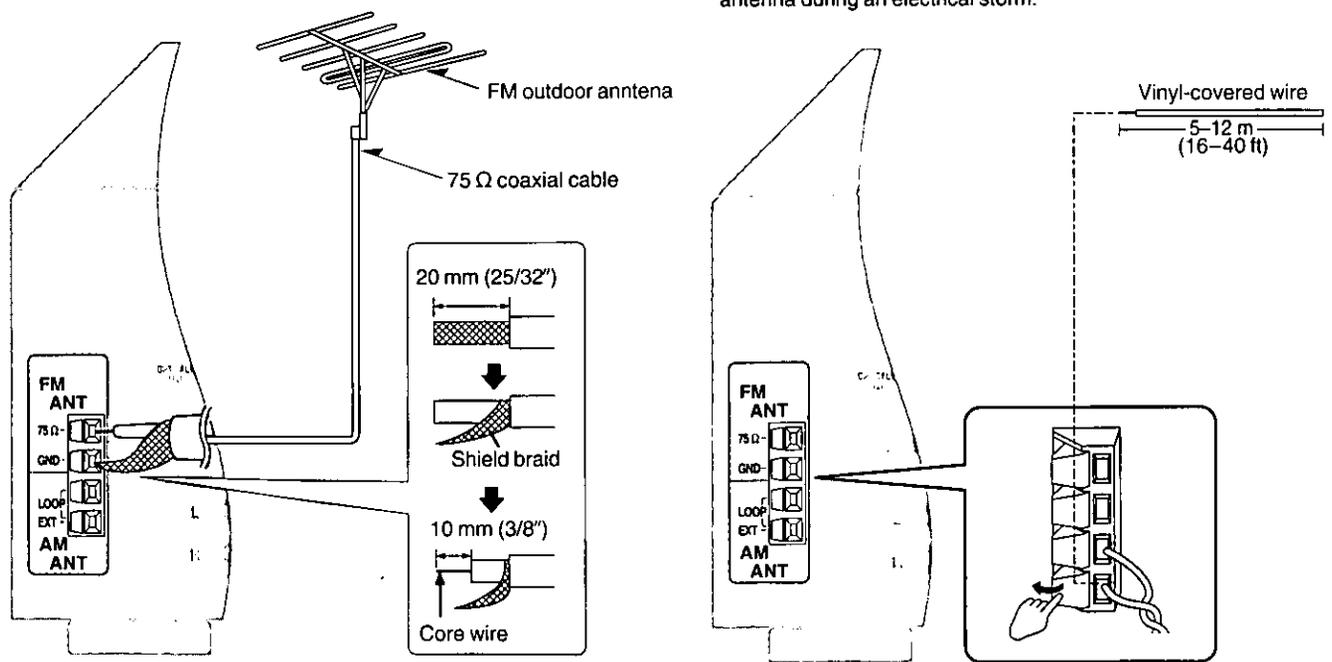
To connect an outdoor antenna

FM outdoor antenna

- Disconnect the FM indoor antenna.
- The antenna should be installed by a competent technician.
- Twist the coaxial cable's shield braid firmly and connect it to the GND terminal.

AM outdoor antenna

- Run a piece of vinyl wire horizontally across a window or other convenient location.
- Leave the loop antenna connected.
- Disconnect the antenna when the unit is not in use. Do not use the antenna during an electrical storm.



Connecting the AC power supply cords and other information

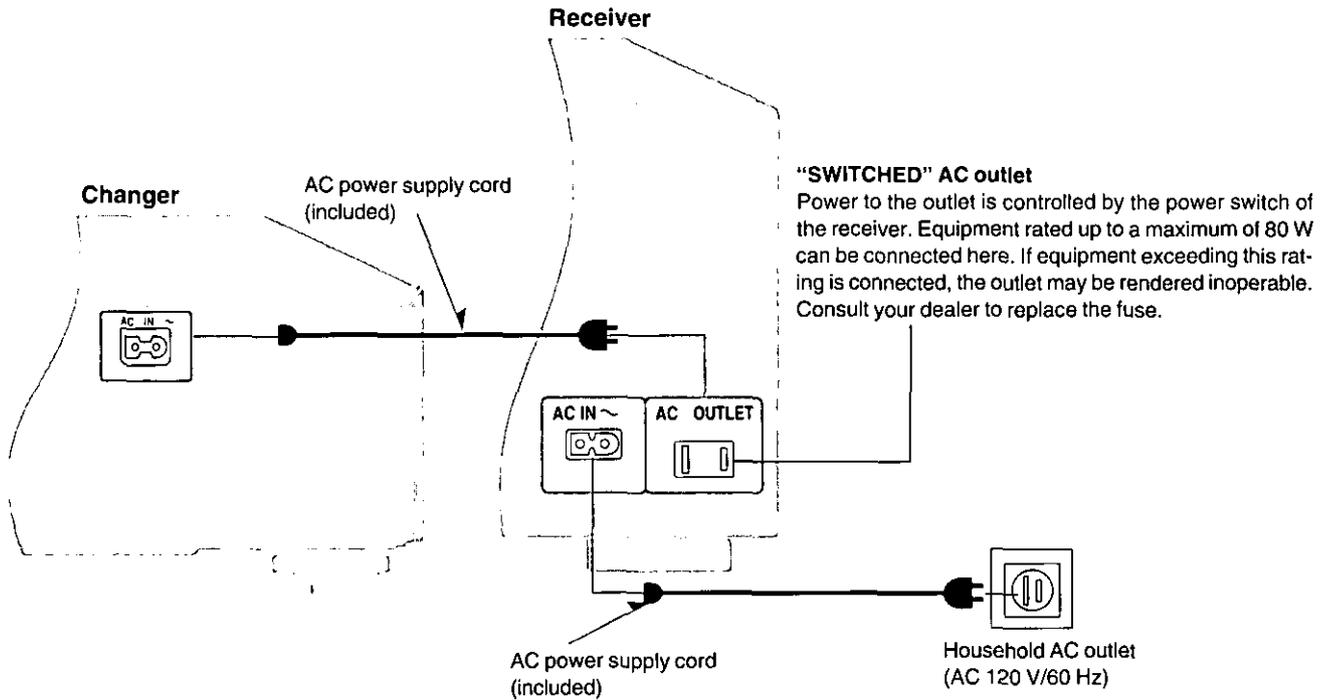
Connect these cords after all other cables and cords are connected.

Note

The included AC power supply cords are for use with these units only. Do not use them with other equipments.

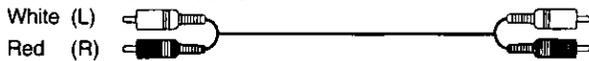
Conserving power

The changer consumes a small amount of power, even when it is turned off (approx. 2 W). The receiver consumes 1 W even when it is turned off with [POWER, ]. To save power when the unit is not to be used for a long time, unplug it from the household AC outlet. If it is left unplugged for longer than a few weeks, all settings will revert to the factory settings. Do the settings again if this occurs.



Other connections

Stereo connection cable



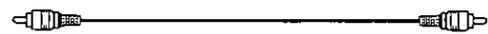
Coaxial cable



Optical fiber cable



Video connection cable



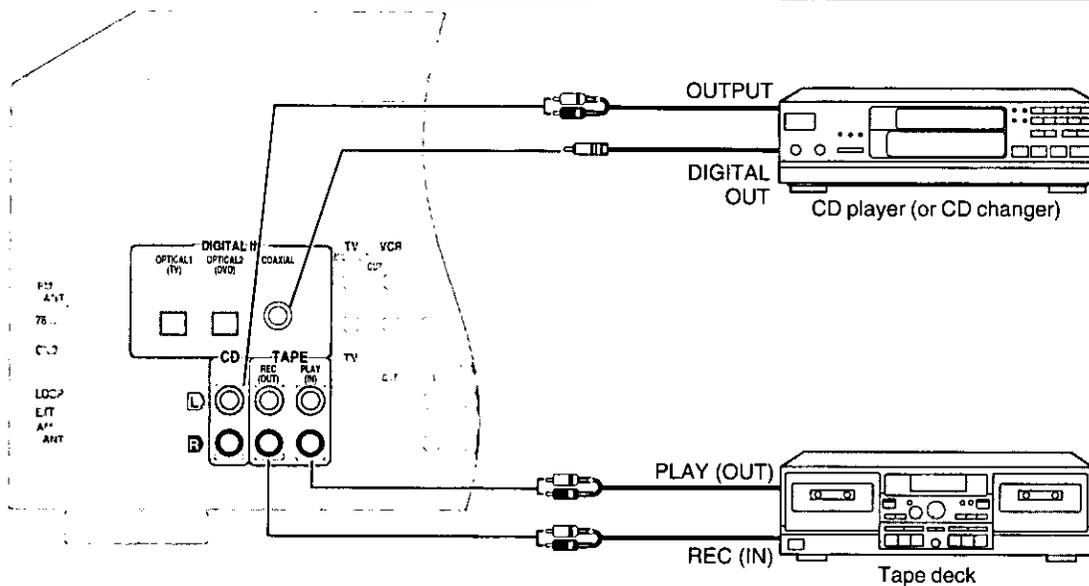
Note

- The receiver cannot decode Dolby Digital RF (radio frequency) signals from a laser disc player.
- If you want to connect a graphic equalizer, connect it to the TAPE terminals.
- Use analog connection to record sources (⇒ page 34).

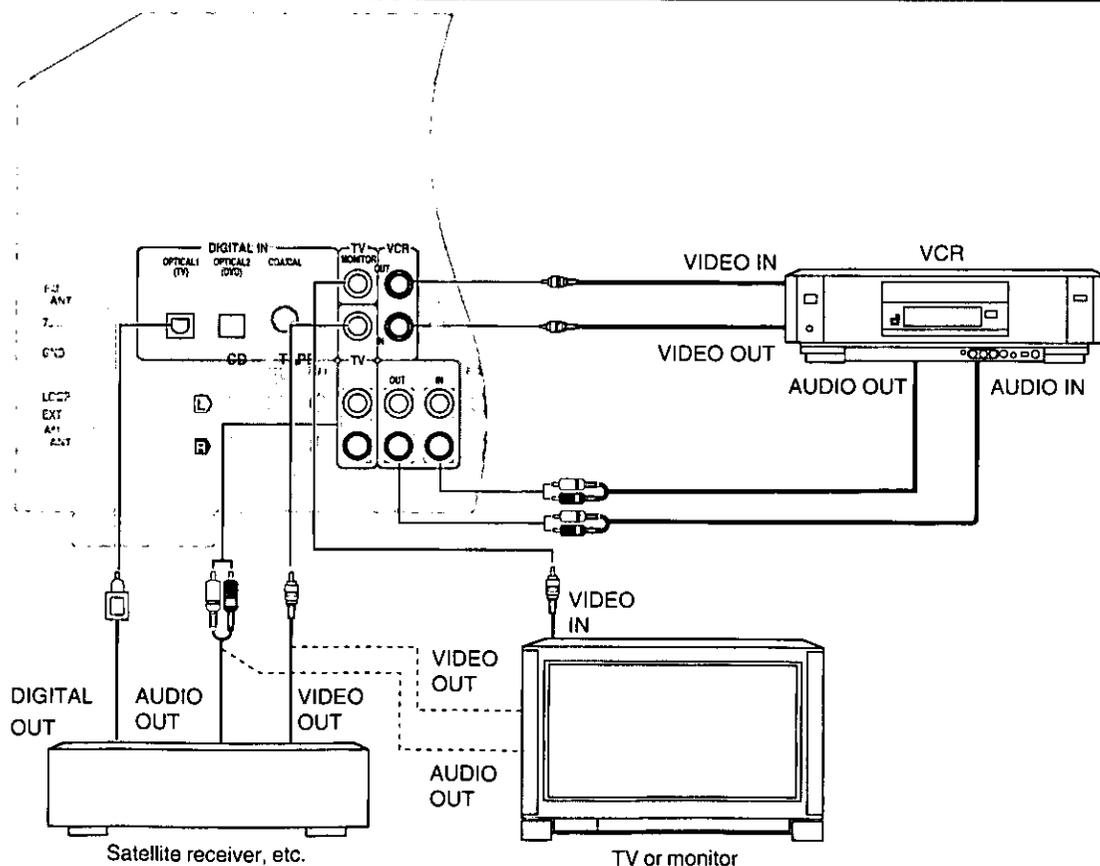
Changing the digital input settings

You can change the input settings for the digital terminals if necessary (for example, if your CD player doesn't have a coaxial output terminal). Note the equipment you have connected to the terminals, then change the settings (⇒ pages 41 and 42).

Connecting audio equipment

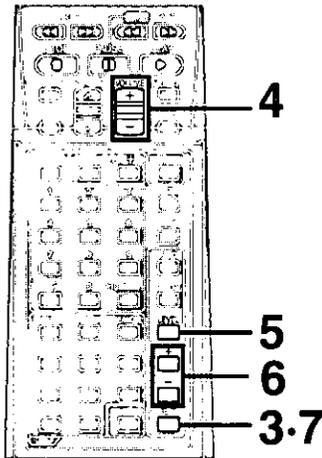
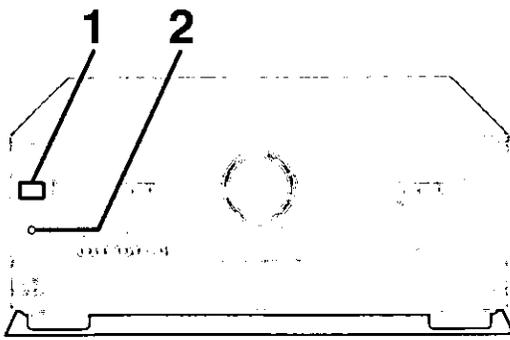


Connecting video equipment



Adjusting speaker output level

Adjust the level of the speakers so they are the same apparent level as the front speakers when you are sitting where you would normally enjoy a source.



- 1** Press [POWER, ϕ /I] on the receiver.
- 2** Press [SPEAKERS] to turn on SPEAKERS.

- 3** Press [TEST] to output the test signal. DSP sound mode switches to SURROUND mode. The signal is output from each speaker in order for about two seconds each:

L: Front speaker (left)
 C: Center speaker
 R: Front speaker (right)
 RS: Surround speaker (right)
 LS: Surround speaker (left)
 SW: Subwoofer

Note

The test signal will not be output if DSP is defeated (see page 23).

- 4** Adjust the volume to the level normally used.

Adjust the balance of the front speakers if necessary (see page 35).

- 5** Press [LEVEL] to select the speaker channel to adjust.

The current level appears on the display. Press again to change the speaker channel.

- 6** Press [-] or [+] to adjust the level to the same apparent level as the front speakers.

C, RS, and LS can be adjusted between -10 dB and +10 dB, with zero being the current level of the front speakers.

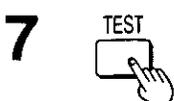
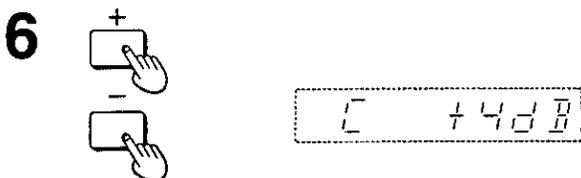
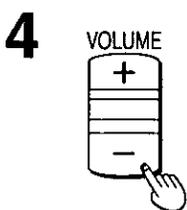
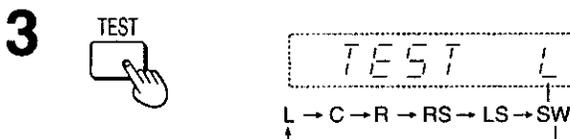
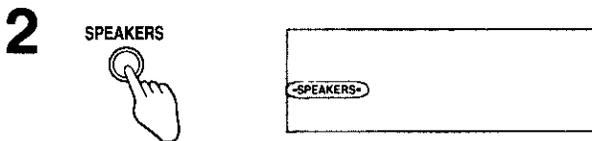
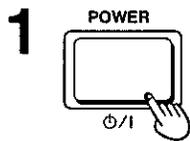
SW can be set to MIN, between 1 to 19, or MAX.

Repeat steps 5 and 6 for each speaker channel.

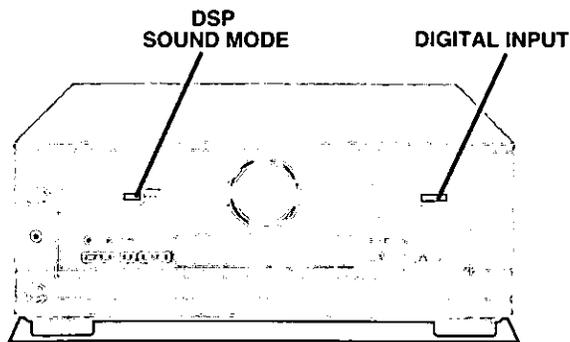
- 7** Press [TEST] to stop the test signal.

For your reference

Subwoofer output is easily influenced by the source played. You can achieve better results by adjusting its output while listening to a source (see page 35).



DSP sound modes



The digital sound processor (DSP) in the receiver can decode Dolby Digital and DTS signals. It automatically determines the type of signal, PCM, Dolby Digital or DTS, and processes it accordingly. The DSP can add surround-like effects to stereo sources (analog or PCM signals).

Choose from the STEREO, SURROUND, or SFC modes.

The DSP may interfere with radio reception. You can turn it off if this occurs (→ page 23).

Output is in stereo when you turn the DSP off so sound is only heard through the front speakers.

Note

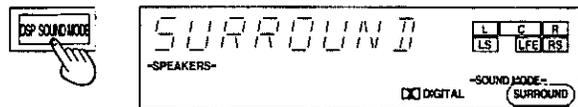
- PCM with a sampling frequency of 44.1 kHz is the digital signal format normally found on CDs. Some DVDs also use this format but often with a higher sampling rate.

- The receiver cannot process other digital signal formats, such as MPEG and PCM signals with sampling frequencies of 96 kHz and 192 kHz.

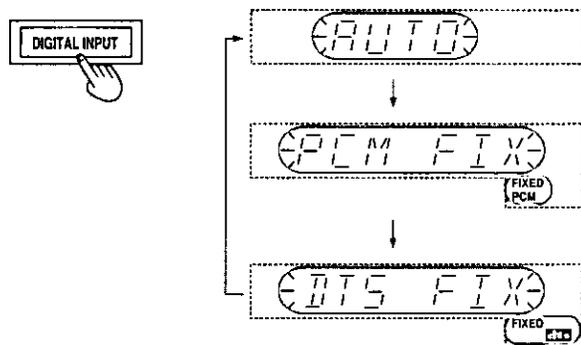
A



B



C



A STEREO mode

Use this mode to play digital or analog stereo sources or to play surround sources through two speakers. When surround sources are played in this mode, the sounds intended for the other speaker channels are played through the front speakers.

B SURROUND mode

Select this mode when you are playing a digital surround source (Dolby Digital or DTS) or an analog source that is recorded with Dolby Surround (VCR, for example).

C Changing the recognition mode

In rare cases, the receiver may have trouble recognizing the digital signals on discs. With the PCM signals on CDs, this may cause the beginning of a track to be cut off. Engage the PCM FIX mode if this occurs.

With DTS, the signals may not be recognized at all. Engage the DTS FIX mode if this occurs.

This mode does not need to be changed under normal circumstances. Change it only if the receiver appears to be having trouble recognizing the software you are playing.

While the input source is selected and digital input is engaged:

Press and hold [DIGITAL INPUT].

The current mode is displayed. Press again to change the mode.

Each time you press the button:

AUTO → PCM FIX → DTS FIX

When a FIX mode is on, the receiver cannot process other signals. This may cause noise to be output.

Select "AUTO" if this occurs.

The selected mode is stored even if the receiver is turned off.

DSP sound modes

A SFC modes

Enjoy an enhanced sound experience with greater presence and spread by using these SFC (sound field control) modes with PCM or analog stereo sources.

The SFC modes cannot be used if the input signal is Dolby Digital or DTS.

Choose from the following modes.

HALL

Imparts the reflection and spread of a large concert hall.

CLUB

Conveys the exciting and intimate atmosphere of a jazz club.

LIVE

Brings you up close for "live" stage performance and smoother vocals.

THEATER

Recreates natural sound ambience and direction.

SIM SURR (Simulated Surround)

Heightens the sensation of expanded space with stereo sources, and augments monaural sources.

B Adjusting the sound field

You can adjust the sound field by adjusting the level of the speakers and the delay time of the surround speakers. These adjustments can be made for each SFC mode.

To adjust the speaker level

- 1 Press [LEVEL] to select the speaker channel.

Each time you press the button:

C → RS → LS → SW

↑

- 2 Press [-] or [+] to adjust the level.

C, RS, and LS:

-10 dB to +10 dB

SW:

--- (off) ← MIN ↔ 1-19 → MAX

To adjust the delay time

- 1 Press [DELAY].

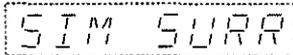
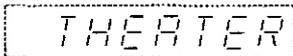
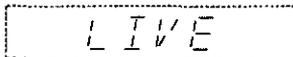
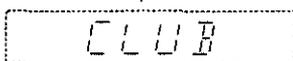
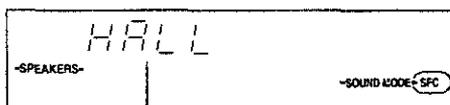
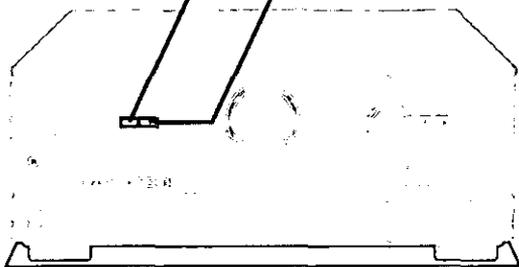
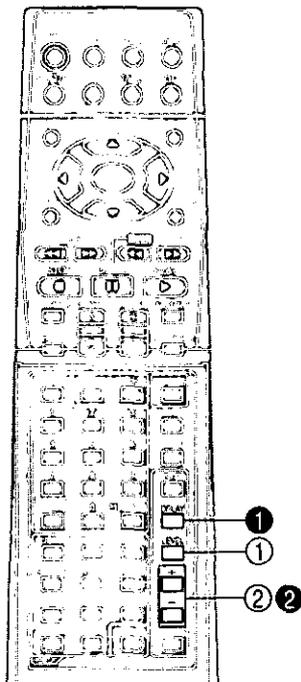
- 2 Press [-] or [+] to change the delay time.

Delay time can be set at 10-millisecond (ms) intervals between 10 and 100 ms.

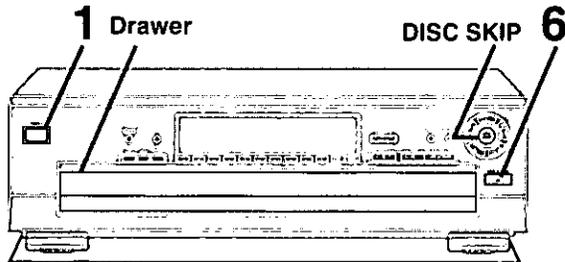
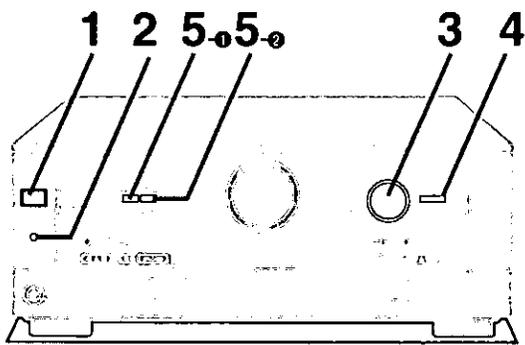
The factory setting is 50 ms for each mode.

A

DSP
SOUND MODE SFC MODE

**B**

Playing discs



Preparation

Turn on the television and select the appropriate video input on the television to suit the connections for the receiver and the changer.

1 Press [POWER, O/I] on the receiver and changer.
First switch on the power of the receiver.

2 Press [SPEAKERS] to turn on SPEAKERS.

3 Turn [INPUT SELECTOR] to select "DVD".

4 Press [DIGITAL INPUT] to select "DIGITAL".

- The indicator lights.

- Once you have set the mode, it is engaged whenever you select "DVD".

5 Select the DSP sound mode.

① Press [DSP SOUND MODE]

The indicator corresponding to the mode lights (→ pages 18–19)

② When you select "SFC"

Press [SFC MODE].

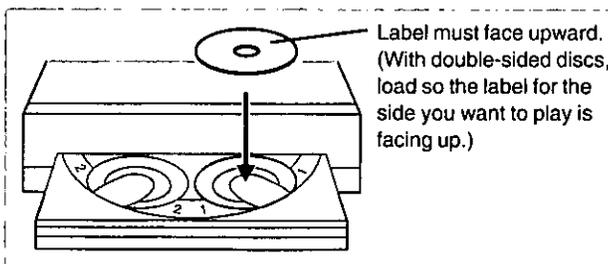
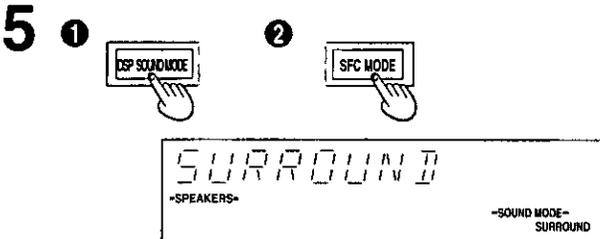
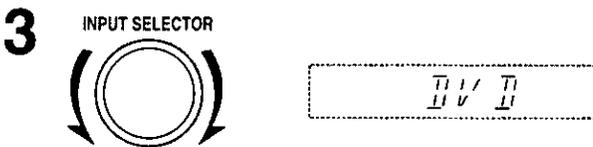
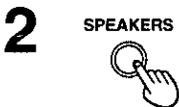
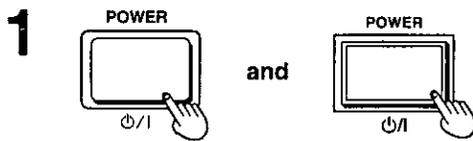
Once you have set the mode, it is engaged whenever you select "DVD".

6 Press [OPEN/CLOSE \blacktriangle] to open the drawer.

- Insert discs label-up on the disc trays.

- To load the trays at the rear, press [DISC SKIP].

- To close the drawer, press [OPEN/CLOSE \blacktriangle] again.



Playing discs

7 Press [▶] (play).

Play will begin.

To start play from another disc, press [DISC 1]–[DISC 5].

8 Adjust the volume.

When you finish listening

Be sure to reduce the volume and press [POWER, ⏻/I] to switch the receiver to standby.

Auto power-off

The changer switches to standby after about 30 minutes in the stop mode.

To stop play

Press [■] (= page 26, Resume).

To pause play

Press [⏸] during play.

Press [▶] (play) to resume play.

If "⊘" appears on the television

The operation is prohibited by the changer or disc.

Convenient settings

There are various settings on the receiver and changer that you can change to make your viewing experience more enjoyable. Things you can change include:

- Languages used for changer and disc menus, soundtracks, and subtitles.
 - Television aspect (regular 4:3 or widescreen 16:9).
 - Dynamic range compression.
- Refer to pages 41 to 47 for details on these and other settings.

•DISC 1–5 indicators

Off: no disc

Orange: DVD

Green: CD and Video CD, or the changer is yet to determine the content of the tray.

To prevent damage

Do not:

- Load more than one disc per tray.
- Touch the drawer or carousel while they are in motion.
- Rotate the carousel by hand.
- Close the drawer by hand.

■ Changing the disc in the play position

① Press [DISC EXCHANGE].

The drawer opens and the tray containing the disc that was in the play position comes to the front-left.

② Change the disc.

③ Press [DISC EXCHANGE].

The drawer closes and the new disc starts playing.

■ Changing discs during play

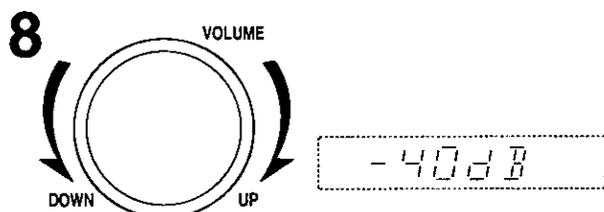
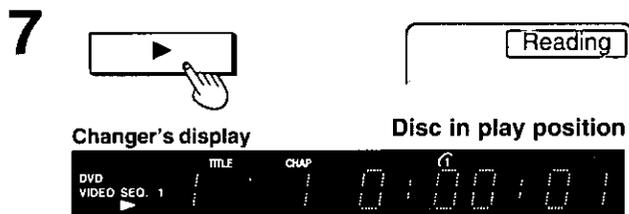
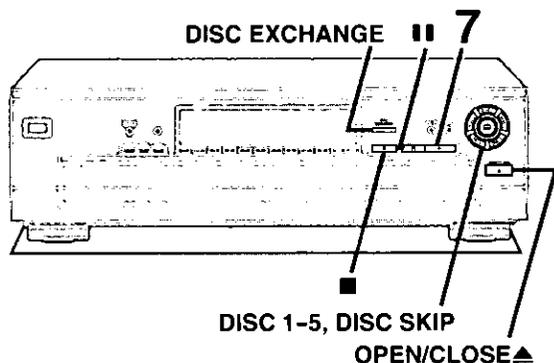
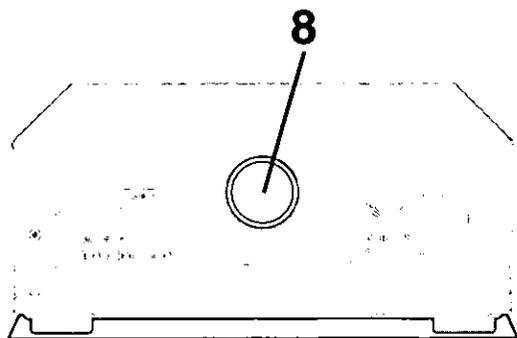
① Press [OPEN/CLOSE ▲] to open the drawer

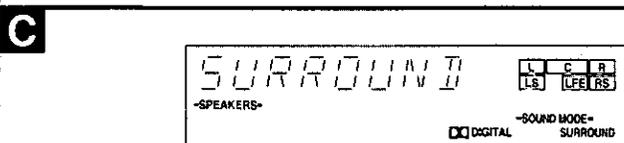
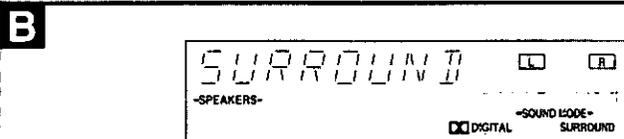
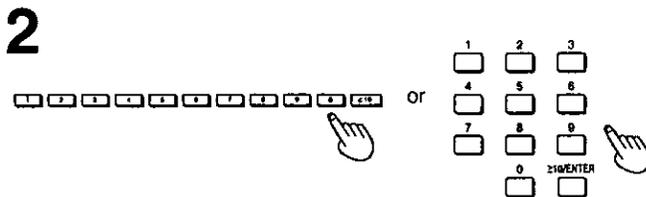
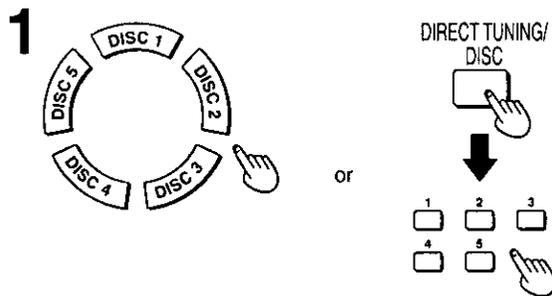
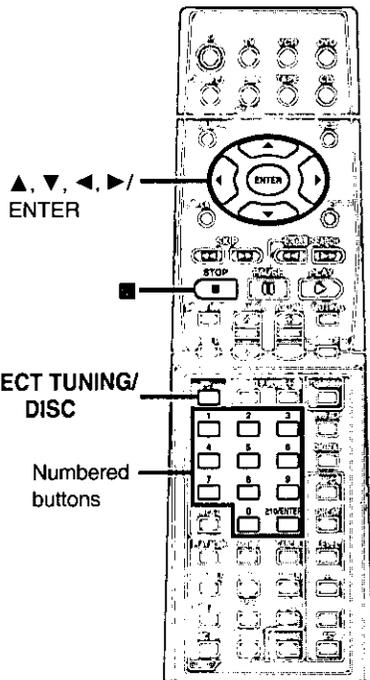
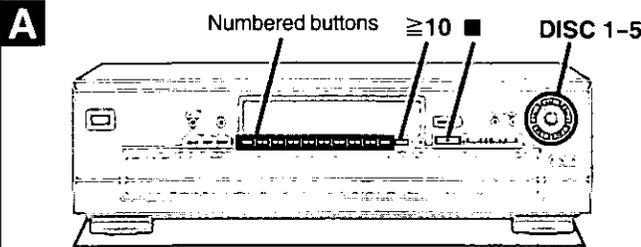
Play continues uninterrupted.

② Press [DISC SKIP] to rotate the carousel.

The carousel rotates one tray clockwise. Each subsequent press rotates the carousel two trays first counterclockwise then clockwise.

③ Change the discs and press [OPEN/CLOSE ▲] to close the drawer.





A Starting play from a selected title or track

1. Press [DISC 1]–[DISC 5] on the changer, or press [DIRECT TUNING/DISC] and [1]–[5] on the remote control, to select the disc.
2. Press the numbered buttons to select the track.
To select a 2-digit number
 Example: To select track 23, press [≥10] or [≥10/ENTER], then [2] and [3].

Play starts from the selected title/track.

Note

- This works only when stopped with some discs.
- This may not work with some discs.

If a title menu appears on the TV (→ page 26)

Use the cursor buttons to highlight a title and press [ENTER] on the remote control.

or

Use the numbered buttons to select a title.

Playing CD-R and CD-RW

The changer can play CD-DA (digital audio) and video CD format audio CD-R and CD-RW that have been finalized* upon completion of recording of the recording.

*Finalizing is a process that enables CD-R/RW players to play audio CD-R and CD-RW.

Playing MP3 onto CD-R and CD-RW

• Not compatible with multi-session recordings

If you record MP3 onto CD-R/CD-RW over a number of sessions, this unit can play only the recordings made in the first session.

• Recordings will not necessarily be played in the order you recorded them. The recordings will be recorded according to their titles: numbers in numerical order first, upper case in alphabetical order next, and lower case in alphabetical order last.

• If you play an MP3 track that includes still picture data, it will take some time before the music starts playing and the elapsed time will not be displayed during this time. Even after the track starts, the correct play time will not be displayed.

Note

• The disc continues to rotate while the menu is displayed even after you finish playing an item. Press [■] when you finish to preserve the changer's motor and your television screen.

• Volume may be lower when playing DVDs than when playing other discs or during television broadcasts.

If you turn the volume up, reduce it again before playing other sources so that a sudden increase in output does not occur.

For your reference

B The signal format indicators

The following indicators light on the receiver's display to show the source you are playing.

- DIGITAL
- Dolby Digital Sources
- DTS
- DTS Sources
- PRO LOGIC

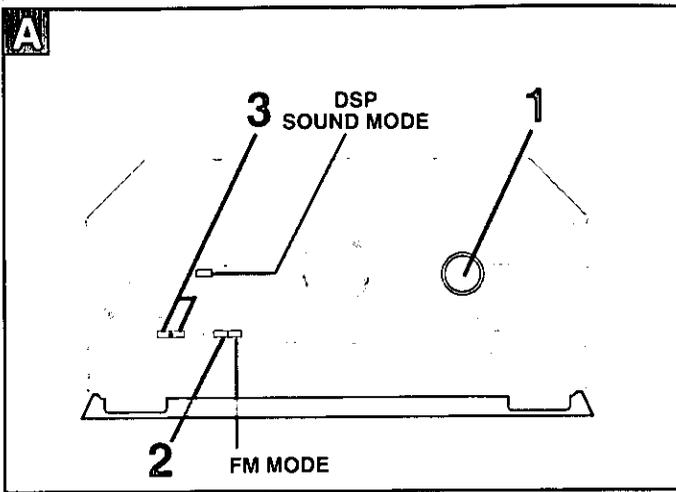
Analog sources in SURROUND mode
 Digital sources with PCM signals in SURROUND mode
 Dolby Digital sources that contain Dolby Pro Logic in SURROUND mode

C The program format indicators

The program format indicators on the receiver light up to indicate the channels contained in the digital input signal. They do not light when input is analog.

- L: Front channel (left)
- C: Center channel
- R: Front channel (right)
- LS: Surround channel (left)
- RS: Surround channel (right)
- S: If the surround channel is monaural.
- LFE (Low Frequency Effect): Deep-bass effect.

The radio



A Manual tuning

You can tune radio stations manually by selecting the station's frequency, or you can preset up to 30 stations into channels to make tuning simpler (⇒ page 24).

- 1 Turn [INPUT SELECTOR] to select "TUNER".
- 2 Press [BAND] to select "FM" or "AM".
- 3 Press [TUNING ∨ or ∧] to select the frequency of the station.

Tuning intervals: FM-0.2 MHz
AM-10 kHz

"TUNED" lights when tuned.

"STEREO" lights during FM stereo broadcasts.

Automatic tuning

Hold down [TUNING ∨ or ∧] until the frequency begins to scroll.

Tuning stops when a station is found.

(Tuning may stop if there is interference.)

Improving reception

FM mode

You can improve FM reception by switching reception to monaural.

Press [FM MODE].

"MONO" lights.

Press [FM MODE] again to cancel.

DSP DEFEAT

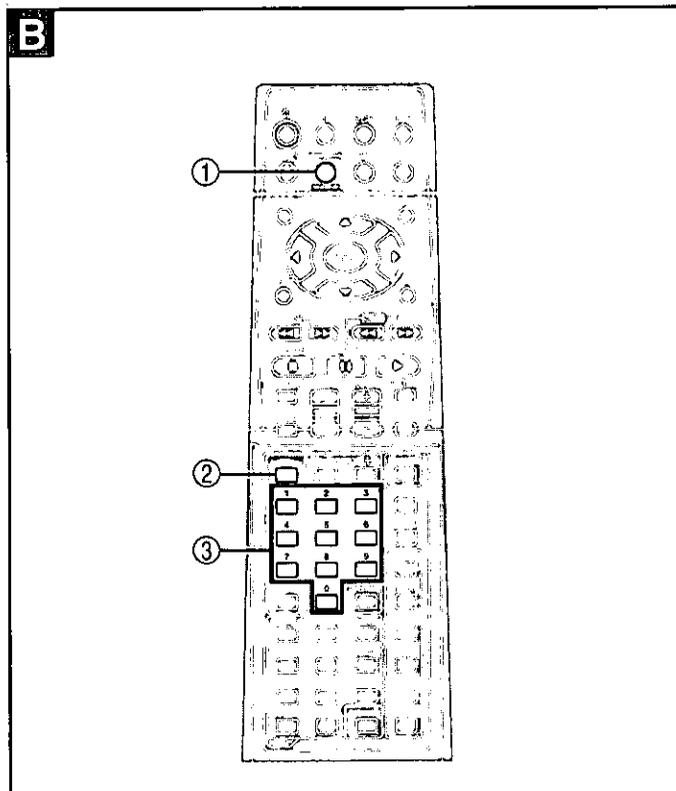
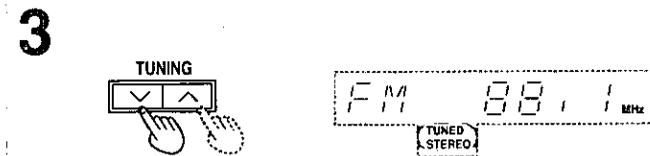
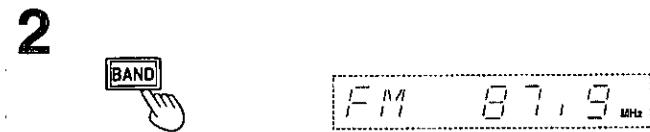
You can improve reception by turning off the DSP (⇒ page 18).

Press and hold [DSP SOUND MODE] until "DEFEAT" appears.

Press and hold [DSP SOUND MODE] again to turn the DSP on.

For your reference

The changer can interfere with radio reception. Turn the changer off or move it further away from the antennas if this occurs.

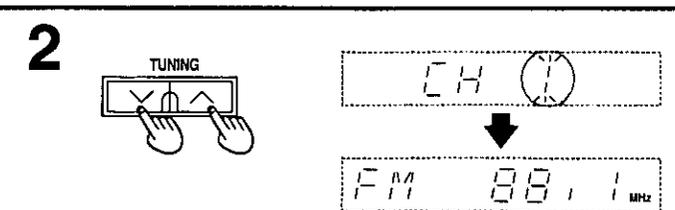
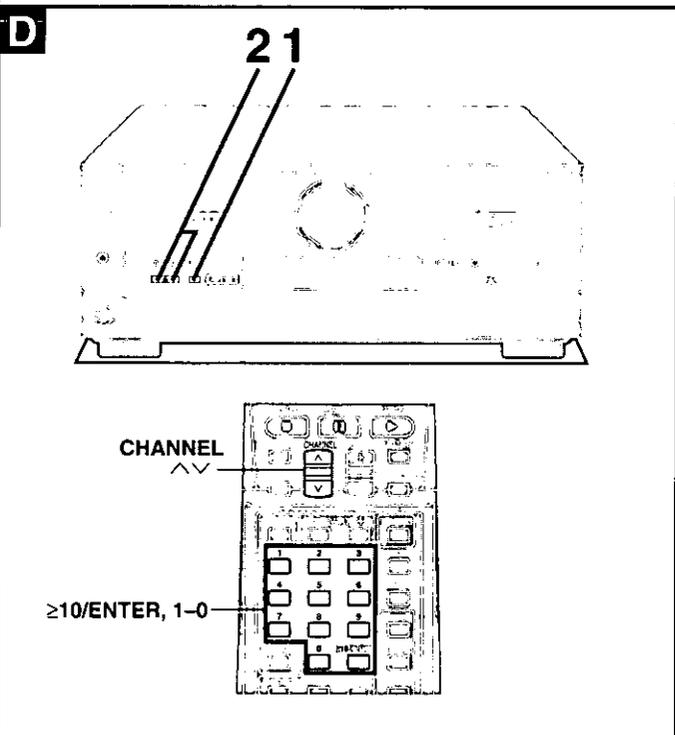
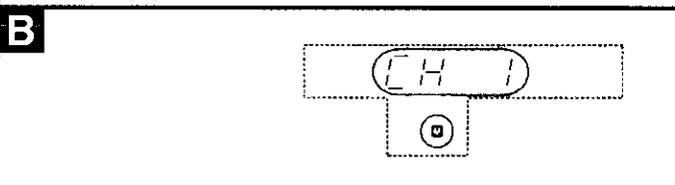
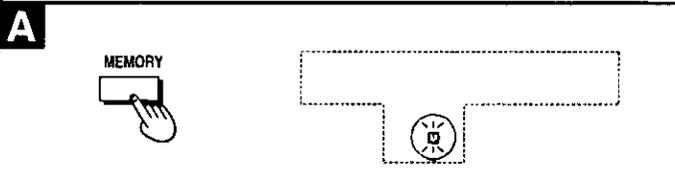
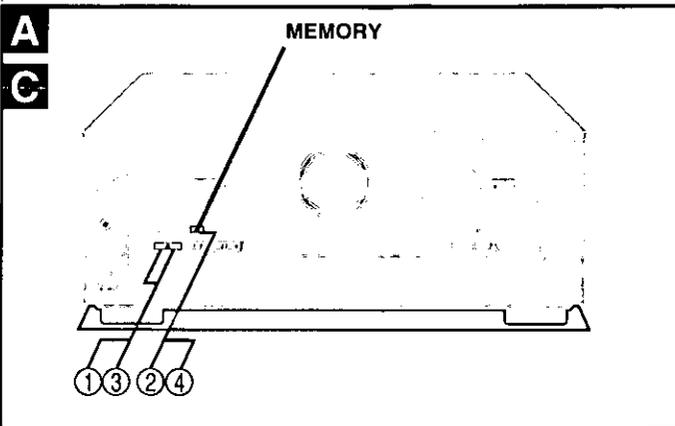


B Direct tuning

- 1 Press [TUNER/BAND].
The band changes each time you press the button.
- 2 Press [DIRECT TUNING/DISC].
- 3 Press the numbered buttons to enter the frequency.
e.g. To select 107.9 MHz, press [1]→[0]→[7]→[9]
Tuning intervals: FM-0.1 MHz
AM-10 kHz

Note

1. If you do not press a button while the cursor is flashing, the display returns to the frequency being received.
2. If the frequency has not been input correctly, "ERROR" will be displayed.



Preset tuning

Choose either automatic presetting, which presets the stations the tuner can receive, or manual presetting, which allows you to select the stations to preset and the order in which they are to be preset. There are 30 channels available for presetting.

Remember

If a new station is preset into a channel, the old station is erased.

Automatic presetting

Presetting FM stations

Preparation: Tune to the FM frequency where you want to begin presetting.

Press and hold [MEMORY].

The FM stations the unit can receive are preset in channels 1 to 30.

Presetting AM stations

Preparation: Tune to the AM frequency where you want presetting to begin.

Press and hold [MEMORY].

The AM stations the unit can receive are preset in channels 21 to 30. (FM stations are replaced if any were preset in these channels.)

During automatic presetting, the memory indicator flashes and the frequency scrolls. The memory indicator and channel numbers are displayed for a second when a station is preset (B). The last station to be preset is displayed when presetting finishes.

For your reference

Even if the power supply cord is disconnected from the household AC outlet, the stations remain in memory for approximately one month.

Manual presetting

Preset the stations one at a time.

- ① Tune to the station.
- ② Press [MEMORY].
- ③ Press [TUNING ∨ or ∧] to select a channel.
- ④ Press [MEMORY].

Selecting channels

- 1 Press [PRESET].
The channel number flashes for about 5 seconds.
- 2 Press [TUNING ∨ or ∧].
Hold down the buttons to change channels faster.

On the remote control

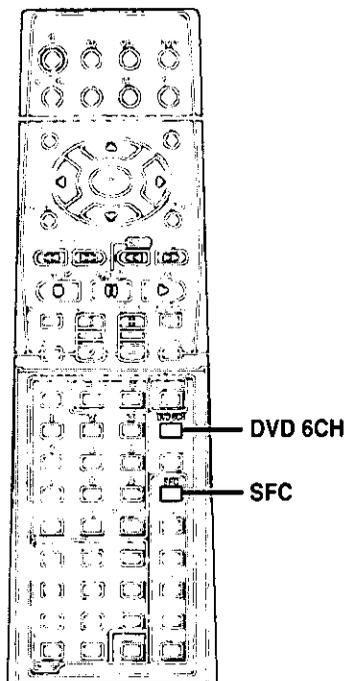
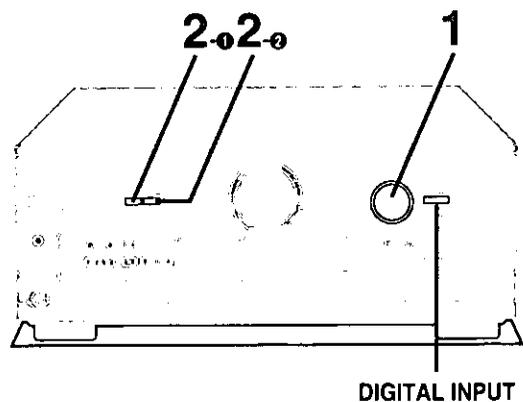
Press [CHANNEL ∨ or ∧].

or

Press the numbered buttons.

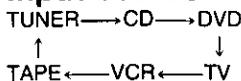
For channels 1 to 9, press the corresponding number.

For channels 10 or over, press [≥10/ENTER], then the two digits. e.g. To select channel 21 [≥10/ENTER]→[2]→[1]



Enjoying other sources

1 Turn [INPUT SELECTOR] to select the input source.



To switch between analog and digital input (CD and TV)
Press [DIGITAL INPUT].

Each time you press the button:
ANALOG ↔ DIGITAL

The indicator lights when you select "DIGITAL".

Once you have set the mode for a source, it is engaged whenever you select that source.

2 Select the DSP sound mode.

1 Press [DSP SOUND MODE].

Each time you press the button:
STEREO → SURROUND → SFC

The indicator corresponding to the mode lights.

Select the mode appropriate to the source (→ pages 18–19)

2 When you select "SFC"

Press [SFC MODE].

Once you have set the mode for a source, it is engaged whenever you select that source.

3 Start the source.

For your reference

- If you are using a VCR and you select TAPE, CD or TUNER. The picture remains on the screen.

■ To switch between DVD 2-channel and 6-channel input

The analog connection between the receiver and the changer is 2-channel, but you have the option of selecting 6-channel input if you connect another DVD player that has 6-channel output (→ page 13). Use analog input to record and to enjoy such sources as linear PCM and multiple channel linear PCM.

Press [DVD 6CH].

Each time you press the button:

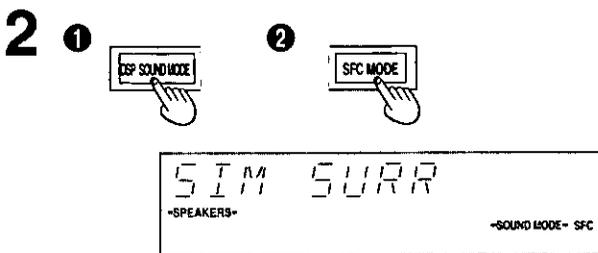
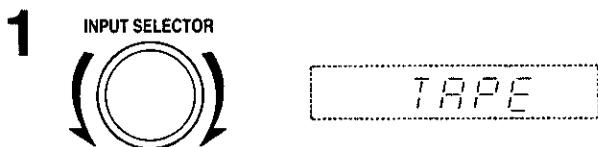
DVD ↔ DVD 6CH

Input switches automatically to DVD if you press this button while another source is selected.

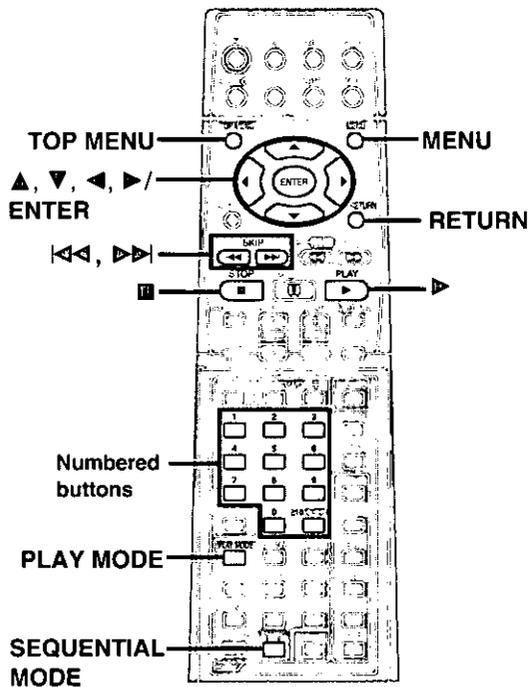
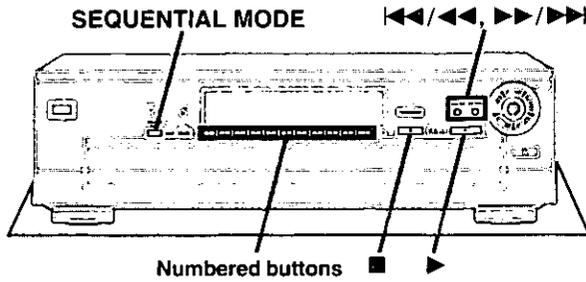
Once you have set the mode, it is selected whenever you select "DVD".

Note

- You cannot use any of the DSP sound modes while DVD 6CH input is on.
- Receiver speaker settings (→ page 41) are ineffective while DVD 6CH input is on. Change the settings on the DVD player if necessary.



Other ways of playing discs



A

SEQUENTIAL MODE



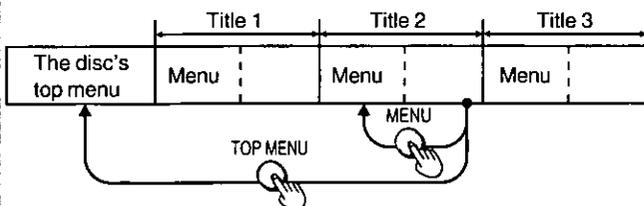
Sequential mode 1



Sequential mode 2



B



C



Flashes

Press PLAY to Preview Chapters

A Sequential mode

DVD **VCD** **CD**

Select how discs are played.

While playing or stopped

Press **[SEQUENTIAL MODE]**.

Each time you press the button:

- SEQ. 1: Plays all discs
(This mode is on whenever you turn the changer on.)
- SEQ. 2: Plays Video CDs and CDs only
(The playback control function on Video CDs is canceled.)

For your reference

- When you change sequential modes during play, the changer starts in the mode you selected from the next disc.

When a menu appears on the television

DVD **VCD**

Press the numbered buttons to select an item.

To select a 2-digit number

Example: To select item 23, press [≥ 10 /ENTER], then [2] and [3].

- When playing DVDs, you can also use [Δ , ∇ , \leftarrow , \rightarrow] to select items.

Press [ENTER] to confirm your selection.

Play of the selected item now begins.

Other buttons used to operate menus

Read the disc's instructions for further details about operation.

[\rightarrow]: Shows the next menu.

[\leftarrow]: Shows the previous menu.

[RETURN]: Shows the menu screen. **VCD**

[TOP MENU]: Shows the first menu screen. **DVD**

[MENU]: Shows the menu screen. **DVD**

- DVDs can have several menus. The menu displayed when you press [TOP MENU] may be different from the menu displayed when you press [MENU].

c Resume

DVD **VCD** **CD**

If you press [\blacksquare] during play, the changer remembers the position.

If you press [\rightarrow] (PLAY) while "D" is flashing, play restarts from the position you stopped it.

To start play from a memorized position after switching the changer to standby

Press [PLAY MODE] during play. (The message "Position memorized" appears on the television.) Now when you press [\rightarrow] (PLAY) after switching the changer to standby and back on, play starts from the memorized position.

Even after you memorize a position by pressing [PLAY MODE], play will start from the point you stopped play if you press [\rightarrow] (PLAY) before switching the changer to standby.

Chapter Preview

If you are playing DVD, the illustrated message appears when you press [\rightarrow] (PLAY) while "D" is flashing.

Press [\rightarrow] (PLAY) while the message is displayed and the beginning portions of each chapter up to the current one are played. Full play resumes from the point where you stopped play or you pressed [PLAY MODE]. (Chapter Preview works only within a title.)

If you do not press [\rightarrow] (PLAY), the message disappears and play starts from where you stopped it or you pressed [PLAY MODE].

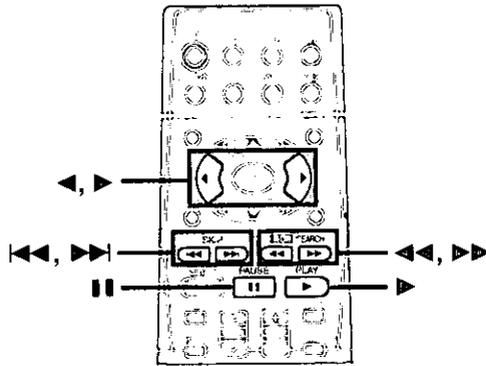
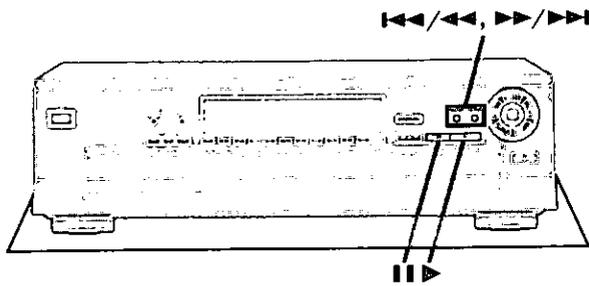
To cancel

Press [\blacksquare] until "D" disappears from the changer's display.

Note

- The resume does not work if the disc's play time is not displayed.
- The position is cleared when the disc is exchanged.
- The position memorized when you press [\blacksquare] is cleared if you switch the changer to standby or it switches to standby automatically (→ page 21).

Other ways of playing discs



A Skipping chapters or tracks

DVD VCD CD

While playing or paused

On the remote control

Press [**⏮**] or [**⏭**].

On the changer

Press [**⏮/⏮**] or [**⏭/⏭**].

Each press increases the number of skips.

B Frame-by-frame viewing

DVD VCD

Remote control only

While paused

Press [**◀**] or [**▶**].

The frame changes each time you press the buttons.

- The frames change in succession if you press and hold the button.
- Pressing [**⏸**] also activates forward frame-by-frame.

C Fast forward and rewind—SEARCH

DVD VCD CD

During play

On the remote control

Press [**⏮**] or [**⏭**].

On the changer

Press and hold [**⏮/⏮**] or [**⏭/⏭**].

For your reference

Audio will be heard during search for most discs. You can turn this audio off if you want to (DVD and Video CD only → page 46, Audio—Audio during Search).

D Slow-motion play

DVD VCD

While paused

On the remote control

Press [**⏮**] or [**⏭**].

On the changer

Press and hold [**⏮/⏮**] or [**⏭/⏭**].

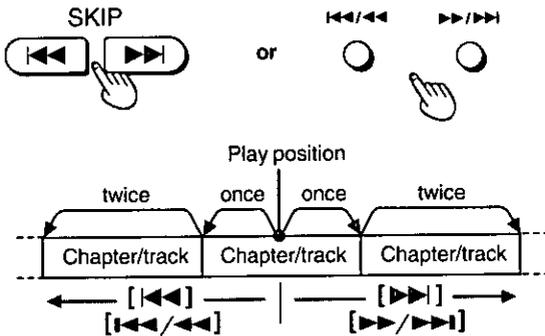
Notes

- The speed of search and slow-motion increases up to 5 steps.
- Press [**▶**] (play) to restart play.
- You cannot move backwards with Video CD during frame-by-frame and slow-motion.
- [**⏮**], [**◀**], [**⏮**] or [**⏮/⏮**]: Backward
 [**⏭**], [**▶**], [**⏭**] or [**⏭/⏭**]: Forward

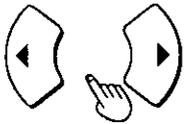
When playing Video CDs with playback control

Pressing buttons to perform skip, search or slow-motion may take you to a menu screen.

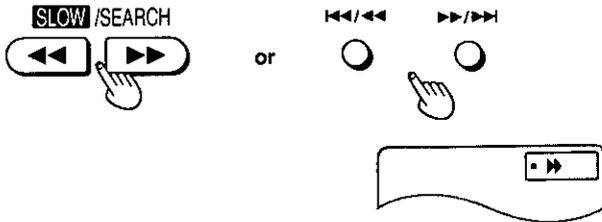
A



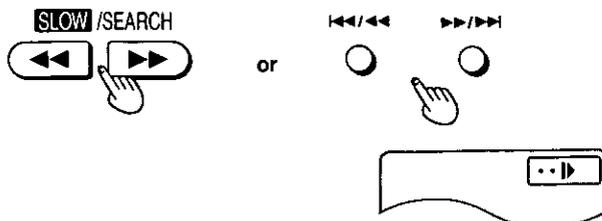
B



C



D



Changing soundtracks, subtitle languages and angles

DVD

Remote control only

Some DVDs have multiple soundtracks, subtitle languages and camera angles, and you can change these during play.

A Soundtracks

During play

Press [AUDIO].

The number changes each time you press the button.

- You can also use this button to turn the vocals on and off on karaoke discs. Read the disc's instructions for details.

B Subtitles

During play

Press [SUBTITLE].

The number changes each time you press the button.

To clear/display the subtitles

1. Press [SUBTITLE].
2. Press [▶].
3. Press [▲, ▼] to select "ON" or "OFF".

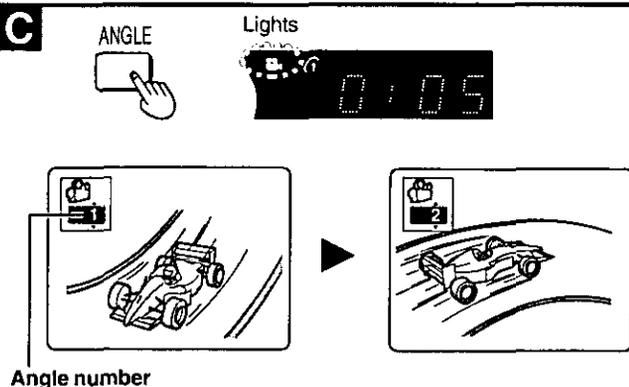
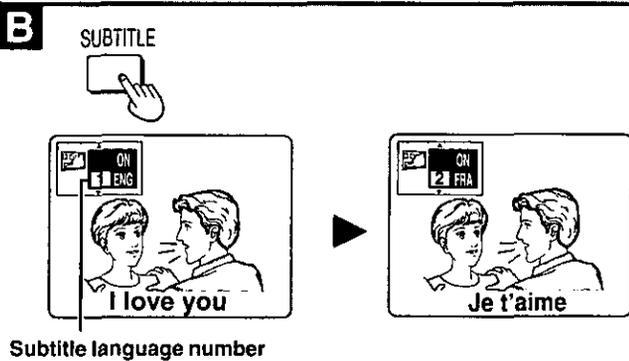
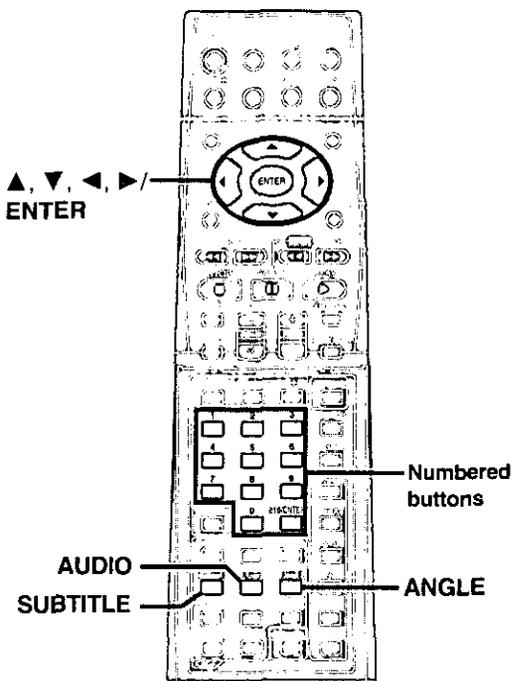
C Angles

Some DVDs allow you to view the same scene from different angles. "Ⓜ" lights up on the changer's display during scenes with multiple angles recorded to indicate this feature is available.

During play

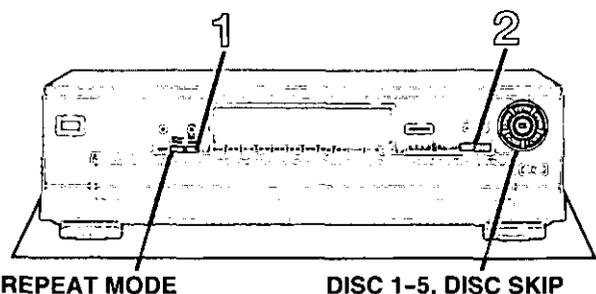
Press [ANGLE].

The number changes each time you press the button.

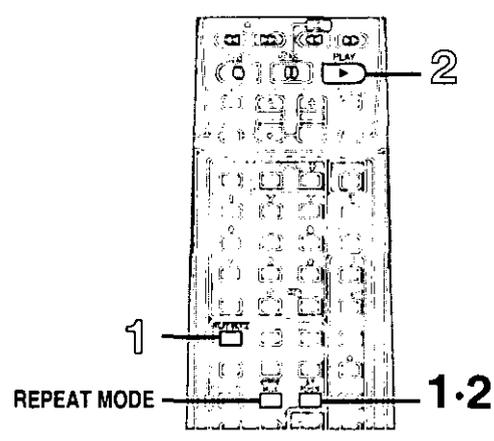


Notes regarding soundtracks, subtitle languages and angles

- You can also use [▲, ▼] or the numbered buttons to change the soundtracks, subtitle languages and angles.
- Some discs allow changes to soundtracks, subtitle languages and angles only by using the disc's menus.
- Soundtrack and subtitle languages can be set before play with the initial settings (⇒ Disc—Audio and Subtitle, page 46).
- "—" or "—" is displayed instead of the language number in circumstances such as when no language is recorded on the disc.
- Some discs allow you to set angles before multi-angle scenes are played. Read the instructions that come with the DVD.
- In some cases, the subtitle language is not changed to the selected one immediately.
- If the subtitles overlap closed captions recorded on discs, turn the subtitles off.



REPEAT MODE DISC 1-5, DISC SKIP



REPEAT MODE 1.2

Repeat play

A Repeat play

During play
Press [REPEAT MODE].
 The display changes as illustrated.

- DVD
 - (a) Chapter
 - (b) Title
 - (c) All discs*
 - (d) Off
- Video CD/CD
 - (e) Track
 - (f) Entire disc
 - (g) All discs*
 - (h) Off

*DVDs are skipped in sequential mode 2.
 If a menu is shown after playing a disc, press [DISC SKIP] to go to the next disc.

Note
 Repeat play may not work as desired with some DVDs.

■ **To repeat only your favorite tracks**
Press [REPEAT MODE] during program play (→ page 30).

B A-B repeat play

You can repeat a section between points A and B within a title or track.

- 1 During play
Press [A-B REPEAT] at the starting point (A).
- 2 Press [A-B REPEAT] at the finishing point (B).

To cancel
 Press [A-B REPEAT] until "∞" is displayed.

- Note**
- A-B repeat play does not work if the DVD's elapsed play time is not shown on the changer's display.
 - Some subtitles recorded around point A or B may fail to appear (DVD).
 - The changer automatically determines the end of a title/track as point B when the end of the title/track is reached.

Changing the play sequence

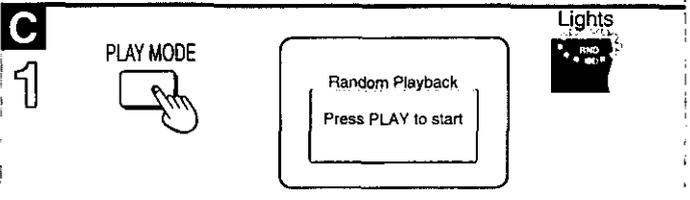
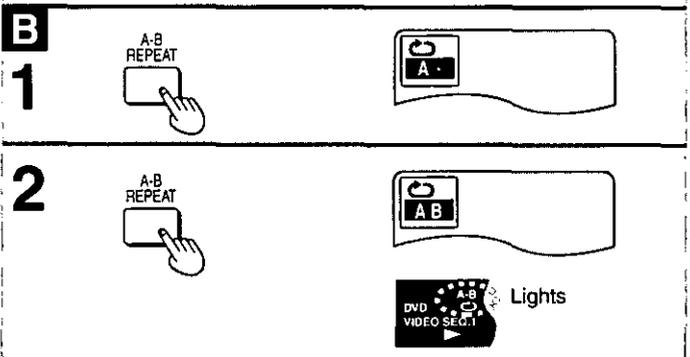
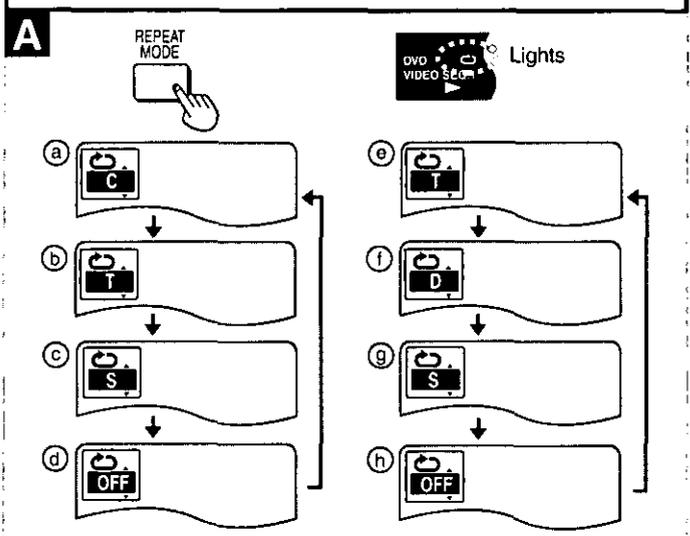
C Random play

[VCD] CD
 Plays the tracks on CDs and Video CDs in random order.

- 1 While stopped
Press [PLAY MODE] until the random play screen appears.
- 2 Press [▶] (play).
 Play now begins in random order.

- Note**
- This function skips DVDs and empty disc trays.
 - The playback control function on Video CDs is canceled.
 - You can not start play by pressing [DISC 1-5] while in the random mode.

To exit random mode
 Press [PLAY MODE] until the random play screen disappears.



Changer operations

Program play

[VCD] [CD]

Remote control only

You can select up to 32 items (tracks and discs) to play in the order you choose.

- 1** While stopped
Press [PLAY MODE] until the program play screen appears.
- 2** Press [DIRECT TUNING/DISC] and [1]–[5] to select the disc.
- 3** Press the numbered buttons to select the track.
 - To select a 2-digit number
Example: To select track 23, press [≥10/ENTER], then [2] and [3].
 - To enter the disc as one item, press [▲, ▼] to select "ALL" and press [ENTER].
 - Repeat steps 2 and 3 to enter other items.
 - To select tracks on the same disc, simply press the numbered buttons to select the next track.
- 4** Press [▶] (play).
Play now begins in the programmed sequence.

Note

- You can enter tracks and discs the unit cannot find, or DVDs, if the unit has not read the disc, but these are cleared during play.
- You cannot enter non-existent items or DVDs if the changer has read the disc.
- You can not start play by pressing [DIRECT TUNING/DISC] and [1]–[5] while in the program mode.

To select discs and tracks in step 2 and 3 using the cursor buttons

Press [ENTER] and [▲, ▼] to select a disc, then press [ENTER]. Press [▲, ▼] to select a track and press [ENTER].

To add or change tracks

Press [▲, ▼] to select an available item, then repeat step 2 and 3.

To move to the page before or after the one shown

Press [◀, ▶].

To clear the programmed items one by one

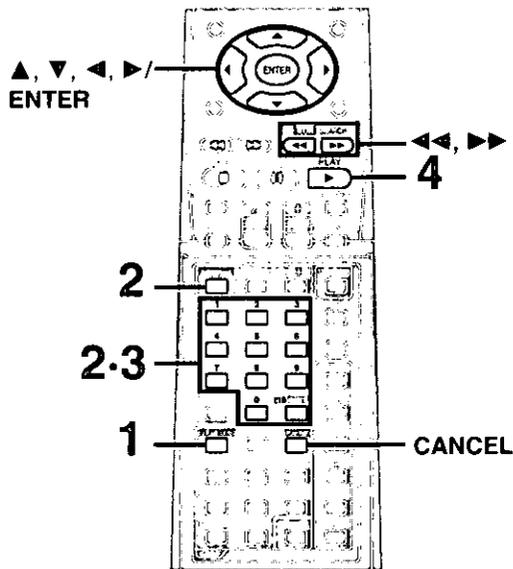
Press [▲, ▼] to select the track and press [CANCEL]. (Alternatively you can select "Clear" and press [ENTER].)

To clear the whole program

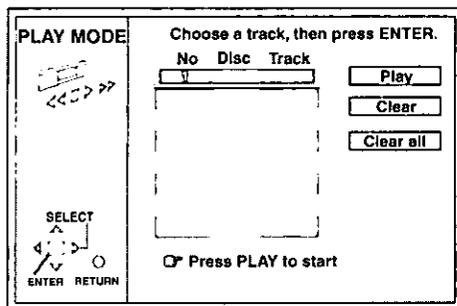
Move to "Clear all" with [▲, ▼, ◀, ▶] and press [ENTER]. The whole program is also cleared when the unit is turned off.

To exit the program mode

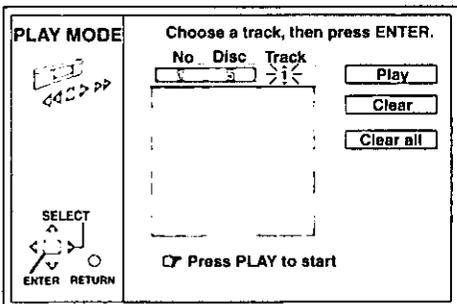
Press [PLAY MODE] until the program play screen disappears.
• The program is retained in memory.



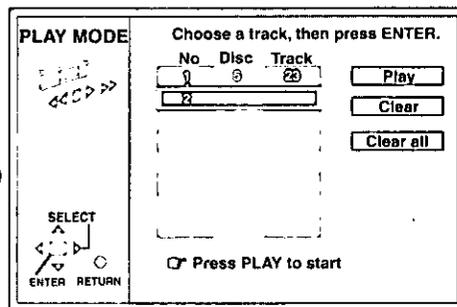
1 PLAY MODE



2 DIRECT TUNING/DISC

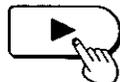


3

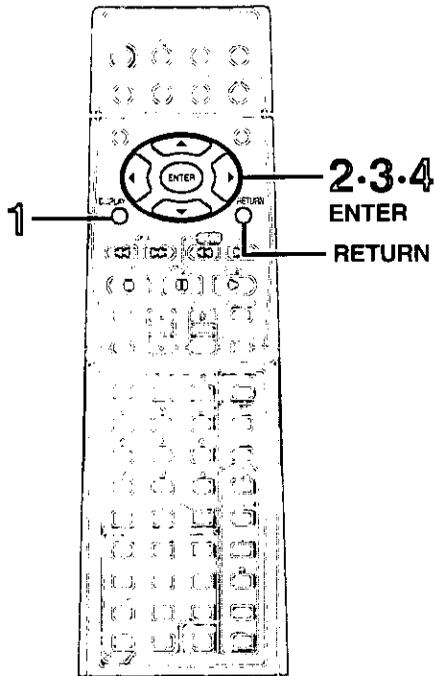


Disc No. Track No. Program No.

4 PLAY



Using On-Screen Menu Icons



Remote control only

On-Screen Menu Icons are menus that contain information about the disc or changer. These menus allow you to perform operations by changing this information.

Common procedures

1 Press [DISPLAY].

The display changes as illustrated:

- Ⓐ: Icons for disc information
- Ⓑ: Icons for changer information
- Ⓒ: Icons for disc type information
- Ⓓ: Original display
- The icons depend on the disc contents.

2

Icons for changer information only

While the leftmost icon is highlighted

Press [▲, ▼] to select the menu.

The display changes as illustrated:

- Ⓔ: Play menu
- Ⓛ: Video menu
- Ⓜ: Audio menu
- Ⓨ: Display menu

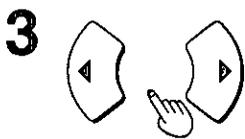
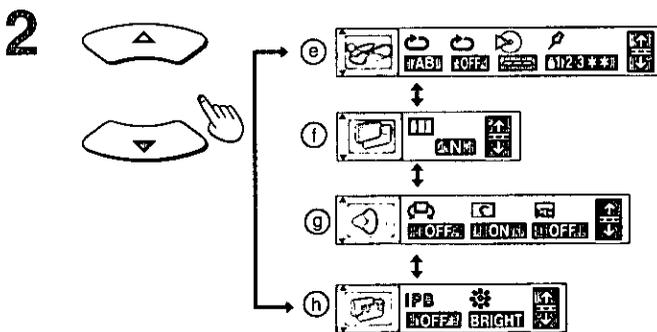
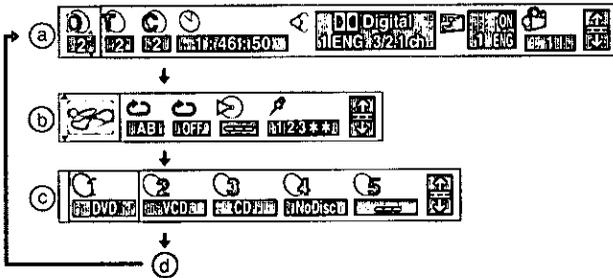
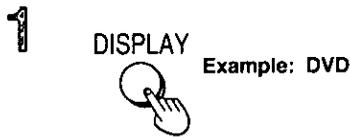
3

Press [◀, ▶] to select the item.

4

Press [▲, ▼] to select the setting.

Some items require different operations. Read the explanations on the following pages.



For your reference

- Some functions cannot be accessed from the stop mode (e.g. changing the soundtrack language).

To clear the icons

Press [RETURN] until the menus disappear.

To change the position of the icons

You can lower the position of the icons on the screen if they are cut off for some reason. There are 5 positions to choose from.

1. Press [◀, ▶] to select the rightmost icon.
2. Press [▲, ▼] to move the icons.



Icons for disc information

Icon	Content
	Disc number
	DVD Title number VCD CD Track number
	DVD Chapter number
	DVD Time (select a position to start play by specifying a time with the numbered buttons) ----- VCD CD Changing the time display → Track elapsed time ↓ ↑ Track remaining time ↓ ↑ ← Disc remaining time* *Not displayed during program play.
	DVD Soundtrack language (See A at right for language abbreviations.)
	Audio signal type (See B at right for details.)
	Karaoke vocal on/off (Karaoke DVD only) Solo: OFF or ON Duet: OFF, V1+V2, V1 or V2
	DVD Subtitle language (See A at right for language abbreviations.)
	Subtitles on/off ON ↔ OFF

Icon	Content
	DVD Angle number
	VCD Audio mode LR ↔ L ↔ R ↑
	VCD (with playback control only) Menu play Indicates whether menu play (playback control) is on or off.

A Audio/Subtitle language

ENG: English	SVE: Swedish	CHI: Chinese
FRA: French	NOR: Norwegian	KOR: Korean
DEU: German	DAN: Danish	MAL: Malay
ITA: Italian	POR: Portuguese	VIE: Vietnamese
ESP: Spanish	RUS: Russian	THA: Thai
NLD: Dutch	JPN: Japanese	*: Others

B Signal type/data

LPCM/ Digital/DTS: Signal type
k (kHz): Sampling frequency
b (bit): Number of bits
ch (channel): Number of channels

Example:

3/2 .1ch

.1: Subwoofer signal (not displayed if there is no subwoofer signal)
0: No surround 1: Mono surround 2: Stereo surround (left/right)
1: Center 2: Front left+Front right 3: Front left+Front right+Center

Icons for disc type information

Icon	Content
	Disc type information (The kinds of discs loaded on the trays) ---: The changer has not determined the type of disc. NoDisc: Empty. To play discs using the disc information screen [◀, ▶] = [ENTER]

Icons for changer information

Play menu



Icon	Content
	A-B repeat (⇒ page 29) [ENTER] (start point) ⇒ [ENTER] (finish point) • To cancel [ENTER]
	Repeat play (⇒ page 29) [DVD] C (Chapter) ↔ T (Title) ↔ S (All discs) ↑ ↔ OFF ↔ ↓ [VCD] [CD] T (Track) ↔ D (Entire disc) ↔ S (All discs) ↑ ↔ OFF ↔ ↓ Program repeat play [VCD] [CD] 1 (Current item) ↔ A (All programmed tracks) ↑ ↔ OFF ↔ ↓
	[VCD] [CD] Play mode display ---: Normal play PGM: Program play RND: Random play
	Marker You can mark up to 5 positions to play again. [ENTER] (The changer is now ready to accept markers.) • To mark a position [ENTER] (at the desired point) • To mark another position [◀, ▶] ⏏ [ENTER] • To recall a marker [◀, ▶] ⏏ [ENTER] • To erase a marker [◀, ▶] ⏏ [CANCEL]

Display menu



Icon	Content
	[DVD] IPB display (⇒ page 48) Displays the picture type (I/P/B) in the still picture mode. ON ↔ OFF
	Display dimmer Changes the brightness of the changer's display. BRIGHT ↔ DIM ↔ AUTO* ↑ ↔ ↓ *The display is dimmed during play, but brightens when you perform operations such as slow-motion, search and pause.

Video menu



Icon	Content
	[DVD] [VCD] Digital picture mode N: Normal mode C: Cinema mode You can also switch between normal and cinema mode by pressing [CINEMA] on the changer. U: User mode The following items are also displayed when you select "U".
	Contrast (-7 to +7)
	Brightness (0 to +15)
	Color (-7 to +7)

Audio menu



Icon	Content
	[DVD] (Dolby Digital, 2-channel or over only) Advanced Surround V.S.S. 1 ↔ 2 ↔ OFF ↑ ↔ ↓ You can also change the V.S.S. mode by pressing [V.S.S.] on the changer. Note • V.S.S. has no effect when input is DIGITAL (⇒ page 25). • Turn V.S.S. off if it causes distortion.
	Bass plus ON ↔ OFF If you connect an active subwoofer directly to the changer, turn this on to boost its output.
	[DVD] Effective with DVDs recorded with Dolby Digital that have a center channel. Dialogue Enhancer ON ↔ OFF • Dialogue Enhancer has no effect when input is DIGITAL (⇒ page 25).

Note

- A-B repeat play (DVD), repeat play and marker functions do not work if the disc's elapsed play time is not shown on the changer's display.
- All the markers are cleared when another disc is selected or the changer is turned off.

Making a recording

Note

You cannot record a source connected through a digital terminal. When recording CD, DVD, or TV, ensure the source is connected through the corresponding analog terminals (→ pages 13 and 16) and "ANALOG" input is selected (→ pages 20 and 25).

A Recording on a tape deck or VCR

You can record to a tape deck connected to TAPE REC (OUT) or to a VCR connected to VCR OUT.

See the recording unit's operating instructions for details on how to prepare it for recording.

When recording with a tape deck, you can record any source except TAPE.

When recording with a VCR, you can record any source except TAPE or VCR.

1 Turn [INPUT SELECTOR] to select the source to be recorded.

2 Begin recording.

Follow your recording unit's operating instructions.

3 Begin the source to be recorded.

Follow your equipment's operating instructions.

B To monitor sound being recorded onto a tape deck

It is possible to check the sound being recorded if your tape deck is a 3-head system.

Press [TAPE MONITOR] on the receiver and set the monitor button on the tape deck to "TAPE".

Press [TAPE MONITOR] once again to turn it off.

Other functions

C Using the TAPE MONITOR

Use the tape monitor if you have connected a graphic equalizer to the TAPE terminals.

Press [TAPE MONITOR].

The "TAPE MONITOR" indicator lights and the tape monitor comes on.

Sources other than TAPE can still be selected with [INPUT SELECTOR] while the "TAPE MONITOR" indicator is on.

Press [TAPE MONITOR] again to turn the tape monitor off.

(→ See above for details on how to use the tape monitor during recording.)

Note

- The tape monitor cannot be used when input is digital and turns off if you select digital input.
- Depending on the setting, the graphic equalizer can cause distortion.

D Muting the volume

Press [MUTING].

The message "MUTING ON NOW" runs repeatedly from right to left across the display as long as the muting function is on.

To cancel

Press [MUTING].

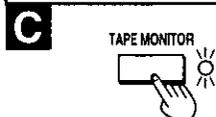
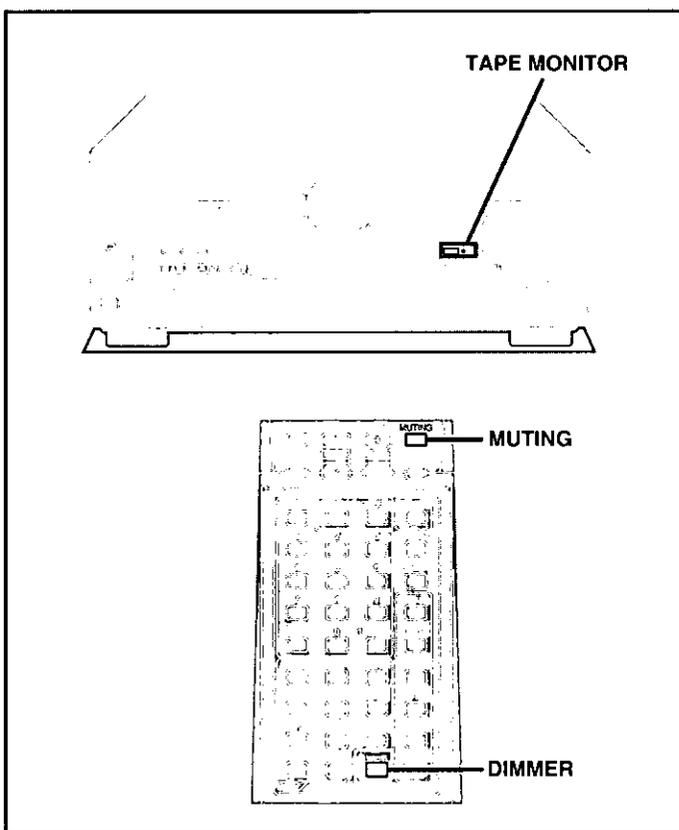
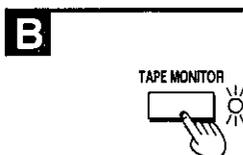
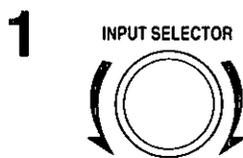
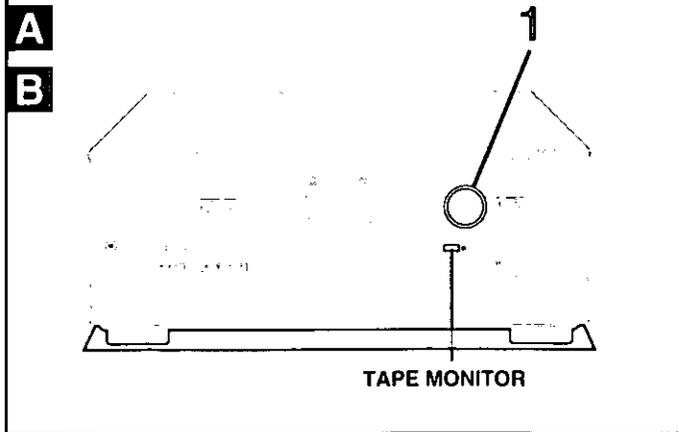
Muting is also canceled when the receiver is turned off.

E Dimming the receiver's display

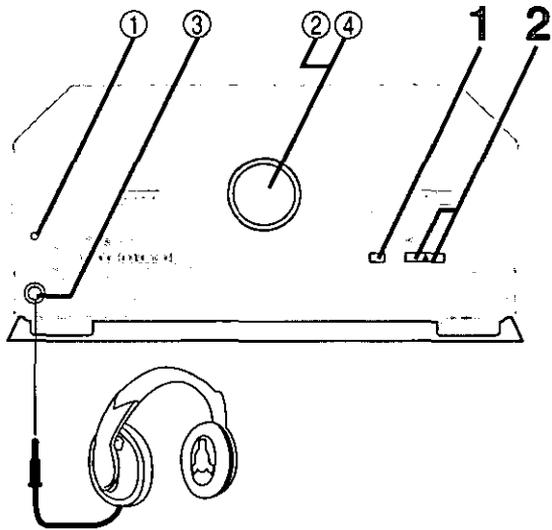
Press [DIMMER].

To cancel

Press [DIMMER].



A
B



Other functions

A Using headphones

- ① **Press [SPEAKERS] to turn off the speakers.**
Turning the speakers off automatically engages STEREO mode and ensures no sound is heard from the subwoofer.
(Sound will seem unusual if you use another DSP mode.)
- ② **Reduce the volume.**
- ③ **Connect the headphones** (not included).
Plug type: 6.3 mm (1/4") stereo
- ④ **Adjust the volume.**

Note

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

B Adjusting the tone and balance

You can adjust the tone (BASS and TREBLE) only when the DSP sound mode is STEREO and input is either analog or PCM. You can not adjust the tone while the DSP is defeated or if DVD 6CH input is selected.

1 Press [BASS/TREBLE, BALANCE].

Each time you press the button:
BASS→TREBLE→BALANCE

BASS: To adjust the bass
 TREBLE: To adjust the treble
 BALANCE: To adjust the left/right sound balance

2 Press [-, L] or [+ , R].

-, L: to lower the selected tone or shift the balance to the left speaker.

+, R: to raise the selected tone or shift the balance to the right speaker.

The previous display returns after a few seconds.

C Adjusting the subwoofer level

You can adjust the volume of the subwoofer while listening to a source. No sound is heard from the subwoofer if "SW ---" is selected. This setting can be done for each DSP mode. You cannot adjust the subwoofer level while the DSP is defeated. The factory setting is "SW 10".

Press [SUBWOOFER LEVEL].

The current setting is shown.

Each time you press the button:

SW ---→SW MIN→SW 5→SW 10→SW 15→SW MAX

To make finer adjustments

- ① Press [LEVEL] to select "SW".
- ② Press [-] or [+].

Note

Sound from the subwoofer can be distorted if you raise the receiver's volume while subwoofer level is high. Reduce subwoofer level if this occurs.

D Adjusting the subwoofer low pass filter

You can adjust the frequency of the subwoofer low pass filter.

Press [SUBWOOFER FREQUENCY].

The current setting is shown.

Press again to change the setting.

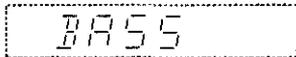
Each time you press the button:

50→100→150→200

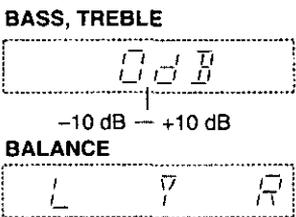
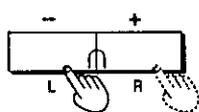
Note

The low pass filter cannot be adjusted while you are playing a Dolby Digital or DTS source or if the DSP SURROUND mode is on.

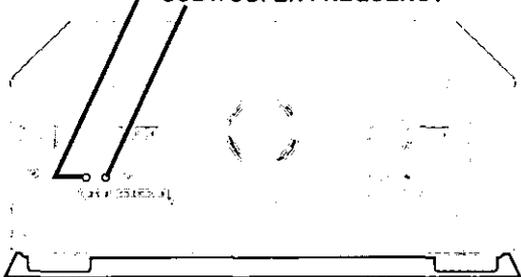
1



2



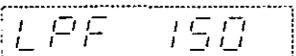
SUBWOOFER LEVEL
SUBWOOFER FREQUENCY



C

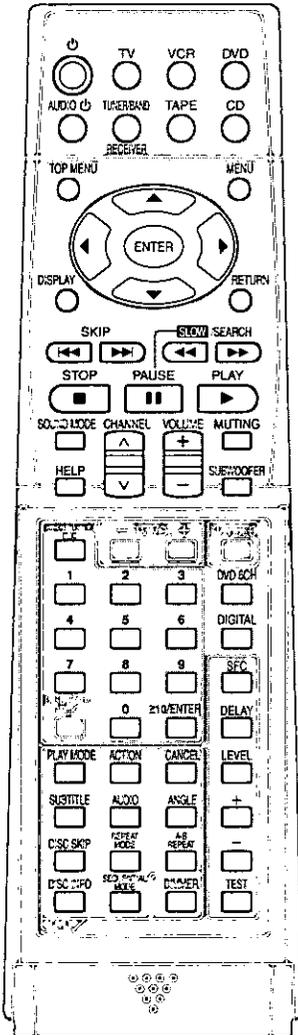


D



Receiver operations

Point the remote control toward the unit



This remote control can be used to operate the receiver and changer and some other Panasonic and Technics cassette decks, CD players, TVs and VCRs provided they are equipped with a remote control sensor.

It is also possible to change-over the remote control code so that the remote control transmitter can operate TVs and VCRs which have not been manufactured by this company (⇒ page 40).

Operating the receiver

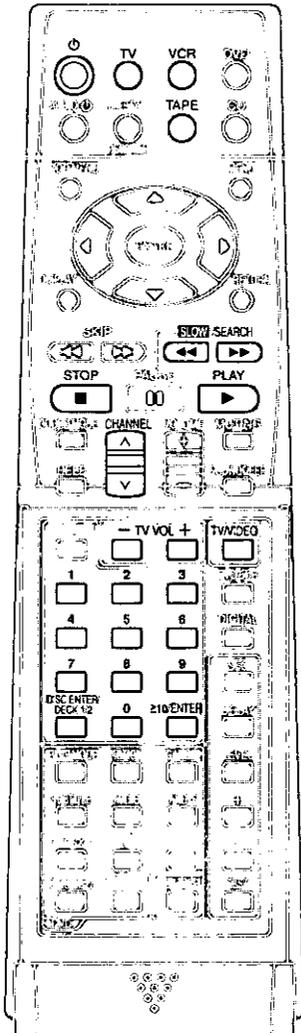
To turn the unit on/off	
To turn off the audio system (receiver, cassette deck, and CD player)	
To select an input source and switch the remote control to each operation mode	
To adjust the volume	
To select the DSP sound modes (⇒ pages 18, 20)	
To select the SFC mode (⇒ pages 19, 20)	
To select DIGITAL input (⇒ pages 20, 25)	
To start the test signal (⇒ page 17)	
To select a speaker channel and adjust its output level (⇒ page 17)	
To adjust subwoofer output level (⇒ page 35)	
To change the surround channel delay time (⇒ page 19)	
To mute the volume (⇒ page 34)	
To select "FM" or "AM" (⇒ page 23)	
To change radio channels sequentially (⇒ page 24) (Preset tuning)	
To select radio channels directly (⇒ page 24) (Preset tuning)	
To select radio stations by frequency (⇒ page 23) (Direct tuning)	
To dim the receiver's display (⇒ page 34)	
To display help messages and confirm the remote control mode	
To select DVD analog input mode (⇒ page 25)	

Operating the changer

To turn the changer on/off	
To start play from a specific disc (= page 22) Press the numbered button within 3 seconds of pressing [DIRECT TUNING/DISC].	
To skip to the beginning of a track or chapter (= page 27)	
To start play (= page 21)	
To fast-forward or rewind (= page 27)	
To display the top menu (= page 26)	
To display the menu (= page 26)	
To display the on-screen menu icons (= page 31)	
To select items Press to select items after you press [TOP MENU], [MENU], or [DISPLAY].	
To enter the selected items	
To start play from a selected track or chapter (= page 22)	
To pause play (= page 21)	
To start slow-motion (= page 27)	
To advance/reverse frame-by-frame (= page 27)	
To stop play (= page 26)	

To change subtitles (= page 28)	
To change soundtracks (= page 28)	
To change angles (= page 28)	
To display the changer setting menu (= page 43)	
To clear the selected items	
To select a repeat play mode (= page 29)	
To specify start and finish points for A-B repeat (= page 29)	
To select program and random play (= pages 29 and 30)	
To skip to the next disc tray (= page 21)	
To display disc information (= page 32)	
To change the sequential mode (= page 26)	
To return to the previous screen	

Point the remote control toward the unit



Operating a TV

To turn the TV on/off	
To select the television's input mode	
To change channels sequentially	
To select channels directly [≥10/ENTER] is used to confirm channel selection on some televisions manufactured by other companies.	
To adjust television volume	

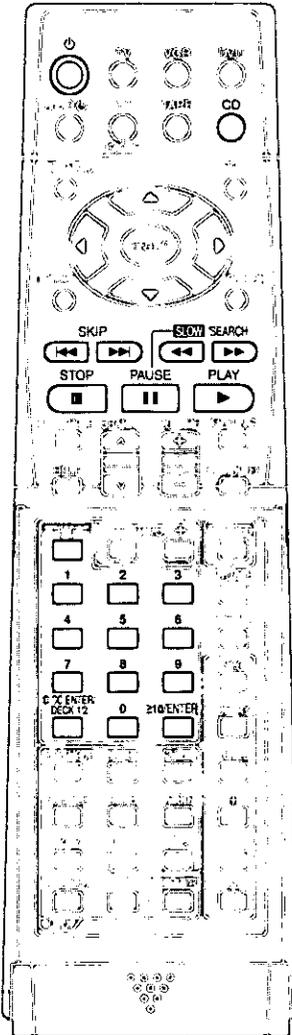
Operating a VCR

To turn the VCR on/off	
To change channels sequentially	
To select channels directly [≥10/ENTER] is used to confirm channel selection on some VCRs manufactured by other companies.	
To start play	
While the tape is stopped To fast-forward or rewind	
To stop play	

Operating a cassette deck

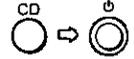
To turn the deck on/off	
Only when using a double cassette deck To select deck 1 or 2	
To start play	
While the tape is stopped To fast-forward or rewind With TPS-equipped decks, you can move to the beginning or end of a track by pressing these buttons while the tape is playing.	
To stop play	

Point the remote control toward the CD player



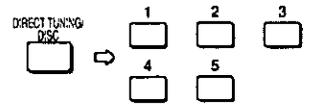
Operating a CD player

To turn the CD player on/off



[5 disc changer only]

To start play from a specific disc

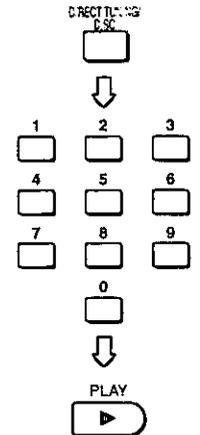


[MEGA CD changer only]

To start play from a specific disc

(When selecting discs, [≥10/ENTER] does not respond to touch.)

"MEGA CD changer" means any Technics CD changer that takes more than 50 discs.



For your reference

If you press this button instead of [▶] (Play) shown in the above procedure, the CD changer will stop and display the disc number. To start the disc, press [▶] (Play).



To skip to the beginning of a track



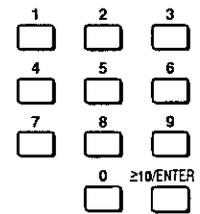
To start play



To fast-forward or rewind



To start play from a selected track



To pause play



To stop play



Remote control

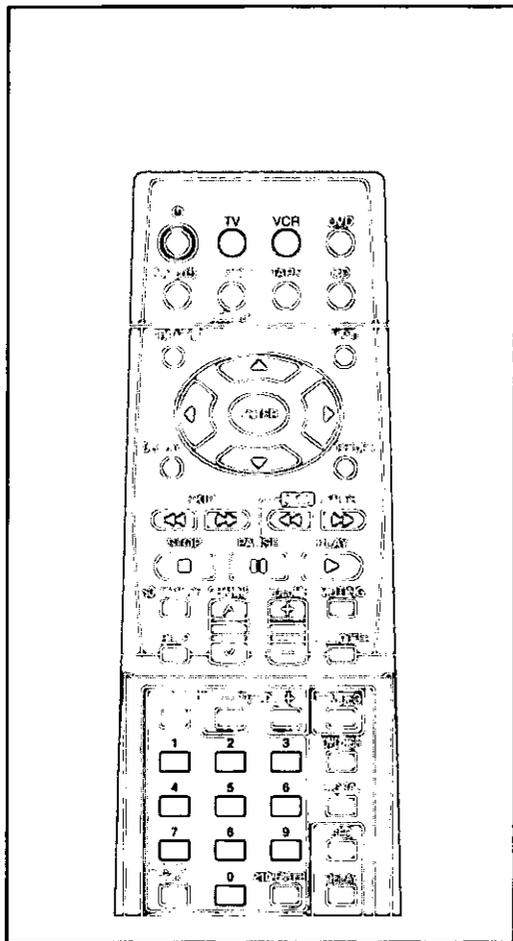
Changing the remote control code

Change the remote control code:

- To operate a Panasonic or Technics TV or VCR with a different code.
- To operate another brand of TV or VCR.

Note

- If there is more than one code number indicated in the code table, repeat the procedure until you find a code number which switches the component on or off.
- Even after changing the code there may be cases where certain operations cannot be done or operation is not possible at all.
- Changes to the codes are canceled when the remote control's batteries are replaced. Reenter the code.

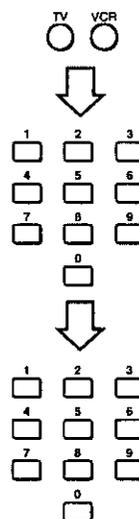


Hold down the button corresponding to the component you wish to operate.

Continue to hold the button down and...

Aim the remote control at the component you wish to operate and carefully and slowly press the numbered buttons to enter the appropriate two-digit code.
(Refer to the table below.)

When the code is entered, the remote control automatically outputs the on/off signal. If you change the code correctly, the component switches on or off.



Code lists

TV		VCR	
Manufacturer	Code No.	Manufacturer	Code No.
Panasonic	01, 02, 26	Panasonic	01, 02, 09, 33
Sony	04	Sony	05, 06, 07, 35, 36, 37
Fisher	14	Fisher	13, 14, 15, 18, 34
G.E.	02, 03, 07, 09	Funai	08, 30
GoldStar	07, 15	G.E.	02, 03, 11
Hitachi	05, 07	GoldStar	27
JVC	12	Hitachi	09, 10, 11
LXI	03, 06, 07, 10, 14, 15	JVC	19, 25, 31, 38, 39, 40
Magnavox	06, 07, 11, 15, 22	LXI	10, 13, 14, 15, 18, 27, 30
Mitsubishi	07, 15, 16, 21	Magnavox	02, 09, 12
NEC	07, 15	Mitsubishi	21, 22, 28, 29
Philco	06, 07	NEC	19, 25, 31, 38
Philips	06	Philco	02, 09, 12, 30
Pioneer	02, 10, 19	Philips	02, 09, 12
Quasar	02	Pioneer	09
RCA	03, 07, 09, 13, 23, 24, 25	Quasar	01, 02, 09, 33
Sanyo	14	RCA	02, 03, 04, 09, 10, 11, 12, 23, 24, 26
Sharp	08, 21	Sanyo	14, 18, 34
Sylvania	06, 07, 15	Sharp	16, 17
Symphonic	17	Shintom	32
Toshiba	10, 21	Sylvania	02, 09, 12, 30
Zenith	18, 20	Symphonic	30
		Toshiba	23, 24
		Zenith	20

Receiver settings

These settings allow you to suit the receiver to the environment you are using it in and to suit equipment you connect to it. Before making any changes, read the following descriptions, note the factory settings and ranges, and refer to the instructions for the other equipment.

These settings remain intact until you change them, even after the power is turned off.

Setting descriptions

SIZE

Change these settings only if you replace the included speakers.
LARGE: For speakers that can reproduce a full sound range, particularly the bass range below 100 Hz.
SMALL: This is the factory setting and the optimum setting for the included speakers. This setting is sufficient for most speakers if you are using a subwoofer.
NONE: For speakers you haven't connected (center or surround).

If you disconnect the subwoofer (SUB-WFR), select NO. Otherwise, leave the setting as YES.

DISTANCE

Enter the distance of the speakers from the seating position so that the sound from all the speakers (except for the subwoofer) reaches you at the same time.
 You can select distances between 3 and 30 feet at one-foot intervals.
 The factory settings are: Front and center: 10 FEET
 Surround: 5 FEET

FILTER

Change this setting only if you replace the included speakers. You can change the cut-off for the bass output from the front speakers. The optimum setting for these speakers is 150 Hz.

DR COMP—Dynamic range compression

Change this setting to listen to software at low volume (such as late at night) and maintain audio clarity. This setting works with Dolby Digital software. It reduces the peak level in loud scenes without affecting the sound field.

OFF: The software is played with the original dynamic range (factory setting).
STANDARD: The level recommended by the producer of the software for household viewing.
MAX: The maximum allowable compression (recommended for night viewing).

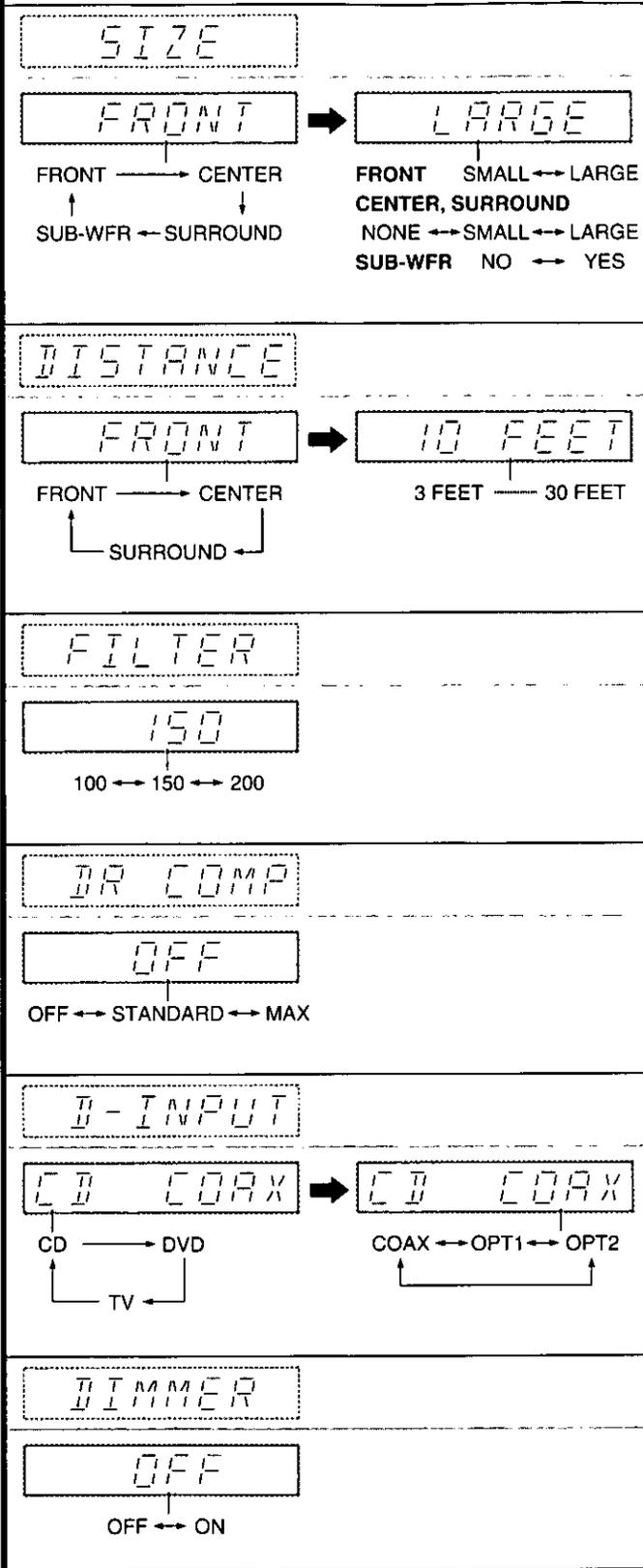
D-INPUT—Digital input

Change these settings to suit the connections you have made to the three digital input terminals, COAX, OPT1, and OPT2 (⇒ page 16), so that the correct source is selected when you turn [INPUT SELECTOR] (⇒ page 25).

The factory settings are: CD: COAX
 DVD: OPT2
 TV: OPT1

DIMMER

This setting allows you to dim the receiver's display for better viewing in a darkened room.
 The factory setting is OFF (normal brightness).



Receiver settings

Basic steps

If you allow about 10 seconds to elapse between settings, the procedure is canceled, all settings are returned to how they were, and the previous display is restored. Begin again if this occurs.

- 1** Press [POWER, .
- 2** Press [DSP SOUND MODE] and [SFC MODE] at the same time.
- 3** Press [DSP SOUND MODE] to select the item you want to change.

Each time you press the button:
 SIZE → DISTANCE → FILTER → DR COMP
 ← DIMMER ← D-INPUT ←

- 4** Change the settings (⇒ below).

Repeat steps 3 and 4 to complete the necessary settings.

- 5** Press [DSP SOUND MODE] and [SFC MODE] at the same time.

Changing the settings

SIZE

- ①** Press [SFC MODE] to select the speaker you want to set.

Each time you press the button:

FRONT → CENTER → SURROUND
 ← SUB-WFR (Subwoofer) ←

- ②** Turn [INPUT SELECTOR] to change the setting.

When you turn the selector:

FRONT: SMALL ↔ LARGE
 CENTER and SURROUND: NONE ↔ SMALL ↔ LARGE
 SUB-WFR: NO ↔ YES

- ③** Repeat ① and ② to change other SIZE settings.

DISTANCE

- ①** Press [SFC MODE] to select the speaker you want to set.

Each time you press the button:

FRONT → CENTER → SURROUND
 ← →

- ②** Turn [INPUT SELECTOR] to set the distance.

- ③** Repeat ① and ② to change other DISTANCE settings.

FILTER

Turn [INPUT SELECTOR] to set the cut-off.

When you turn the selector:

100 ↔ 150 ↔ 200

DR COMP

Turn [INPUT SELECTOR] to change the setting.

When you turn the selector:

OFF ↔ STANDARD ↔ MAX

D-INPUT

- ①** Press [SFC MODE] to select the input position you want to set.

Each time you press the button:

CD COAX → DVD OPT2 → TV OPT1
 ← →

These are the factory settings. Actual displays depend on the changes you make. If you change one setting, the other corresponding setting will also change.

- ②** Turn [INPUT SELECTOR] to change the setting.

When you turn the selector:

COAX ↔ OPT1 ↔ OPT2
 ← →

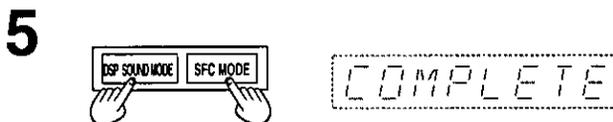
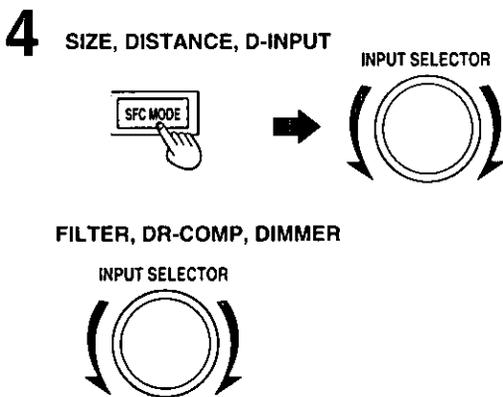
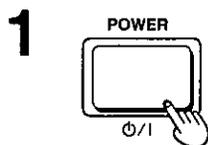
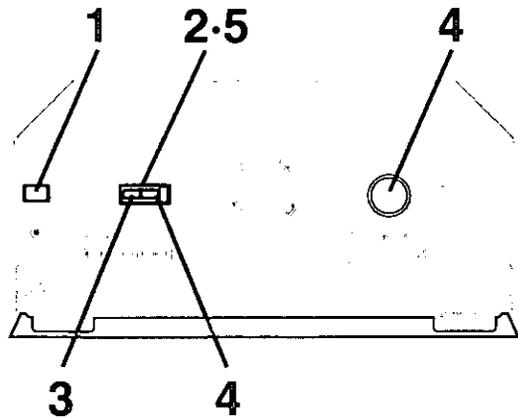
- ③** Repeat ① and ② to change other D-INPUT settings.

DIMMER

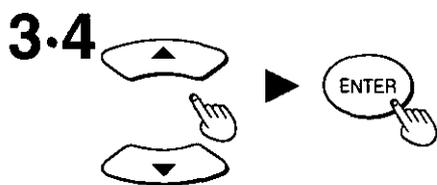
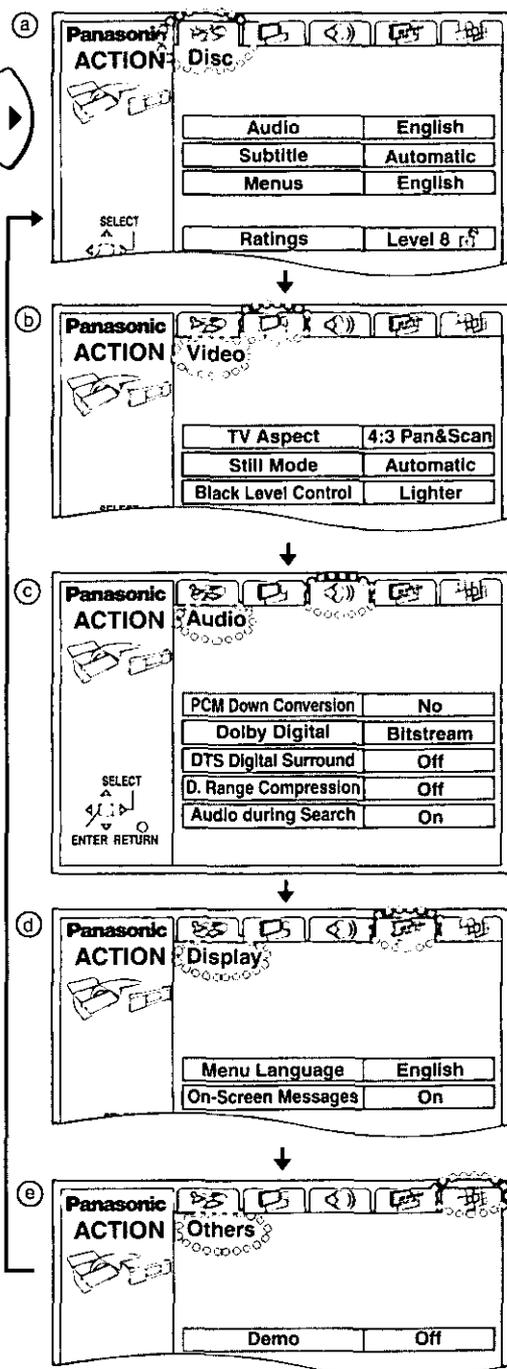
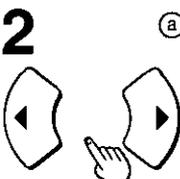
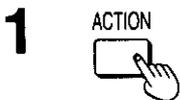
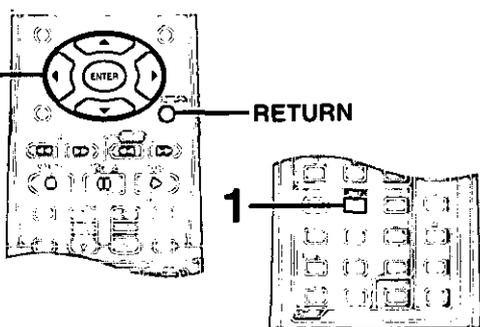
Turn [INPUT SELECTOR] to change the setting.

When you turn the selector:

OFF ↔ ON



2.3.4 [ENTER]



Changer settings

Remote control only

Change the settings to suit your preferences and to suit the changer to the environment in which it is being used. These settings are retained in memory until they are changed, even if the changer is turned off.

Common procedures

See page 46 for details of the items and settings.

- 1 Press [ACTION] to show the menus.**
The screen shows the disc settings menu (a) first.
- 2 Press [◀, ▶] to select the tab.**
The menu screen changes to display the menu.
 - (a): Disc menu
 - (b): Video menu
 - (c): Audio menu
 - (d): Display menu
 - (e): Others menu
- 3 Press [▲, ▼] to select the item you want to change and press [ENTER].**
- 4 Press [▲, ▼] to select the option and press [ENTER].**
The screen now shows the menu again.

To return to the previous screen
Press [RETURN].

When you are finished
Press [ACTION].

DVD

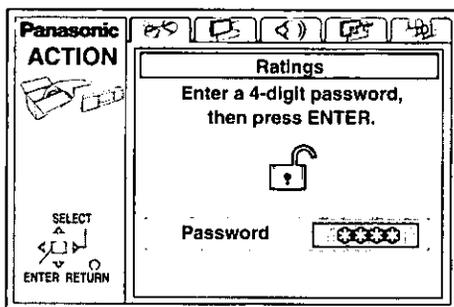
Entering a password

Refer also to "Common procedures" (⇒ page 43) and the Disc section in "Summary of settings" (⇒ page 46).

When setting ratings (When the level is 8)

The password screen is shown when you select levels 0 to 7.

1. Input a 4-digit password with the numbered buttons and press [ENTER].
 - If you enter a wrong number, press [CANCEL] to erase it before you press [ENTER].



The lock symbol appears closed to show the rating is locked.
Do not forget your password.

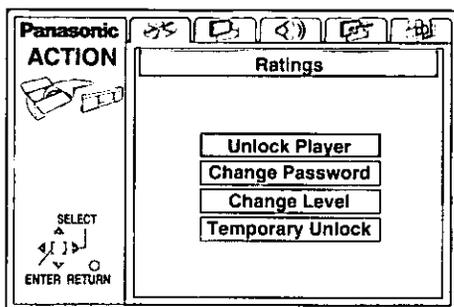
2. Press [ENTER] to confirm the 4 digits.

Now, when you insert a DVD that exceeds the ratings limit you set, a message appears on the television.
 Follow the on-screen instructions.

When changing ratings (When the level is 0 to 7)

The password screen is shown when you select "Ratings".

1. Input your 4-digit password with the numbered buttons and press [ENTER].



2. Select the item with [▲, ▼] and press [ENTER], and follow the on-screen instructions.

DVD

TV screen type

Refer also to "Common procedures" (⇒ page 43) and the Video section in "Summary of settings" (⇒ page 46).

TV Aspect

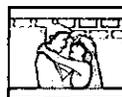
4:3 Pan & Scan (Factory preset)

Select if you have a regular television and to view 16:9 software* in the pan and scan style.



4:3 Letterbox

Select if you have a regular television and to view 16:9 software in the letterbox style.



16:9

Select if you have a widescreen television.

*16:9 software prohibited from being shown in the pan and scan style will appear in the letterbox style despite the setting here.

Digital output

Refer also to "Common procedures" (⇒ page 43) and the Audio section in "Summary of settings" (⇒ page 46).

PCM Down Conversion

No (Factory preset):

When you have connected the receiver with audio cables.

Yes:

When you have connected the receiver with an optical digital audio cable.

Copyright protection limits digital output to 48 kHz/16 bit.

When playing DVDs recorded in 96 kHz

Sound is output as follows in accordance with the connections and settings you have made.

Setting	Connection	
	Digital	Analog
No	No output*1	Output as 96 kHz
Yes	Converted and output as 48 kHz/16 bit	Converted and output as 48 kHz

*1 Signals without copyright protection are output as 96 kHz. To enjoy these sources, however, the other equipment must be able to handle this sampling frequency.

Dolby Digital

Bitstream (Factory preset):

When you have connected the receiver.

PCM:

When you have connected a unit that doesn't have a built-in Dolby Digital decoder.*2

DTS Digital Surround

Off (Factory preset):

When you have connected a unit that doesn't have a built-in DTS decoder.*2 (No digital signal is output.)

Bitstream:

When you have connected the receiver.

***2 These changes to digital audio output must be made, otherwise bitstream signals the decoder cannot handle will be output. If these signals are output, "noise" will be output which can cause harm to your ears and speakers.**

Changer

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Receiver

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Summary of settings

This chart shows the settings for the changer. See page 43 for details on menu operation.

- The menu and on-screen message language has been factory preset to English. You can change the language by going to "Menu Language" in the Display menu.
- Underlined items are the factory preset.

Main menu	Menu	Options
Disc	Audio Choose the preferred audio language.	<u>English</u> French Spanish Original Other ****
	Subtitle Choose the preferred subtitle language.	<u>Automatic</u> English French Spanish Other ****
	Menus Choose the preferred language for disc menus.	<u>English</u> French Spanish Other ****
	Ratings Set a ratings level to limit DVD play.	Setting ratings (When level 8 is selected) <u>8 No limit</u> 1 to 7 0 Lock All
		Changing ratings (When level 0-7 is selected) Unlock Player Change Level Change Password Temporary Unlock
Video	TV Aspect Choose the setting to suit your television and preference.	<u>4:3 Pan & Scan</u> 4:3 Letterbox 16:9
	Still Mode Specify the type of picture shown when paused.	<u>Automatic</u> Field Frame
	Black Level Control Change the black level of the picture if you connected a television through the COMPONENT VIDEO OUT terminals.	<u>Lighter</u> Darker
Audio	PCM Down Conversion <u>[DVD]</u> Digital output of 96-kHz linear PCM signals (⇒ page 45).	<u>No</u> Yes
	Dolby Digital <u>[DVD]</u> Digital output of Dolby Digital signals (⇒ page 45).	<u>Bitstream</u> PCM
	DTS Digital Surround <u>[DVD]</u> Digital output of DTS Digital Surround signals (⇒ page 45).	<u>Off</u> Bitstream
	D. Range Compression <u>[DVD]</u> (Dolby Digital only) Compress the dynamic range for late night viewing. You can listen at low volume but still enjoy clear dialog. This does not work when connection is digital (⇒ page 13).	<u>Off</u> On
	Audio during Search <u>[DVD]</u> <u>[VCD]</u> Choose whether to have sound during search.	<u>On</u> Off
Display	Menu Language Choose the preferred language for these menus and the on-screen messages.	<u>English</u> Français Español
	On-Screen Messages Choose whether to show on-screen messages or not.	<u>On</u> Off
Others	Demo A demonstration of the changer's on-screen displays starts when you select "On". The demonstration stops when you press a button.	<u>Off</u> On

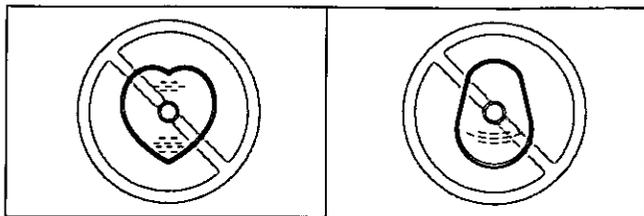
	Remarks
<p>"Other ****": Input a code number with the numbered buttons (= below).</p> <p>"Original": The original language of each disc will be selected.</p> <p>"Automatic": If the language selected for "Audio" is not available, subtitles of that language will automatically appear if available on that disc.</p>	Some discs are designed to start in a certain language despite any changes you make here.
<p>Level 8: All DVDs can be played.</p> <p>Level 1 to 7: Prohibits play of DVDs with corresponding ratings recorded on them.</p> <p>Level 0: Prohibits play of all DVDs.</p>	<ul style="list-style-type: none"> •The password screen is shown if you choose levels 0 to 7 (= page 44). •Select "Level 0" to prevent play of discs that do not have ratings levels recorded on them.
	The password screen is shown when you select "Ratings" if levels 0 to 7 have been selected (= page 44).
<p>Field: Less blurred field stills are shown. Select if jittering occurs when "Automatic" is selected.</p> <p>Frame: Sharper frame stills are shown. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.</p>	
<p>Lighter: when connected to a TV through the VIDEO OUT or S VIDEO OUT terminal.</p> <p>Darker: when connected to a TV through the COMPONENT VIDEO OUT (Y/P&Pr) terminals.</p>	

Language code list

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoa: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6588	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Urdu: 8582
Bashkir: 6665	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Uzbek: 8590
Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
Bengali; Bangla: 6678	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Volapük: 8679
Bhutani: 6890	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Welsh: 6789
Bihari: 6672	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Wolof: 8779
Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
Burmese: 7789	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yoruba: 8979
Byelorussian: 6669	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Zulu: 9085
Cambodian: 7577	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185	Tamil: 8465	
Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tatar: 8484	

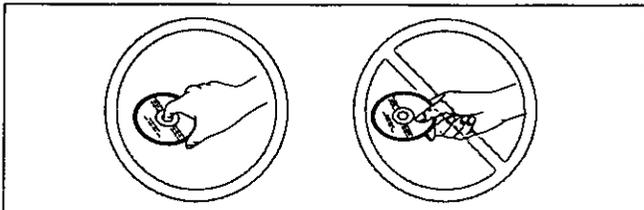
Disc handling

Do not use irregularly shaped discs, such as heart-shaped. (These can damage the unit.)



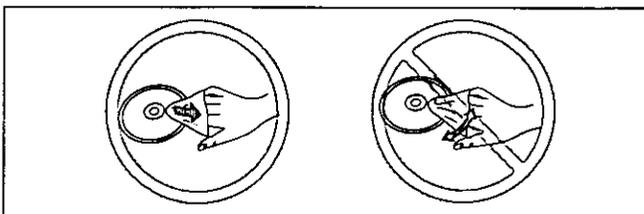
How to hold a disc

Do not touch the recorded surface.



If the surface is dirty

Wipe it with a damp cloth and then wipe dry.



If the disc is brought from a cold to a warm environment, moisture may form on the disc. Wipe with a soft, dry, lint-free cloth before using the disc.

Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzene, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use CDs printed with label printers available on the market.

Do not place or store discs in the following places

- Locations exposed to direct sunlight.
- Humid or dusty locations.
- Locations directly exposed to a heat vent or heating appliance.

Glossary

Bitstream

This is the digital form of multiple channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

Channels

This term describes the division of audio signals. For example, many DVDs are recorded with 5.1-channel systems, made up of 2 front channels (left and right), two surround channels (left and right), one center channel (mainly used for dialogue), and one subwoofer channel (for bass effects, the 0.1 channel).

DSP (Digital Signal Processor)

This is the name given to any circuit that processes sound and creates sound fields. The circuits for Dolby Digital, Dolby Pro Logic, and DTS are included in this term.

Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

Frame still and field still

A still is shown when you pause a moving picture. A frame still is made up of two alternating fields, so the picture may appear blurred, but overall quality is high.

A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

Frames are the still pictures that go together to make a moving picture. There are about 30 frames shown each second.

One frame is made up of two fields. A regular television shows these fields one after the other to create frames.

I/P/B

MPEG 2, the video compression standard adopted for use with DVD-Video, codes frames using these 3 picture types.

I: Intra coded picture (I-picture)

This is the standard picture and is a complete picture in itself.

This means it has the best picture quality and is the best to use when adjusting the picture.

P: Predictive coded picture (P-picture)

This picture is calculated based on past I or P-pictures.

B: Bidirectionally-predictive coded picture (B-picture)

This picture is calculated by comparing past and future I and P-pictures so it has the lowest volume of information.

Linear PCM (pulse code modulation)

This is an uncompressed form of digital audio signal. While CDs are recorded with a sampling rate of 44.1 kHz and a bit rate of 16 bits, the audio on many DVDs is recorded with sampling rates of 48 kHz or 96 kHz and bit rates of 16 and 24 bits.

Playback control

If a Video CD has "playback control" written on it or its jacket, it means that particular scenes or information can be selected for viewing interactively with the television using the menu screen. This unit can play Video CDs with playback control.

Using menus to control play of a Video CD is called "menu play" in these operating instructions.

Title/Chapter

DVDs are divided up into large sections, titles, and smaller sections, chapters. The numbers allocated to these sections are called title numbers and chapter numbers.

Track

Video CDs and CDs are divided up into sections called tracks, and the numbers allocated to these sections are called track numbers.

Troubleshooting guide

Before requesting service, make the below checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem:

In the U.S.A., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumer-products@panasonic.com or web site (<http://www.panasonic.com>).

In Canada, contact Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, or web site (www.panasonic.ca), or the authorized Servicentre nearest you.

Reference pages are shown as black circled numbers ❸.

Common problems

<p>No sound. Distorted sound.</p>	<ul style="list-style-type: none"> • Turn muting off. ❷ • Turn on the speakers. ❶ • Turn off the tape monitor. ❸ • Select the correct source. ❷ • Change the DIGITAL input setting to suit the type of connection you have made. ❶ • Check that the receiver can decode the digital signals. ❶ • Turn PCM FIX and DTS FIX off. ❶ • Check all connections. ❶–❷ • Turn V.S.S. off if it is on. ❸ • Ensure you have made the correct settings in “PCM Down Conversion”, “Dolby Digital”, and “DTS Digital Surround”. ❷ • Turn DVD 6CH to DVD. ❷
<p>Cannot select “DIGITAL” input.</p>	<ul style="list-style-type: none"> • Cancel “DSP DEFEAT”. ❷
<p>No picture on the television.</p>	<ul style="list-style-type: none"> • Change the television’s input mode to suit the connections to the receiver or changer.
<p>Sound stops. “OVERLOAD” appears on the receiver’s display.</p>	<ul style="list-style-type: none"> • Switch the receiver to standby, determine and correct the cause, then switch it on. Causes include shorting of the positive and negative speaker wires, using speakers with an impedance lower than rated for the receiver, straining of the speakers through excessive volume or power, and using the unit in a hot environment.
<p>“F 70” appears on the receiver’s display.</p>	<ul style="list-style-type: none"> • Switch the receiver to standby, disconnect the AC power supply cord, then reconnect and turn the unit on. Consult your dealer if “F 70” remains on the display.
<p>No sound from the subwoofer, center, or surround speakers.</p>	<ul style="list-style-type: none"> • Ensure the size settings for the speakers are correct. ❶ • Check the DSP sound mode. ❶ • Check all connections. ❶–❷ • Cancel “DSP DEFEAT”. ❷
<p>Cannot select DSP sound modes.</p>	<ul style="list-style-type: none"> • Cancel “DSP DEFEAT”. ❷
<p>Cannot tune the radio or there is a lot of noise and interference.</p>	<ul style="list-style-type: none"> • Adjust the position of the FM or AM antenna. ❷ • Reduce the treble. ❷ • Select “DSP DEFEAT”. ❷ • Turn off nearby televisions, video decks, DVD players, and satellite receivers. • You may need an outdoor antenna or an antenna with more elements. ❷ • Separate the antenna from other cables, leads, and appliances. ❷
<p>No power. The changer switches automatically to the standby mode.</p>	<ul style="list-style-type: none"> • Insert the AC power supply cord securely into the household AC outlet. ❶ • The changer switches to standby after approximately 30 minutes in the stop mode to conserve power. Press [POWER, ⏻] to turn the changer back on.

Disc play

<p>No response when buttons are pressed.</p>	<ul style="list-style-type: none"> • The disc may prohibit some operations. ❶ • The changer may not be operating properly due to lightning, static electricity, or some other external factor. You can remedy this by pressing [POWER, ⏻] to switch it to standby and then back on, or, alternatively, press [POWER, ⏻] to switch to standby, disconnect the AC power supply cord and then reconnect it.
<p>Play fails to start even when [▶] (play) is pressed. Play starts but then stops immediately.</p>	<ul style="list-style-type: none"> • Condensation has formed inside the changer: Wait about 1 hour for it to evaporate. • The changer cannot play discs other than DVD, Video CD, and CD. ❶ • The changer cannot play DVDs with a region number other than “1”, “ALL” or multiple region numbers including “1”. ❶ • The disc may be dirty and may require cleaning. • Insert the disc with the label of the side to be played facing upwards. ❶ • A disc or foreign object has fallen inside the changer. Open the drawer and remove the object.
<p>Play of the DVD fails to start even when [▶] (play) is pressed.</p>	<ul style="list-style-type: none"> • “SEQ. 2” is selected. Press [SEQUENTIAL MODE] to select “SEQ. 1”. ❷

Disc play (continue)

Cannot select alternative soundtrack/subtitle languages.	<ul style="list-style-type: none"> You cannot select alternative languages with discs that do not contain more than one language. 20 With some discs, you cannot select alternative languages with [AUDIO] or [SUBTITLE]. Try using the disc's menu if one is available.
No subtitles.	<ul style="list-style-type: none"> Subtitles appear only with discs containing them. 20 Subtitles are off. Turn them on. 20
Soundtrack/subtitle language is not the one selected with the Disc menu.	<ul style="list-style-type: none"> If the soundtrack/subtitle language is not on the disc, the language selected in the Disc menu cannot be used.
Cannot change angle.	<ul style="list-style-type: none"> This feature depends on software availability. Even if a disc has different angles, they may be recorded for specific scenes only ("⏏" lights up on the changer's display). 20
You have forgotten your ratings password. Initialize the changer to restore the factory settings.	<ul style="list-style-type: none"> While stopped, press and hold [◀◀/▶▶] and [▶▶] on the changer and then also press and hold [▲] on the changer until "Initialized" disappears from the television. Switch the changer to standby and on again. All changer settings will return to the default values.
The drawer stops in the middle of opening.	<ul style="list-style-type: none"> If the drawer is opened enough, take out the discs at the front to prevent damage to the changer or discs, then switch the changer to standby and then back on again.
No on-screen display.	<ul style="list-style-type: none"> Select "On" in "On-Screen Messages". 46
On-Screen Menu Icons not displayed or only partially displayed on the television.	<ul style="list-style-type: none"> Press [▲, ▼] while the rightmost icon is highlighted to move them down. 31
Picture distorted during rapid advance or rapid reverse.	<ul style="list-style-type: none"> The picture is normally distorted during these operations.
The picture shown on the television is not normal. (The sides of the picture are cut off or black bands appear at the top and bottom of the screen.)	<ul style="list-style-type: none"> Go to the "TV Aspect" menu and change the setting to suit your television. You may also need to change the screen mode on the television or with the disc's menus. 46-47
The disc's menu is in another language.	<ul style="list-style-type: none"> Go to "Menus" in Disc to select the preferred menu language. 46
No menu play.	<ul style="list-style-type: none"> This works only for Video CDs with playback control. 48

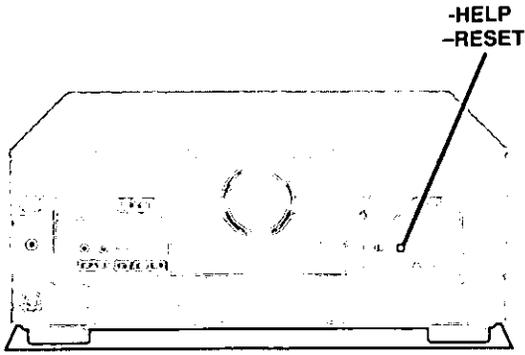
Changer displays

"NO PLAY"	<ul style="list-style-type: none"> You inserted a disc the changer cannot play; insert one it can. 3
"CHECK THE DISC"	<ul style="list-style-type: none"> The disc is dirty. Wipe it clean.
"H□□" □□ stands for a number.	<ul style="list-style-type: none"> Trouble may have occurred. The number depends on the status of the changer. You may be able to remedy this by pressing [POWER, ⏏] to switch the changer to standby and then back on, or, alternatively, press [POWER, ⏏] to switch to standby, disconnect the AC power supply cord and then reconnect it. If the service number fails to clear, note it and contact a qualified service person.
"NO DISC"	<ul style="list-style-type: none"> You haven't inserted a disc; insert one. You haven't inserted the disc correctly; insert it correctly.

Remote control

Cannot perform operations with the remote control.	<ul style="list-style-type: none"> Insert the batteries correctly (⊕ and ⊖). 9 The batteries are flat: Replace them with new ones. 9 Point the remote control at the remote control sensor and operate. 9
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The HELP function



If you make a mistake in operation or if sound output stops, the HELP function displays information that indicates how you can remedy the situation.

If "ERROR" or scrolling characters ("SPEAKER OFF NOW", for example) appear on the display, do the following.

Press [-HELP, —RESET].

The remedy for the situation is displayed.

For your reference

You can reset the unit's settings to the factory settings. If this is ever necessary, press and hold [-HELP, —RESET] for about 2 seconds until "RESET" is displayed.

This will not erase radio stations you have preset.

Maintenance

If the surfaces are dirty

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

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

Product Service

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

The servicer will require all components to service your system.

Therefore, should service ever be necessary, be sure to bring the entire system.

Product information

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

Specifications

Receiver (IHF'78)

■ AMPLIFIER SECTION

Rated minimum sine wave RMS power output	
40 Hz–20 kHz both channels driven	
0.9 % total harmonic distortion	100 W per channel (6 Ω)
1 kHz continuous power output both channels driven	
0.05 % total harmonic distortion	105 W per channel (6 Ω)
Total harmonic distortion	
rated power at 40 Hz–20 kHz	0.9 % (6 Ω)
half power at 1 kHz	0.07 % (6 Ω)
Power output at 1 kHz each channel driven	
0.9 % total harmonic distortion	
Front	2×100 W (6 Ω)
Center	100 W (6 Ω)
Surround	2×100 W (6 Ω)
Subwoofer	100 W (6 Ω)
Low frequency damping factor	30 (6 Ω)
Load impedance	
Front	6–8 Ω
Center	6–8 Ω
Surround	6–8 Ω
Subwoofer	6–8 Ω
Dynamic headroom	2 dB (6 Ω)
Frequency response	
CD, TAPE, DVD, TV, VCR	10 Hz–70 kHz, ±3 dB
Input sensitivity	
CD, TAPE, DVD, TV, VCR	27 mV (200 mV, IHF' 66)
S/N (IHF A)	
CD, TAPE, DVD, TV, VCR	75 dB
Input impedance	
CD, TAPE, DVD, TV, VCR	22 kΩ
Tone controls	
BASS	50 Hz, +10 to –10 dB
TREBLE	20 kHz, +10 to –10 dB
Subwoofer frequency response (–6 dB)	7–200 Hz

Digital input

Optical	2
Coaxial	1

■ FM TUNER SECTION

Frequency range	87.9–107.9 MHz
Sensitivity	11.2 dBf (2 μV, IHF' 58)
50 dB quieting sensitivity	
MONO	18.3 dBf (4.5 μV, IHF' 58)
STEREO	38.3 dBf (45 μV, IHF' 58)
Total harmonic distortion	
MONO	0.2 %
STEREO	0.3 %
S/N	
MONO	73 dB
STEREO	67 dB
Frequency response	20 Hz–15 kHz, +1 dB, –2 dB
Alternate channel selectivity	65 dB
Capture ratio	1.5 dB
Image rejection at 98 MHz	40 dB
Spurious response rejection at 98 MHz	75 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Antenna terminal	75 Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	530–1710 kHz
Sensitivity	20 μV, 330 μV/m
Selectivity	55 dB
IF rejection at 1000 kHz	50 dB

■ VIDEO SECTION

Output voltage at 1 V input (unbalanced)	1±0.1 Vp-p
Maximum input voltage	1.5 Vp-p
Input/output impedance	75 Ω

■ GENERAL

Power supply	AC 120 V, 60 Hz
Power consumption	450 VA, 350 W
Dimensions (W×H×D)	430×158×367 mm (16–15/16"×6–7/32"×14–15/32")
Mass	10.5 kg (23.1 lb.)

Power consumption in standby mode: 1 W

DVD changer

Power supply:	AC 120 V, 60 Hz
Power consumption:	16 W
Dimensions:	430 (W)×373 (D)×125 (H) mm [16 ¹⁵ / ₁₆ " (W)×14 ¹¹ / ₁₆ " (D)× 4 ¹⁵ / ₁₆ " (H)] (excluding protrusions)
Mass:	5.1 kg (11.2 lb.)
Signal system:	NTSC
Operating temperature range:	+5 to +35 °C (+41 to +95 °F)
Operating humidity range:	5–90 % RH (no condensation)
Discs played:	
(1) DVD-Video disc	
(2) Compact disc (CD-DA, Video CD)	
(3) CD-R/CD-RW (CD-DA, Video CD formatted discs)	
Video output:	
Output level:	1 Vp-p (75 Ω)
Output terminal:	Pin jack (1 system)
S video output:	
Y output level:	1 Vp-p (75 Ω)
C output level:	0.286 Vp-p (75 Ω)
Output terminal:	S terminal (1 system)
Component video output:	
Y output level:	1 Vp-p (75 Ω)
P _B output level:	0.7 Vp-p (75 Ω)
P _R output level:	0.7 Vp-p (75 Ω)
Output terminal:	Pin jack (1 system)
Audio output:	
Output level:	2 Vrms (1 kHz, 0 dB)
Output terminal:	
Mixed output (L/R):	Pin jack (1 system)
Subwoofer output (0.1 ch):	Pin jack (1 system)
Audio signal output characteristics:	
(1) Frequency response:	
•DVD (linear audio):	4 Hz–22 kHz (48 kHz sampling) 4 Hz–44 kHz (96 kHz sampling)
•CD audio:	4 Hz–20 kHz
(2) S/N ratio:	
•CD audio:	115 dB
(3) Dynamic range:	
•DVD (linear audio):	102 dB
•CD audio:	98 dB
(4) Total harmonic distortion:	
•CD audio:	0.0025 %
Digital audio output:	
Optical digital output:	Optical terminal
Pickup:	
Wave length:	658 nm/790 nm
Laser power:	CLASS IIa/CLASS I

Power consumption in standby mode: approx. 2 W

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, and 4,819,098, licensed for limited viewing uses only.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Speaker

■ Front, center, and surround speakers

Type	2 way 2 speaker Bass-ref.
Speaker unit	
Woofer	10 cm cone type
Tweeter	6 cm cone type
Impedance	8 Ω
Input power	
MUSIC	200 W
DIN	100 W
Sound pressure level	81 dB/W (1.0 m)
Crossover frequency	3.5 kHz
Frequency range	65 Hz–22 kHz (–16 dB) 95 Hz–20 kHz (–10 dB)
Dimensions (W×H×D)	120×208×163 mm (4–3/4"×8–3/16"×6–7/16")
Mass	1.8 kg (4.0 lb.)

■ Subwoofer

Type	1 way 2 speaker Bass-ref.
Speaker unit	
Woofer	14 cm cone type×2
Impedance	8 Ω
Input power	
MUSIC	200 W
DIN	100 W
Sound pressure level	80 dB/W (1.0 m)
Frequency range	39 Hz–1.9 kHz (–16 dB) 42 Hz–1.7 kHz (–10 dB)
Dimensions (W×H×D)	200×450×350 mm (7–7/8"×17–23/32"×13–25/32")
Mass	6.9 kg (15.2 lb.)

Notes

- Specifications are subject to change without notice. Mass and dimensions are approximate.
- Total harmonic distortion is measured by the digital spectrum analyzer.

Panasonic

Technics

Quasar

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:

1-800-211-PANA (7262), Monday-Friday 9 am-9 pm; Saturday-Sunday 9 am-7 pm, EST.

*Web Site: <http://www.panasonic.com>
You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.*

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)

Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032

(6 am to 5 pm Monday-Friday; 6 am to 10:30 am Saturday; PST)

(Visa, MasterCard, Discover Card, American Express, Check)

Factory Servicenters Locations

<p>CALIFORNIA 6550 Katella Avenue Cypress, CA 90630</p> <p>800 Dubuque Avenue S. San Francisco CA 94080</p> <p>20201 Sherman Way Suite 102 Canoga Park, CA 91306</p> <p>3878 Ruffin Road Suite A San Diego, CA 92123</p> <p>COLORADO 1640 South Abilene Street Suite D Aurora, CO 80012</p> <p>FLORIDA 3700 North 29th Avenue Suite 102 Hollywood, FL 33020</p>	<p>GEORGIA 8655 Roswell Road Suite 100 Atlanta, GA 30350</p> <p>ILLINOIS 9060 Golf Road Niles, IL 60714</p> <p>1703 North Randall Road Elgin, IL 60123 (Pick-up/Drop-off only)</p> <p>MARYLAND 62 Mountain Road Glen Burnie, MD 21061</p> <p>MASSACHUSETTS 60 Glacier Drive Suite G Westwood, MA 02090</p>	<p>MICHIGAN 37048 Van Dyke Avenue Sterling Heights, MI 48312</p> <p>MINNESOTA 7850-12th Avenue South Airport Business Center Bloomington, MN 55425</p> <p>OHIO 2236 Waycross Road Civic Center Plaza Forest Park, OH 45240</p> <p>PENNSYLVANIA 2221 Cabot Blvd. West Suite B Langhorne, PA 19047</p>	<p>TEXAS 13615 Welch Road Suite 101 Farmers Branch TX 75244</p> <p>WASHINGTON 20425-84th Avenue South Kent, WA 98032</p> <p>HAWAII 99-859 Iwaiwa Street Aiea, Hawaii 96701 Phone (808) 488-1996 Fax (808) 486-4369</p>
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Service in Puerto Rico

*Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/Factory Servicenter:
Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985
Phone (787) 750-4300 Fax (787) 768-2910*

Limited Warranty (U.S.A.)

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
Corporation of Puerto Rico, Inc.
Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial
Park, Carolina, Puerto Rico 00985

Panasonic/Technics Audio Products Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the warrantor") will repair this product with new or refurbished parts in the event of a defect in materials or workmanship, free of charge, in the U.S.A. or Puerto Rico as follows (all time periods start from the date of original purchase):

COMPACT DISC PLAYERS, DIGITAL VERSATILE DISC PLAYERS, RADIO, RADIO CASSETTE PLAYERS/RECORDERS (with and without CD Players), CASSETTE RECORDERS, MICROCASSETTE RECORDERS/TRANSCRIBERS, IC RECORDERS, RECEIVERS, TUNERS, AMPLIFIERS, SUBWOOFER AMPLIFIERS, TURNTABLES, CASSETTE DECKS, AUDIO PROCESSORS, EQUALIZERS, AUDIO MIXERS, REMOTE CONTROLS, HOME THEATER SYSTEMS (receiver/amplifiers, speakers), RACK SYSTEMS (receivers, tuners, amplifiers, cassette decks, CD players, equalizers, rack system speakers, EXCLUDING: audio racks)—labor and parts for one (1) year.

ALL AUDIO RACKS (cabinets)—parts only 30 days.

TECHNICS STAND ALONE SPEAKERS, SUBWOOFER SPEAKERS—labor and parts for three (3) years.

ACCESSORIES—HEADPHONES, CARTRIDGES, MICROPHONES, ADAPTERS—labor and parts for ninety (90) days.

BATTERIES—(when applicable)—New rechargeable batteries in exchange for defective rechargeable batteries for ten (10) days. Non-rechargeable batteries are not warranted.

RECHARGEABLE BATTERY PACKS—(when applicable)—New rechargeable battery packs in exchange for defective rechargeable battery packs for ninety (90) days. Non-rechargeable battery packs are not warranted.

Carry-in or mail-in service in the U.S.A. can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Servicenter Directory. Or call toll free, 1-800-211-7262 to locate a PASC authorized Servicenter. Carry-in or mail-in service in Puerto Rico can be obtained during the warranty period by calling the Panasonic Sales Company telephone number listed in the Servicenter Directory.

This warranty is extended only to the original purchaser. A purchase receipt or other proof of date of original purchase will be required before warranty service is rendered.

This warranty only covers failures due to defects in materials and workmanship which occur during normal use and does not cover normal wear to the stylus (when applicable) or a dealer installed cartridge or stylus. The warranty does not cover damages which occur in shipment or failures which are caused by products not supplied by the warrantor, or failures which result from accident, misuse, abuse, neglect, mishandling, faulty installation, misapplication, set-up adjustments, maladjustment of consumer controls, improper operation or maintenance, improper antenna, inadequate signal reception or pick-up, alteration, modification, power line surge, improper voltage supply, lightning damage, commercial use, such as; hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a PASC Factory Servicenter or a PASC authorized Servicenter, or damage that is attributable to acts of God.

LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

THE WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Consumer Affairs Department at the company address indicated above.

If you ship the product

Carefully pack and send it prepaid, adequately insured and preferably in the original carton. Attach a postage-affixed letter, detailing the complaint, to the outside of the carton.

Do NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.

Customer's Record

Model No. _____

Dealer's Name _____

Serial No. _____
or _____

Code No. _____

Dealer's Address _____

Date of Purchase _____

Reference



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 or more 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.

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

This device complies with Part 15 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 undesired operation.

Panasonic Consumer Electronics Company, Division of Matsushita Electric Corporation of America
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