

Panasonic®

Operating Instructions DVD Stereo System

Model No. **SC-VK660**



Before connecting, operating or adjusting this product, please read the instructions completely.
Please keep this manual for future reference.

Operations in these instructions are described using the remote control, but you can do the operations on the main unit if the controls are the same.

Unless otherwise indicated, illustrations in these operating instructions are for the Southeast Asia.
Your unit may not look exactly the same as illustrated.

Region number

The player plays DVD-Video marked with labels containing the region number or "ALL".

| Region | Number |
|--------------------|--------|
| Southeast Asia | 3 |
| Australia and N.Z. | 4 |

Example:

For Southeast Asia

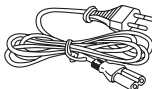


SUPPLIED ACCESSORIES

Please check and identify the supplied accessories.

1 x AC power supply cord

For Southeast Asia



For Australia and N.Z.



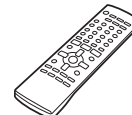
1 x Remote control

For Southeast Asia



(N2QAYB000161)

For Australia and N.Z.



(N2QAYB000162)

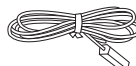
1 x Video cable



1 x AM loop antenna



1 x FM indoor antenna



2 x Remote control batteries



GCS GCT GN

RQTV0238-L

Dear customer

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

| | |
|----------------|-----------|
| System | SC-VK660 |
| Main unit | SA-VK660 |
| Front Speakers | SB-PF660 |
| Subwoofer | SB-WVK660 |



| | |
|-----------|---|
| CAUTION | - LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR / Class II |
| CAUTION | - CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. IEC60825-1 +A2 / Class 1M |
| WARNING | - KLASS 1M SYNULIG OG ØSYNLIG LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD. BETRÄKTA EJ STRÅLEN DIREKT GENOM OPTISKE INSTRUMENTER. |
| FORSIGTIG | - SYNULIG OG ØSYNLIG LASERSTRÅLING KLASS 1M. NÅR LÅGET ER ÅBENT, UNDGÅ ÅT SE LIGE PÅ MED OPTISKE INSTRUMENTER. |
| VARO! | - AVARTIESTA OLET ALTIINNA LUOKAN 1M NÄKYVÄÄ JA NÄKYMÄTÖNÄ. LASERSTRÄLÄÄ, ÄLÄ KATSO OPTISILLA LAITTEILLA SUORAAN SÄTEESEEN. |
| VORSICHT | - SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG KLASSE 1M. WENN ABDECKUNG GEÖFFNET, NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN. |
| ATTENTION | - RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 1M. EN CAS D'OUVERTURE, NE PAS REGARDER DIRECTEMENT À L'AIDE D'INSTRUMENTS D'OPTIQUE. |
| 注意 | - ここを開くと可視及び不可視レーザー光が出ます。 ビームを見たり、触れたりしないでください。 |
| 注意 | - 打开时有可见及不可见激光辐射。避免光束照射。 GB7245.1-2001/10B 类 ROLKS0075-J |

Inside of product

– If you see this symbol –

Information on Disposal in other Countries outside the European Union



This symbol is only valid in the European Union.
If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,

- DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.
- USE ONLY THE RECOMMENDED ACCESSORIES.
- DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION!

- DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.
- DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.
- DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.
- DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.

The socket outlet shall be installed near the equipment and easily accessible.

The mains plug of the power supply cord shall remain readily operable.

To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

For Southeast Asia

THIS UNIT IS INTENDED FOR USE IN TROPICAL CLIMATES.

For Australia and N.Z.

THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES.

Safety precautions

Placement

Set the unit up on an even surface away from direct sunlight, high temperatures, high humidity, and excessive vibration. These conditions can damage the cabinet and other components, thereby shortening the unit's service life.

Place it at least 15 cm away from wall surfaces to avoid distortion and unwanted acoustical effects.

Do not place heavy items on the unit.

Voltage

Do not use high voltage power sources. This can overload the unit and cause a fire.

Do not use a DC power source. Check the source carefully when setting the unit up on a ship or other place where DC is used.

Power cord protection

Ensure the AC power cord is connected correctly and not damaged. Poor connection and lead damage can cause fire or electric shock. Do not pull, bend, or place heavy items on the lead.

Grasp the plug firmly when unplugging the lead. Pulling the AC power cord can cause electric shock.

Do not handle the plug with wet hands. This can cause electric shock.

Foreign matter

Do not let metal objects fall inside the unit. This can cause electric shock or malfunction.

Do not let liquids get into the unit. This can cause electric shock or malfunction. If this occurs, immediately disconnect the unit from the power supply and contact your dealer.

Do not spray insecticides onto or into the unit. They contain flammable gases which can ignite if sprayed into the unit.

Service

Do not attempt to repair this unit by yourself. If sound is interrupted, indicators fail to light, smoke appears, or any other problem that is not covered in these instructions occurs, disconnect the AC power cord and contact your dealer or an authorized service center. Electric shock or damage to the unit can occur if the unit is repaired, disassembled or reconstructed by unqualified persons.

Extend operating life by disconnecting the unit from the power source if it is not to be used for a long time.

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Simple setup

Making the connections

Connect the AC power supply cord only after all other connections have been made.

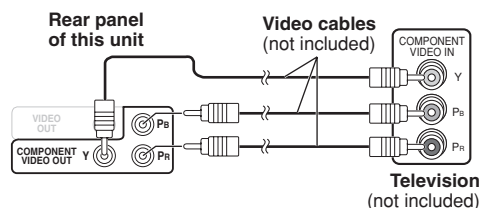
Conserving power

The unit consumes power (approx. 0.9 W) even when it is turned off with [⏻] (main unit: [⏻/I]). To save power when the unit is not to be used for a long time, unplug it from the household AC power socket. You will need to reset some memory items after plugging in the unit.

Video connections

- **Do not connect the unit through a video cassette recorder**
Due to copy guard protection, the picture may not be displayed correctly.
- Turn the television off before connecting, and refer to the television's operating instructions.

■ Television with COMPONENT VIDEO IN terminals



COMPONENT VIDEO OUT terminals

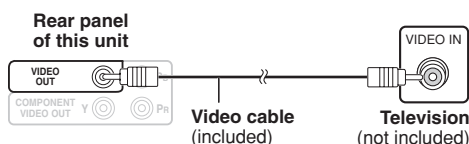
These terminals can be used for either interlace or progressive output. Connection using these terminals outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

The description of the component video input terminals depends on the television or monitor (example: Y/P_B/P_R, Y/B-Y/R-Y, Y/C_B/C_R). Connect to terminals of the same color.

To enjoy progressive video

1. Connect to the component video input terminals on a 480p or 576p compatible television.
(Video will not be displayed correctly if connected to an incompatible television.)
2. Select "480p" or "576p" for "Video Output Mode" (Picture Menu, ➔ page 17).

■ Television with a VIDEO IN terminal



To household AC power socket

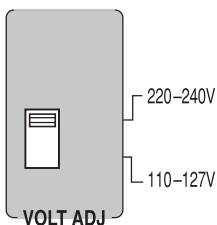
Set the voltage

For Southeast Asia

Before connecting the AC power supply cord, set the voltage.

Voltage Selector

Use a flat-head screwdriver to set the voltage selector on the back of the main unit to the appropriate position for the area in which this system is used.



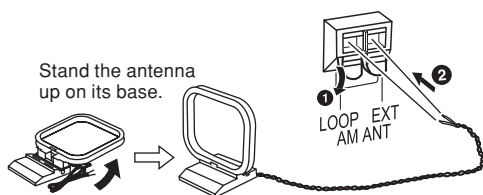
Power supply connection

The included AC power supply cord is for use with this unit only. Do not use it with other equipment.

Antenna connections

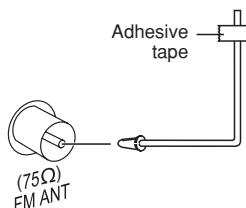
■ AM loop antenna

Stand the antenna up on its base.



■ FM indoor antenna

Tape the antenna where reception is best.



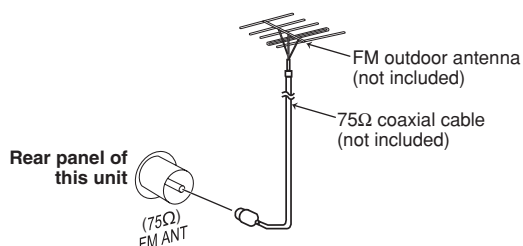
Optional antenna connections

Use outdoor antenna if radio reception is poor.

Note:

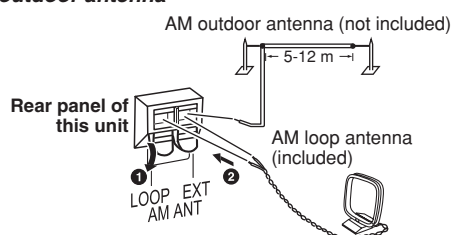
Disconnect the outdoor antenna when the unit is not in use.
Do not use the outdoor antenna during a lightning storm.

FM outdoor antenna



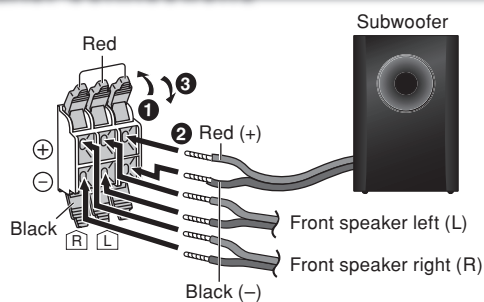
- Disconnect the FM indoor antenna.
- The antenna should be installed by a competent technician.

AM outdoor antenna



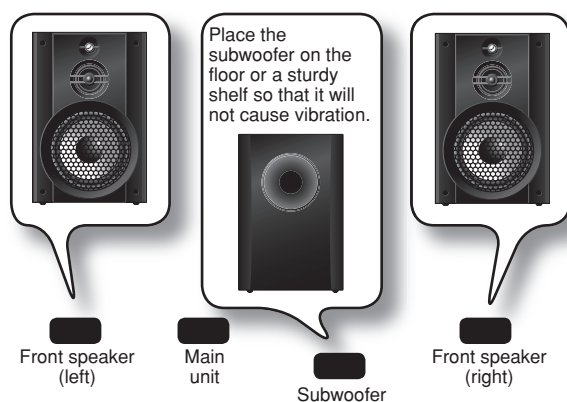
- Run a piece of vinyl wire horizontally across a window or other convenient location.
- Leave the loop antenna connected.

Speaker connections



Connect the left (L), right (R) and subwoofer speakers as illustrated in the picture shown above.

Placement of speakers



Front speakers

Speakers are designed identically so that no left or right channel orientation is necessary. You cannot take the front net off the speakers.

Use only the supplied speakers

- The combination of the main unit and speakers provide the best sound. Using other speakers can damage the unit and sound quality will be negatively affected.
- 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.

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 a thick curtain.

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 occurs, 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.

Note:

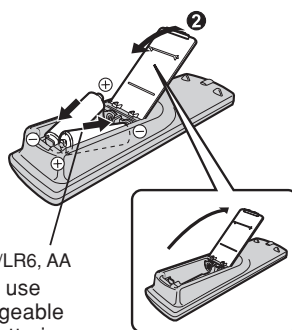
- Keep your speakers at least 10mm away from the system for proper ventilation.
- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- Reduce the volume in the following cases to avoid damage.
 - When playing distorted sound.
 - When the speakers emit strange noise (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.

Caution

- **Use the speakers only with the recommended system. Failure to do so can damage the amplifier and speakers, and can cause fire. Consult a qualified service person if damage occurs or if a sudden change in performance is apparent.**
- **Do not attach these speakers to walls or ceilings.**

Preparing the remote control

- 1 Insert so the poles (+ and –) match those in the remote control.



Do not:

- mix old and new batteries.
- use different types of the batteries at the same time.
- heat or expose batteries to flame.
- take apart or short circuit the batteries.
- 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 severely damage the remote control.

Remove the batteries if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

■ Use

Aim at the remote control signal sensor (➡ page 8), avoiding obstacles, at a maximum range of 7 m directly in front of the unit.

DEMO function



When the unit is first plugged in, a demonstration of its functions may be shown on the display.

If the demo setting is off, you can show a demonstration by selecting "DEMO ON".

Press and hold [DISPLAY, -DEMO].

The display changes each time the button is held down.

DEMO OFF ↔ DEMO ON

While in standby mode, select "DEMO OFF" to reduce power consumption.




Note:

When the DEMO function is on, the Dimmer switches off automatically.




Disc information

Discs that can be played

■ Commercial discs

| Disc | Logo | Indicated in these instructions by | Remarks |
|-----------|---|------------------------------------|---|
| DVD-Video |  | DVD-V | High quality movie and music discs. |
| Video CD |  | VCD | Music discs with video. Including SVCD (Conforming to IEC62107). |
| CD |  | CD | Music discs. |

■ Recorded discs (○: Playable, —: Not playable)

| Disc | Logo | Recorded on a DVD video recorder, etc. | | Recorded on a personal computer, etc. | | | | | Finalizing ^{※6} |
|-----------------------|--|--|---------------------|---------------------------------------|-----|------|---------------------|--------------------|--------------------------|
| | | DVD-VR ^{※2} | DVD-V ^{※4} | WMA | MP3 | JPEG | MPEG4 ^{※8} | DivX ^{※9} | |
| DVD-RAM |  | ○ | — | — | ○ | ○ | ○ | ○ | Not necessary |
| DVD-R/RW |  | ○ | ○ | — | ○ | ○ | ○ | ○ | Necessary |
| DVD-R DL |  | ○ ^{※3} | ○ | — | — | — | — | — | Necessary |
| +R/+RW | — | — | (○) ^{※5} | — | — | — | — | — | Necessary |
| +R DL | — | — | (○) ^{※5} | — | — | — | — | — | Necessary |
| CD-R/RW ^{※1} | — | — | — | ○ | ○ | ○ | ○ | ○ | Necessary ^{※7} |

• It may not be possible to play all the above-mentioned discs in some cases due to the type of disc, the condition of the recording, the recording method, or how the files were created (⇒ page 21, Tips for making data discs).

※1 This unit can play CD-R/RW recorded with CD-DA or Video CD format.

WMA MP3 JPEG This unit also plays HighMAT discs.

※2 Discs recorded on DVD video recorders or DVD video cameras, etc. using Version 1.1 of the Video Recording Format (a unified video recording standard).

※3 Discs recorded on DVD video recorders or DVD video cameras using Version 1.2 of the Video Recording Format (a unified video recording standard).

※4 Discs recorded on DVD video recorders or DVD video cameras using DVD-Video Format.

※5 Recorded using a format different from DVD-Video Format, therefore, some functions cannot be used.

※6 A process that allows play on compatible equipment. To play a disc that is displayed as "Necessary" on this unit, the disc must first be finalized on the device it was recorded on.

※7 Closing the session will also work.

※8 MPEG4 data recorded with the Panasonic SD multi cameras or DVD video recorders [conforming to SD VIDEO specifications (ASF standard)/MPEG4 (Simple Profile) video system/G.726 audio system].

※9 Functions added with DivX Ultra are not supported.

Note about using a DualDisc

The digital audio content side of a DualDisc does not meet the technical specifications of the Compact Disc Digital Audio (CD-DA) format so playback may not be possible.

■ Discs that cannot be played

DVD-RW version 1.0, DVD-Audio, DVD-ROM, CD-ROM, CDV, CD-G, SACD, Photo CD, DVD-RAM that cannot be removed from their cartridge, 2.6 GB and 5.2 GB DVD-RAM, and "Chaoji VCD" available on the market including CVD, DVCD and SVCD that do not conform to IEC62107.

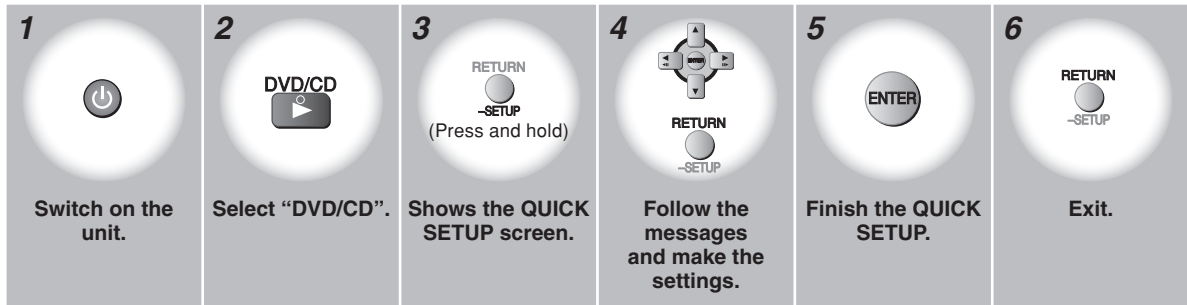
■ Video systems

- This unit can play PAL and NTSC, but your television must match the system used on the disc.
- PAL discs cannot be correctly viewed on an NTSC television.
- This unit can convert NTSC signals to PAL 60 for viewing on a PAL television (⇒ page 19, "NTSC Disc Output" in "Video" tab).

QUICK SETUP

The **QUICK SETUP** screen assists you to make necessary settings.

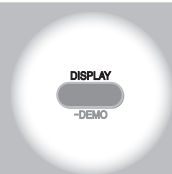
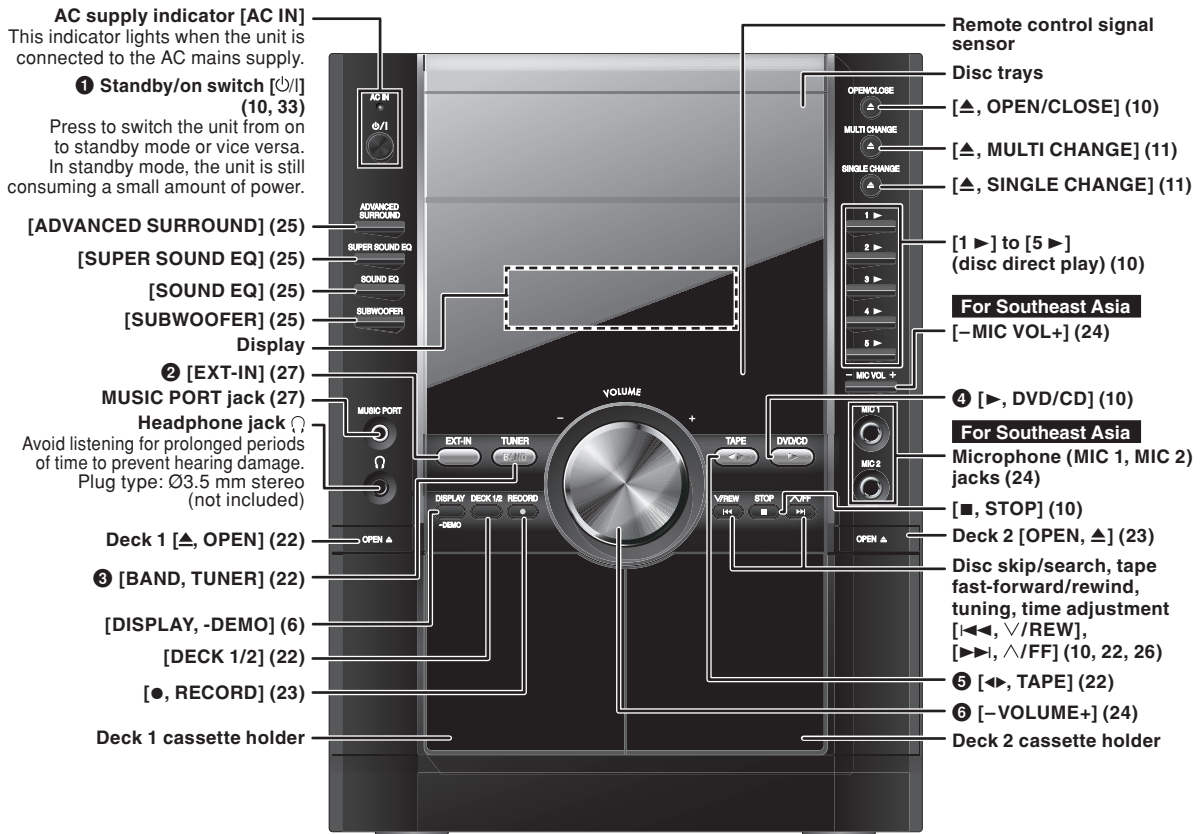
Turn on the television and select the appropriate video input on the television.



Overview of controls

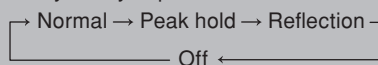
Main unit

Refer to the numbers in parentheses for page reference. Buttons such as **1** function the same as the controls on the remote control.



To select the desired display mode

Every time you press the button



Normal

Indicates strength of the sound in each tonal range

Peak hold

Peak sound value of each sound range (on display for about one second after it occurs).

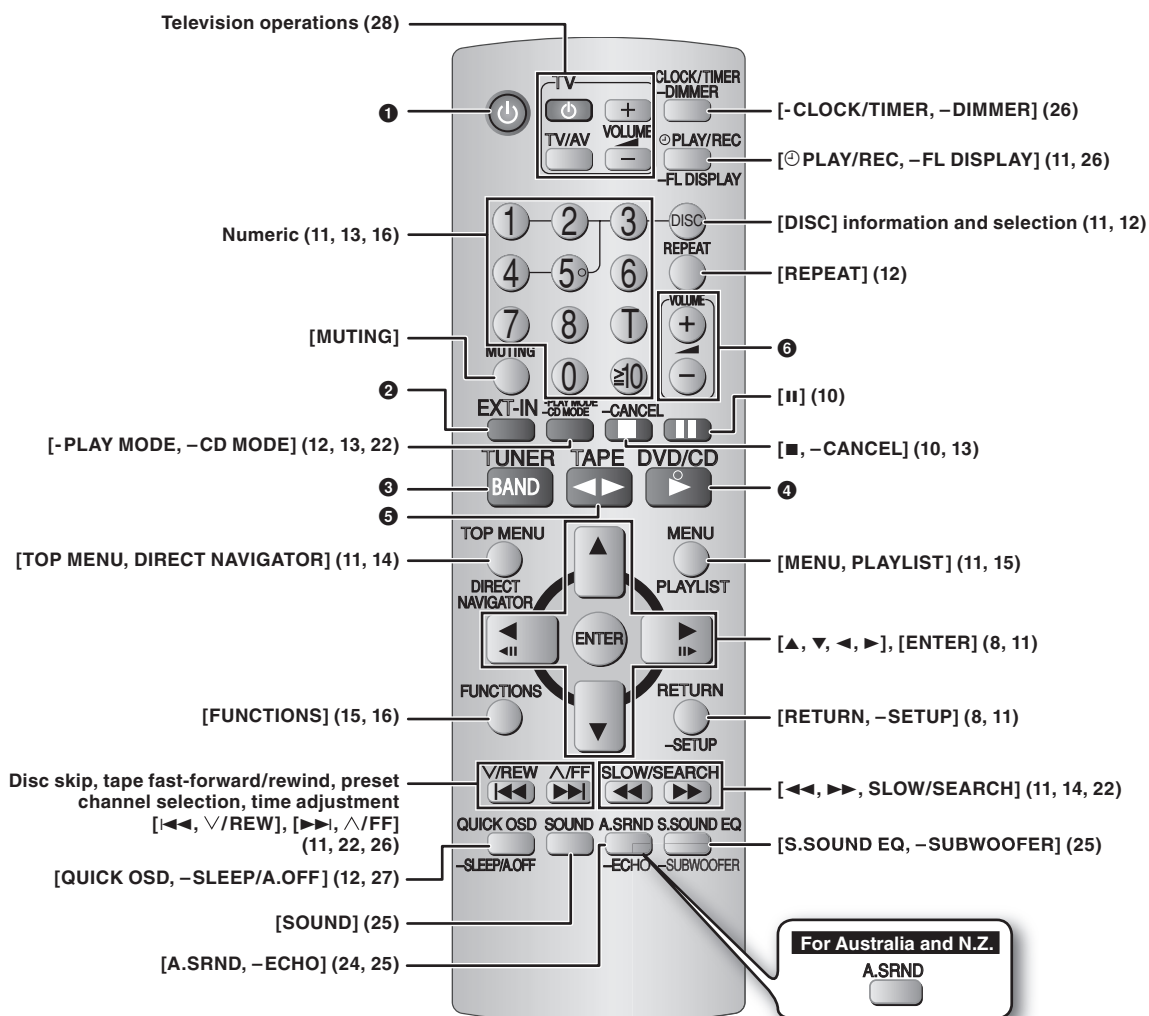
Reflection

Indicates the strength of the sound in each tonal range (displayed in the opposite direction of normal mode).

Overview of controls (continued)

Remote control

Buttons labelled such as ❶ function in exactly the same way as the buttons on the main unit.



GETTING STARTED

MUTING

To mute the sound.

- Press the button to activate.
- Press the button again or adjust the volume to cancel.
- Muting is also cancels when you switch the unit to standby.

-CLOCK/TIMER
-DIMMER

(Press and hold)

To dim the display panel.

Every time you press and hold the button.

| Setting | Effect |
|---------|--|
| 1 | Display and ambient light dims |
| 2 | Display dims and ambient light is turned off |
| 3 | Original brightness |

The display is dimmed, but brightens when you perform some operations.

QUICK OSD
-SLEEP/A.OFF

(Press and hold)

This auto off function allows you to turn off the unit in disc or tape mode only after left unused for 10 minutes.

- Press and hold successively to select "AUTO OFF" to activate or cancel the function.

SLEEP 30 → SLEEP 60 → SLEEP 90 → SLEEP 120

← SLEEPOFF ← AUTO OFF ←

- The setting is maintained even if the unit is turned off.
- If you select tuner or music port as the source, "AUTO OFF" turns off. It comes on again when you select disc or tape.

RQT0238

Discs — Basic play

Handling of the disc trays and discs

Not doing the following will cause damage to the unit.

Removing the power plug

Press [⏻/I] to turn off the unit and then remove the power plug only after all the displays have disappeared.

Tray caution

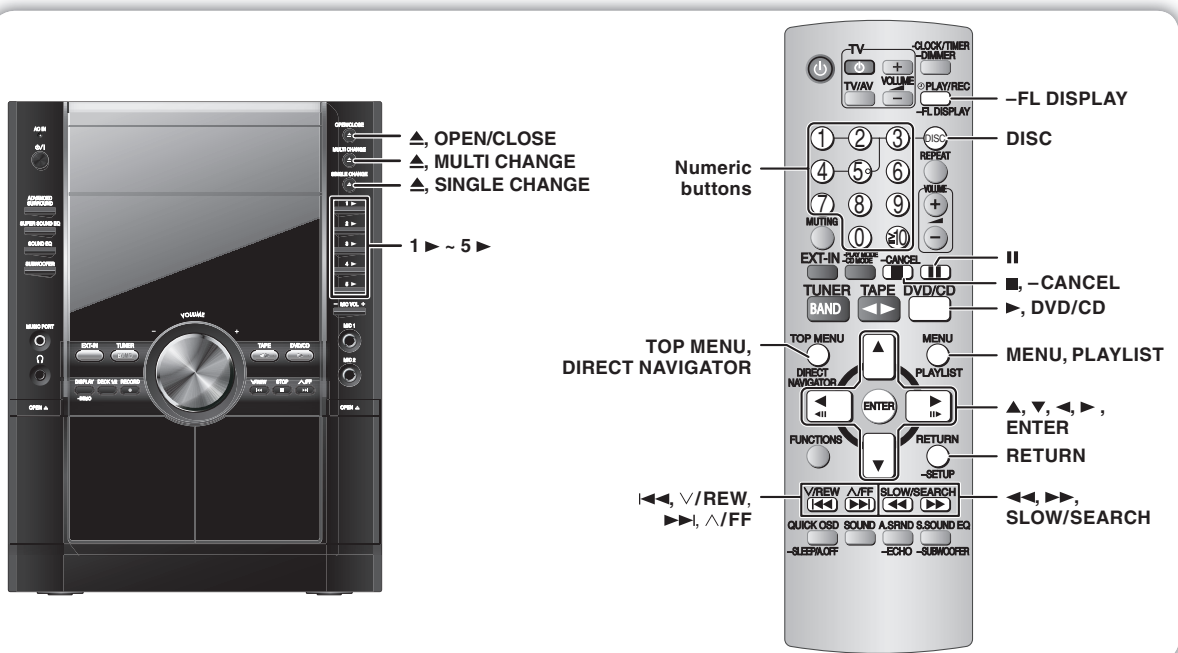


- Always press [▲, OPEN/CLOSE] to insert or remove a disc.
- Do not push or pull out the tray by hand as this will cause an accident.

Inserting a disc



- Place the disc correctly label-up as shown in the diagram.
- Insert only one disc into each tray.



1

OPEN/CLOSE

Open the tray.
The unit comes on.
Load a disc in the current tray.
DVD-VR

Remove the disc from its cartridge before use.

2

OPEN/CLOSE

Close the tray.

3

DVD/CD

Start play.
You can also press [1 ~ 5] to select and play the other loaded discs.

Stop



The position is memorized while "RESUME" is on the display.

- Press [▶, DVD/CD] to resume.
- Press [■] again to clear the position.

Pause



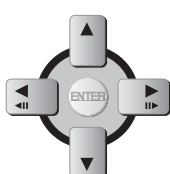
Press [▶, DVD/CD] to resume play.

Search (during play)

Play speed increases up to 5 steps.

Slow-motion play (during pause)

- Play speed increases up to 5 steps.
- **VCD** Slow motion play is for forward direction only.

Skip

WMA MP3 JPEG MPEG4 DivX

[▲, ▼]: Group skip.
[◀, ▶]: Content skip.

This feature does not work during program and random play (⇒ page 13).

Selecting a disc**Disc menus**

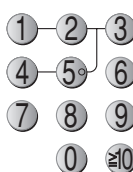
DVD-V (while stopped)
Shows a disc top menu.



DVD-V (while stopped) **MPEG4 DivX**
Shows a disc menu.



VCD with Playback control (PBC)
Shows disc menu.

Enter numbers

DVD-V (while stopped)
DVD-VR VCD CD

Example: to select 12:
[≥10] ⇒ [1] ⇒ [2]

VCD with Playback control (PBC)
Press [■] and then press the numeric buttons to cancel the PBC functions.

Note:

The numeric buttons that can function depend on the number of tracks on the VCD.



WMA MP3 JPEG MPEG4 DivX

Example: to select 123:
[1] ⇒ [2] ⇒ [3] ⇒ [ENTER]

Cancel the numbers

Press and hold

Changing multiple discs (by main unit only)

MULTI CHANGE



Press the button repeatedly to check and change multiple discs.

- The tray with a disc being played will not open.
- If the player is stopped, all trays will open. To close the remaining trays simultaneously, press [▲, OPEN/CLOSE].

Changing a single disc (by main unit only)

SINGLE CHANGE



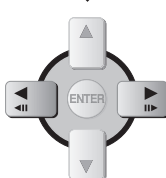
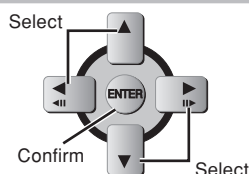
While one disc is playing, you can change the discs in other trays. Press [▲, SINGLE CHANGE] again to close the tray.

If you select a disc which is being played, play stops and the tray opens.

Frame by frame (during pause)

DVD-V DVD-VR

VCD Forward direction only.

**On-screen item select****Return to previous screen****Main unit display**

Press and hold

DVD-V DVD-VR WMA MP3 MPEG4 DivX

Time display ↔ Information display

JPEG

When Slideshow (⇒ page 16) is on:
SLIDE ↔ Information display
When Slideshow (⇒ page 16) is off:
PLAY ↔ Information display

Note:

- **DISC CONTINUES TO ROTATE WHILE MENUS ARE DISPLAYED.**
Press [■] when you finish to preserve the unit's motor and your television screen.
- Total title number may not be displayed properly on +R/+RW.

Discs — Advanced play



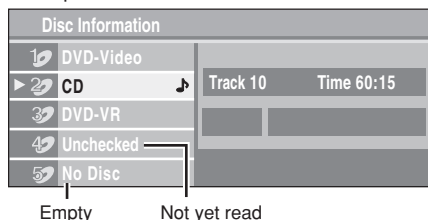
Disc information

You can select the disc after checking the discs loaded with the "Disc Information" screen.

You can also select the disc directly with the disc buttons on the main unit.

- 1 Press [DISC] to show the "Disc Information" screen.

Example:



- 2 Press the numeric buttons ([1] ~ [5]) to select and play the disc.

To clear the screen

Press [DISC].



CD sequential play (CD MODE)

VCD CD WMA MP3

This feature is very convenient if you want to play several music CDs sequentially. Make sure that the applicable disc is in the play position before playing. DVD, JPEG, MPEG4 and DivX are skipped without being played.

While stopped

- 1 Press and hold [-CD MODE].



- 2 Press [▶, DVD/CD].

To cancel the CD mode (while stopped)

Press and hold [-CD MODE].

Note:

- If the disc in the play position is not applicable (example: DVD), CD MODE does not work.
- HighMAT menus and Video CD playback control are disabled.
- You cannot change the mode during play, or while in program or random mode.
- If you want to play a DVD, press and hold [-CD MODE] again to cancel CD MODE. (CD MODE is also canceled when you open the current disc tray, switch the unit to standby or select another source.)

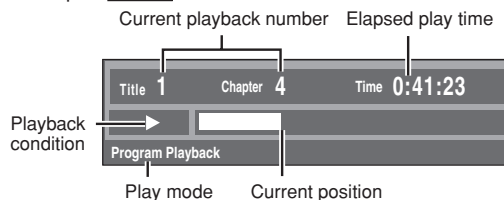


Displaying current playback condition (QUICK OSD)

The current playback condition is displayed.

Press [QUICK OSD].

Example: DVD-V



Press [QUICK OSD] again to display detailed playback conditions.

To exit the screen

Press [QUICK OSD].

CD WMA MP3 The QUICK OSD screen will appear automatically.



Repeat play

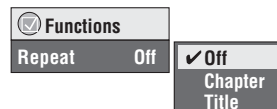
(Only when the elapsed play time can be displayed.)

JPEG: Works with all JPEG contents.)

During play

Press [REPEAT] several times to select an item to be repeated.

Example: DVD-V



DVD-VR: Off → Program → Disc

During playlist play: Off → Scene → Playlist

DVD-V: Off → Chapter → Title*

VCD CD: Off → Track → Disc*

- When CD MODE is on: Off → Track → Disc → All CD's
- When CD MODE is on, during program and random play: Off → Track → All CD's

WMA MP3 MPEG4 DivX: Off → Content → Group*

• **WMA MP3** When CD MODE is on:

Off → Content → Group → All CD's

- **WMA MP3** When CD MODE is on, during program and random play: Off → Content → All CD's

JPEG: Off → Group*

*"All" is displayed during program and random play.

Discs — Program and Random play



(While stopped or in
RESUME mode)

Start program/random

Play and select the
desired mode.

Program and random playback screens appear sequentially.
Every time you press the button:
Program → Random → off (Normal play)

To exit program or random play mode

Press [-PLAY MODE] several times while stopped.

Note:

Disable HighMAT disc play to use program and random play. Select "Play as Data Disc" in Other Menu (→ page 18).

Program play (up to 32 items)

When CD MODE is off

DVD-V VCD CD WMA MP3 JPEG MPEG4 DivX

You can program all the items on a disc.

- DVD-V** Press the numeric buttons to select a group or title (**WMA MP3 JPEG** then press [ENTER]).

To select a 2-digit
number

Example: 25:

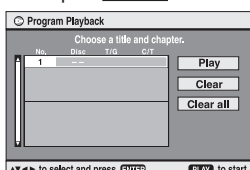
[2] → [5]

WMA MP3 JPEG

MPEG4 DivX

[2] → [5] → [ENTER]

Example: **DVD-V**



- Press the numeric buttons to select a chapter or track (**WMA MP3 JPEG MPEG4 DivX** then press [ENTER]).

Repeat steps 1 and 2 to program other items.

- Press [▶], DVD/CD].

When CD MODE is on (→ page 12)

VCD CD WMA MP3

You can program all the items on all the discs.

- Press the numeric buttons ([1] ~ [5]) to select a disc.
- Press the numeric buttons to select the items (**WMA MP3** then press [ENTER]).
Repeat steps 1 and 2 to program other items.
- Press [▶], DVD/CD].

To select an item using the cursor buttons

Press [ENTER] and [▲, ▼] to select an item, then press [ENTER] again to confirm the number.

To change a selected program

- Press [▲, ▼] to select an item.
- Repeat above steps 1 and 2.

To clear a selected program

- Press [▲, ▼] to select an item.
- Press and hold [-CANCEL] (or press [▲, ▼, ◀, ▶] to select "Clear" and press [ENTER]).

To clear the whole program

Select "Clear all" with [▲, ▼, ◀, ▶] and press [ENTER].

Note:

The program is retained in memory unless one of the following occurs:

- The current disc tray is opened.
- Another source is selected.
- The unit is switched to standby.
- CD MODE is turned on or off.
- You manually select another disc (while CD MODE is off).

Random play

When CD MODE is off

VCD CD

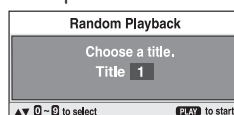
You can play all the items on a disc in random order.

DVD-V WMA MP3 JPEG MPEG4 DivX

You can play the selected item(s) on a disc in random order.

- DVD-V** Press the numeric buttons to select a group or title (**WMA MP3 JPEG MPEG4 DivX** then press [ENTER]).

Example: **DVD-V**



- Press [▶], DVD/CD].

ALL-DISC random play

When CD MODE is on (→ page 12)

VCD CD WMA MP3

You can play all the items on all the discs in random order.

Press [▶], DVD/CD].

Example: **CD**



Playing data discs

WMA MP3 JPEG MPEG4 DivX

You can play JPEG, MPEG4 and DivX video contents on DVD-VR or play HighMAT discs without using the HighMAT function (⇒ page 18, “Play as Data Disc” in Other Menu).



Playing items in order (Playback Menu)

- 1 Press [TOP MENU].
- 2 Press [▲, ▼] to select “All” (WMA/MP3/JPEG/MPEG4/DivX video), “Audio” (WMA/MP3), “Picture” (JPEG) or “Video” (MPEG4/DivX video), and press [ENTER].

To exit the screen

Press [TOP MENU] or [RETURN].

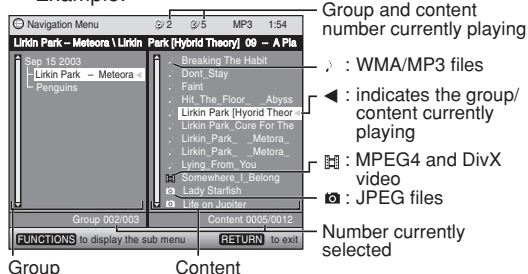


Playing from the selected item (Navigation Menu)

- 1 Press [MENU].
- 2 Press [▲, ▼, ◀, ▶] to select the group or audio/picture/video content and press [ENTER].
After listing all the contents in one group, the list for the next group appears.
- 3 To play content in the group in order
Press [ENTER].

To start play from the selected content
Press [▲, ▼] and press [ENTER].

Example:



To enjoy listening to WMA/MP3 contents while showing a JPEG image on the screen

Select a JPEG file first, and then select audio contents. (The opposite order is not effective.)

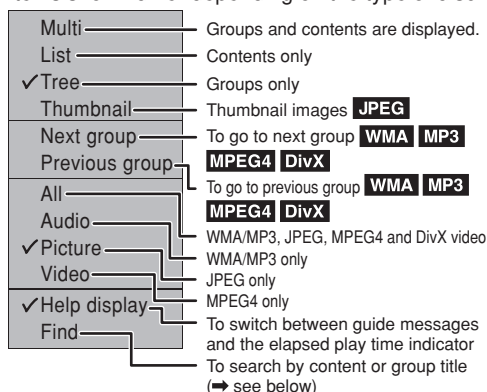
To exit the screen

Press [MENU] or [RETURN].

Using the sub menu

- 1 While the Navigation Menu is displayed
Press [FUNCTIONS].

Items shown differ depending on the type of disc.



- 2 Press [▲, ▼] to select the sub menu and press [ENTER].

Searching by content or group title

Highlight a group title to search the group, or a content title to search its content.

- 1 While the sub menu is displayed (⇒ see above)
Press [▲, ▼] to select “Find” and press [ENTER].



- 2 Press [▲, ▼] to select a character and press [ENTER].

- Repeat to enter other characters.
- Lower case is also searched.
- Press [◀, ▶] to skip between A, E, I, O, and U.
- Press [◀] to erase a character.
- Leave the asterisk (*) when you search for the titles including the character you enter.
- Erase the asterisk (*) to search for the titles starting with the character you enter. To add the asterisk (*) again, display the sub menu again and select “Find”.

- 3 Press [▶] to select “Find” and press [ENTER].
The search results screen appears.

- 4 Press [▲, ▼] to select the content or group and press [ENTER].

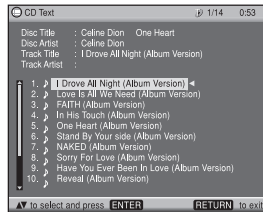


Playing from the selected track in the CD

CD Titles appear with CD Text disc playback.

1 Press [TOP MENU] or [MENU].

Example: CD text



2 Press [▲, ▼] to select the track and press [ENTER]. Press [FUNCTIONS] to show the playback position and current position.

To exit the screen

Press [TOP MENU], [MENU] or [RETURN].



Playing HighMAT™ discs

WMA MP3 JPEG

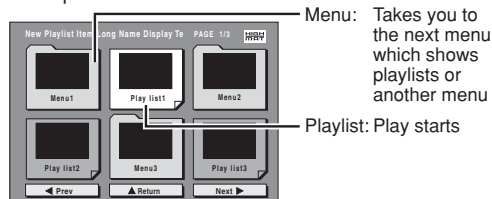
While stopped

1 Press [TOP MENU].

2 Press [▲, ▼, ◀, ▶] to select the item and press [ENTER].

Repeat this step if necessary.

Example:



Menu: Takes you to the next menu which shows playlists or another menu

Playlist: Play starts

To change the menu background

Press [FUNCTIONS].

The background changes to the one recorded on the disc.

To exit the screen

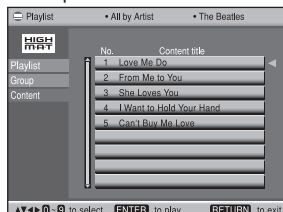
Press [■].



Selecting from the list

1 Press [MENU].

Example:



2 Press [◀] then [▲, ▼] to switch among "Playlist", "Group" and "Content" lists.

3 Press [▶] then [▲, ▼] to select an item and press [ENTER].

To exit the screen

Press [MENU] or [RETURN].

Playing RAM and DVD-R/-RW (DVD-VR) discs

DVD-VR

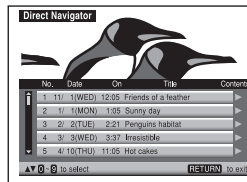
- Titles appear only if the titles are recorded on the disc.
- You cannot edit programs, playlists and disc titles.



Playing the programs

1 Press [DIRECT NAVIGATOR].

Example:



2 Press [▲, ▼] or the numeric buttons to select the program.

Press [▶] to show the contents of the program and the disc.

3 Press [ENTER].

To exit the screen

Press [DIRECT NAVIGATOR] or [RETURN].



Playing a playlist

(Only when the disc contains a playlist)

1 Press [PLAYLIST].

Example:



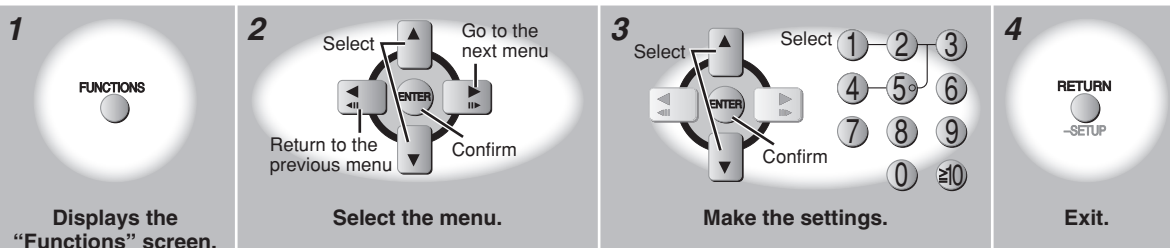
2 Press [▲, ▼] or the numeric buttons to select the playlist.

3 Press [ENTER].

To exit the screen

Press [PLAYLIST] or [RETURN].

Discs — Using on-screen menus



Items shown differ depending on the type of disc as well as the recording format.

Functions Menu

| | |
|---|--|
| Program Group Title Chapter Track Playlist Content | To start from a specific item Example: DVD-VR To select program 12 Press the numeric buttons: [1] → [2] → [ENTER] |
| Time | (Time Slip does not work with +R/+RW discs.) To skip incrementally or decrementally (Time slip) (during play) 1. Press [ENTER] twice to show the Time Slip indicator. 2. Press [▲, ▼] to select the time and press [ENTER]. To change the steps quickly, press and hold [▲, ▼]. Time Search To start from a specific time. To change the elapsed or remaining time display |
| Video | MPEG4 DivX To display the pixel number DivX fps (frame per second) is also displayed. |
| Audio | DVD-V DivX (with multiple soundtracks) To select audio soundtrack DVD-VR VCD To select "L R", "L", "R" or "L+R" DivX To select "1", "Audio L R", "Audio L" or "Audio R" DVD-V (Karaoke disc) To select "On" or "Off" for vocals To select "On", "Off", "V1", "V2" or "V1+V2" for different vocal selections Read the disc's instructions for details. Signal type/data LPCM/PPCM/DDDigital/DTS/MP3/MPEG: Signal type kHz (Sampling frequency)/bit/ch (Number of channels) Example: 3/2 .1ch .1: Low frequency effect (not displayed if there is no 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 DivX It may take some time for play to start if you change the audio on a DivX video disc. WMA MP3 To display the current bitrate or sampling frequency |

| | |
|-----------------------|--|
| Thumbnail | JPEG To show thumbnail images |
| Subtitle | DVD-V DivX (with multiple subtitles) VCD (SVCD only) To select subtitle language <ul style="list-style-type: none"> On +R/+RW, a subtitle number may be shown for subtitles that are not displayed. DVD-VR "On" or "Off" appears only with discs that contain subtitle on/off information (Subtitle on/off information cannot be recorded using Panasonic DVD Recorders). |
| Marker (VR) | DVD-VR To recall a marker recorded on DVD-Video recorders Press [▲, ▼] ⇒ Press [ENTER] |
| Angle | (with multiple angles) To select a video angle |
| Rotate Picture | JPEG To rotate pictures |
| Slideshow | JPEG To turn the slideshow on/off On ⇄ Off To change the slideshow timing 1 (Fast) to 5 (Slow) |
| Other Settings | (⇒ see below) |

Other Settings


| | |
|-------------------|--|
| Play Speed | DVD-V DVD-VR To change play speed – from "x0.6" to "x1.4" <ul style="list-style-type: none"> Press [▶, DVD/CD] to resume normal playback. After you change the speed <ul style="list-style-type: none"> Audio output switches to 2-channel stereo. Sampling frequency of 96 kHz is converted to 48 kHz. This function may not work depending on the disc's recording. |
|-------------------|--|

■ Play Menu

| | |
|-------------------|---|
| Repeat | (⇒ page 12) |
| A-B Repeat | Except DVD-VR (Still picture part) JPEG MPEG4 DivX To repeat a specified section Press [ENTER] at the starting and ending points. Press [ENTER] again to cancel. |

Other Settings (continued)

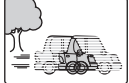
■ Play Menu (continued)

| | |
|-----------------------------|---|
| Marker | <p>Except DVD-VR</p> <p>To mark up to 5 positions to play again Press [ENTER]. (The unit is now ready to accept markers.) To mark a position: Press [ENTER] at the desired point. To mark another position: Press [◀, ▶] to select "★" → Press [ENTER] To recall a marker: Press [◀, ▶] → Press [ENTER] To erase a marker: Press [◀, ▶] → Press and hold [–CANCEL] This feature does not work during program and random play.</p> |
| Advanced Disc Review | <p>DVD-V (Except +R/+RW) DVD-VR (Except still picture part)</p> <p>Allows you to browse the disc contents and start playing from the selected position. You can select either "Intro Mode" or "Interval Mode" in "Advanced Disc Review" in the "Disc" tab (→ page 19). Example: DVD-VR</p>  <p>Press [▶, DVD/CD] when you find a title or program of your choice.</p> <ul style="list-style-type: none"> This may not work depending on the disc and the play position. DVD-VR This does not work when playing a playlist (→ page 15). |

■ Picture Menu

| | |
|---------------------------|---|
| Picture Mode | <p>Normal : Normal images.</p> <p>Cinema1 : Mellows images and enhances detail in dark scenes.</p> <p>Cinema2 : Sharpens images and enhances detail in dark scenes.</p> <p>Animation : Suitable for animation.</p> <p>Dynamic : Enhances the contrast for powerful images.</p> <p>User : Press [ENTER] to select "Picture Adjustment" (→ see below).</p> |
| Picture Adjustment | <p>Contrast : Increases the contrast between light and dark parts of the picture.</p> <p>Brightness : Brightens the picture.</p> <p>Sharpness : Adjusts the sharpness of the edges of horizontal lines.</p> <p>Color : Adjusts the shade of the picture's color.</p> <p>Gamma : Adjusts the brightness of dark parts.</p> <p>Depth Enhancer : Reduces the rough noise in the background to give a greater feeling of depth.</p> |
| Video Output Mode | <p>DVD-V DVD-VR VCD JPEG MPEG4 DivX</p> <p>※480p/576p (progressive) ※480i/576i (interlace)</p> <p>When you select "xxx:p" (progressive) and a confirmation screen appears, select "Yes" only if connecting to a progressive output compatible television.</p> <p>※ The numbers displayed depend on the geographical location and disc being played. One of the above numbers is displayed.</p> |

Transfer Mode

| | |
|--|---|
| DVD-V DVD-VR VCD MPEG4 DivX | <p>If you have chosen "xxx:p" (progressive) (→ see left), select the method of conversion for progressive output to suit the type of material. When playing PAL discs, MPEG4 or DivX video contents</p> <p>Auto : Automatically detects the film and video content, and appropriately converts it.</p> <p>Video : Select when using Auto, and the content is distorted.</p> <p>Film : Select this if the edges of the film content appear jagged or rough when Auto is selected.</p>  <p>However, if the video content is distorted as shown in the illustration to the right, then select Auto.</p> <p>When playing NTSC discs</p> <p>Auto1 : Automatically detects the film and video content, and appropriately converts it.</p> <p>Auto2 : In addition to Auto1, automatically detects film contents with different frame rates and appropriately converts it.</p> <p>Video : Select when using Auto1 and Auto2, and the content is distorted.</p> |
|--|---|

Source Select

| | |
|-------------|--|
| DivX | <p>When you select "Auto" the constructing method of the DivX contents is automatically distinguished and output. If the picture is distorted, select "I (Interlace)" or "P (Progressive)" depending on which constructing method was used when the contents were recorded to disc.</p> <p>Auto I (Interlace) P (Progressive)</p> |
|-------------|--|

■ Audio Menu

| | |
|--------------------------|---|
| Advanced Surround | (→ page 25) |
| Dialogue Enhancer | <p>To make the dialogue in movies easier to hear</p> <p>DVD-V (Dolby Digital, DTS, MPEG, 3-channel or higher, with the dialogue recorded in the center channel)</p> <p>DivX (Dolby Digital, 3-channel or higher, with the dialogue recorded in the center channel)</p> <p>On ↔ Off</p> |
| Sound Enhancement | <p>Enhances audio output to produce a warm hall-like sound.</p> <p>On ↔ Off</p> |

■ Display Menu

| | |
|----------------------------|--|
| Information | JPEG : On ↔ Off |
| Subtitle Position | 0 to –60 |
| Subtitle Brightness | Auto , 0 to –7 |
| 4:3 Aspect | <p>To select how to show images made for 4:3 aspect screens on a 16:9 aspect television The "TV Aspect" needs to be set to "16:9" (→ page 19, "Video tab") prior to selecting "4:3 Aspect".</p> <p>Normal : Laterally stretches images.</p> <p>Auto : Expands 4:3 letterbox images to fill more of the screen. Other images appear in full in the center of the screen.</p> <p>Shrink : Images appear in the center of the screen.</p> <p>Zoom : Expands to 4:3 aspect ratio. If your television has a similar feature, use it instead for a better effect.</p> |

Other Settings (continued)

■ Display Menu (continued)

| | |
|---------------|---|
| Just Fit Zoom | DVD-V DVD-VR VCD |
| | To select the appropriate screen size to fit your television screen Auto American Vista 4:3 Standard Cinemascope 1 European Vista Cinemascope 2 16:9 Standard MPEG4 DivX Standard (x0.25 full-screen) Original (actual recorded size) Full (full-screen) This function may not work depending on the disc's recording. |
| Manual Zoom | To zoom in and out manually – in 0.01-unit steps from “x1.00” to “x1.60” – in 0.02-unit steps from “x1.60” to “x2.00” – in 0.05-unit steps from “x2.00” to “x4.00” (MPEG4 DivX only) • To change the steps quickly, press and hold [▲, ▼]. • MPEG4 DivX It may not be possible to zoom up to “x4.00” depending upon the connected television and its settings. |

| | |
|------------------|---|
| Bit Rate Display | DVD-V DVD-VR VCD JPEG MPEG4 DivX On ↔ Off |
| GUI See-through | To make the on-screen menu transparent Off, On, Auto |
| GUI Brightness | To adjust the on-screen menu brightness –3 to +3 |

■ Other Menu

| | |
|--|--|
| Setup | (⇒ see below) |
| Play as DVD-VR, Play as HighMAT or Play as Data Disc | To use functions for data discs (⇒ page 14) (To play MP3, JPEG, MPEG4 or DivX video contents on DVD-RAM, or to play a HighMAT disc without using HighMAT function) Select “Play as Data Disc”. |

Discs — Changing the player settings

1

RETURN
-SETUP
(Press and hold)

Display the Setup menu.

If you have not set QUICK SETUP (⇒ page 8), the QUICK SETUP screen appears.

2

Select
Go to item
Go to item

Select the tab.

3

Select
Go to setting

Select the item.

4

Select
Confirm

Make the setting.

5

RETURN
-SETUP

Exit.

- The settings remain intact even if you switch the unit to standby.
- Underlined items in the following diagram are the factory preset.

QUICK SETUP enables successive settings of the items in the shaded area.

Player settings

■ “Disc” tab

| | |
|---|---|
| Audio Choose the audio language. | • <u>English</u> • (Language options) ^{※1} • Original ^{※2} • Other * * * *※3 |
| Subtitle Choose the subtitle language. | • <u>Automatic</u> ^{※4} • English • (Language options) ^{※1} • Other * * * *※3 |
| Menus Choose the language for disc menus. Changing the menu language in QUICK SETUP also changes this setting. | • <u>English</u> • (Language options) ^{※1} • Other * * * *※3 |

^{※1} Language options:

For Southeast Asia Chinese

For Australia and N.Z. French, German, Italian, Spanish, Portuguese, Russian and Dutch

^{※2} The original language designated on the disc is selected.

^{※3} Input a code number referring to the table (⇒ page 35).

^{※4} If the language selected for “Audio” is not available, subtitle appears in that language (if available on the disc).

QUICK SETUP enables successive settings of the items in the shaded area.

Player settings (continued)

■ “Disc tab” (continued)

| | |
|--|--|
| Advanced Disc Review (⇒ page 17) | <ul style="list-style-type: none"> • Intro Mode: Reviews each title or program. • Interval Mode: Reviews not only each title or program but also each 10-minute interval within a title or program. |
| Ratings Set a ratings level to limit DVD-Video playback. | <p>Setting ratings (When level 8 is selected)</p> <ul style="list-style-type: none"> • 8 No Limit • 1 to 7 • 0 Lock All: To prevent play of discs without rating levels. <p>Changing ratings (When level 0 to 7 is selected)</p> <ul style="list-style-type: none"> • Unlock Player • Change Password • Change Level • Temporary Unlock <p>When you select your ratings level, a password screen is shown. Follow the on-screen instructions. Do not forget your password. A message screen will be shown if a DVD-Video disc exceeding the ratings level is inserted in the unit. Enter your password and then follow the on-screen instructions.</p> |

■ “Video” tab

| | |
|--|--|
| TV Aspect Choose the setting to suit your television and preference. | <ul style="list-style-type: none"> • 4:3 Pan&Scan: Regular aspect television (4:3) The sides of the widescreen picture are cut off so it fills the screen (unless prohibited by the disc). • 4:3 Letterbox: Regular aspect television (4:3) Widescreen picture is shown in the letterbox style. • 16:9: Widescreen television (16:9) |
| TV Type Select to suit the type of television. | <ul style="list-style-type: none"> • Standard (Direct View TV) • CRT Projector • LCD TV/Projector • Projection TV • Plasma TV |
| Time Delay When connected with a Plasma display, adjust if you notice the audio is out of sync with the video. | <ul style="list-style-type: none"> • 0ms • 20ms • 40ms • 60ms • 80ms • 100ms |
| Still Mode Specify the type of picture shown when paused. | <ul style="list-style-type: none"> • Automatic • Field^{xs} : The picture is not blurred, but picture quality is lower. • Frame^{xs} : Overall quality is high, but the picture may appear blurred. |
| NTSC Disc Output Choose PAL 60 or NTSC output when playing NTSC discs (⇒ page 7, Video systems). | <ul style="list-style-type: none"> • PAL60 : When connected to a PAL television. • NTSC : When connected to an NTSC television. |
| Picture/Video Output Change the video signal format to be output for JPEG, MPEG4 and DivX video if picture output is not smooth during playback. | <p>For Australia and N.Z.</p> <ul style="list-style-type: none"> • Automatic • PAL • NTSC/PAL60 <p>For Southeast Asia</p> <ul style="list-style-type: none"> • PAL • NTSC/PAL60: Output will depend on “NTSC Disc Output” setting (⇒ see above) |

■ “Audio” tab

| | |
|---|--|
| PCM Digital Output (⇒ page 29) | <ul style="list-style-type: none"> • Up to 48 kHz • Up to 96 kHz |
| Dolby Digital (⇒ page 29) | <ul style="list-style-type: none"> • Bitstream • PCM |
| DTS Digital Surround (⇒ page 29) | <ul style="list-style-type: none"> • Bitstream • PCM |
| MPEG (⇒ page 29) | <ul style="list-style-type: none"> • PCM • Bitstream |
| Dynamic Range Compression | <ul style="list-style-type: none"> • Off • On: Adjust for clarity even when the volume is low by compressing the range of the lowest sound level and the highest sound level. Convenient for late night viewing. (Only works with Dolby Digital) |

■ “Display” tab

| | |
|--|---|
| Menu Language | <p>For Australia and N.Z.</p> <ul style="list-style-type: none"> • English • Français • Deutsch • Italiano • Español • Português • Русский • Nederlands <p>For Southeast Asia</p> <ul style="list-style-type: none"> • English • 中文 |
| On-Screen Messages | <ul style="list-style-type: none"> • On • Off |
| Background during Play Select background during JPEG, MPEG4 and DivX video playback. | <ul style="list-style-type: none"> • Black • Gray |

■ “Others” tab

| | |
|---|---|
| DivX Registration Displays the unit's registration code. | <p>You need this registration code to purchase and play DivX Video-on-Demand (VOD) content. (⇒ page 20, “About DivX VOD content”)</p> |
| QUICK SETUP | <ul style="list-style-type: none"> • Yes • No |
| Re-initialize Setting This returns all values in the Setup menus to the default settings. | <ul style="list-style-type: none"> • Yes: The password screen is shown if “Ratings” (⇒ see above) is set. Please enter the same password. After “Initialized” on the display disappears, turn the unit off and on again. • No |

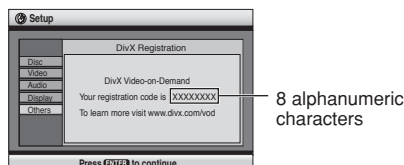
^{xs} Refer to “Frame still and field still” (⇒ page 30, “Glossary”).

About DivX VOD content

DivX Video-on-Demand (VOD) content is encrypted for copyright protection. In order to play DivX VOD content on this unit, you first need to register the unit. Follow the online instructions for purchasing DivX VOD content to enter the unit's registration code and register the unit. For more information about DivX VOD, visit www.divx.com/vod.

Display the unit's registration code

(➡ page 19, "DivX Registration" in "Others" tab)



- We recommend that you make a note of this code for future reference.
- After playing DivX VOD content for the first time, another registration code is then displayed in "DivX Registration". Do not use this registration code to purchase DivX VOD content. If you use this code to purchase DivX VOD content, and then play the content on this unit, you will no longer be able to play any content that you purchased using the previous code.
- If you purchase DivX VOD content using a registration code different from this unit's code, you will not be able to play this content. ("Authorization Error" is displayed.)

Regarding DivX content that can only be played a set number of times

Some DivX VOD content can only be played a set number of times. When you play this content, the remaining number of plays is displayed. You cannot play this content when the number of remaining plays is zero.

("Rented Movie Expired" or "Rental Expired" is displayed.)

When playing this content

- The number of remaining plays is reduced by one if
 - you press [⏮] or press and hold [–SETUP].
 - you press [■]. [Press [⏸] (pause) to pause play.]
 - you press [⏮, ⏭] (skip) or [⏮, ⏭] (search) etc. and arrive at another content or the start of the content being played.
- The "Resume" (➡ page 11, Stop) and "Marker" (➡ page 17, Play) functions will not work.

Types of subtitles text file that can be displayed

Subtitles text that satisfy the following conditions can be displayed on this unit.

- File format: MicroDVD, SubRip, or TMLPlayer
- File extension: ".SRT", ".srt", ".SUB", ".sub", ".TXT", or ".txt"
- File name: No more than 44 characters excluding the file extension
- The DivX video file and subtitles text file are inside the same folder, and the file names are the same except for the file extensions.
- If there are more than one subtitles text files inside the same folder, they are displayed in the following order of priority: ".srt", ".sub", ".txt".

Limitations of this unit

- In the following situations, the subtitles cannot be displayed as recorded.
- Furthermore, depending on the methods used to create the file or the state of the recording, only parts of the subtitles may be displayed, or the subtitles may not be displayed at all.
 - When special text or characters are included in the subtitles text.
 - When characters with styling specified are included in the subtitle data. Codes that specify the character style within files are displayed as subtitle characters.
 - When data with a different format exists within the subtitle data.
- If the file name of the DivX video file is not displayed correctly on the menu screen (the file name is displayed as "_"), the subtitles text may not be displayed correctly.
- The subtitles text cannot be displayed when search, Time Slip, Time Search and other such operations are being performed.
- The subtitles text cannot be displayed when Quick OSD, On-Screen Menus, Navigation Menu and other such menu screens are being displayed.

Tips for making data discs

- When there are more than eight groups, the eighth group onwards will be displayed on one vertical line in the menu screen.
- There may be differences in the display order on the menu screen and computer screen.
- This unit cannot play files recorded using packet write.

DVD-RAM

- Discs must conform to UDF 2.0.

DVD-R/RW

- Discs must conform to UDF bridge (UDF 1.02/ISO9660).
- This unit does not support multi-session. Only the default session is played.

CD-R/RW

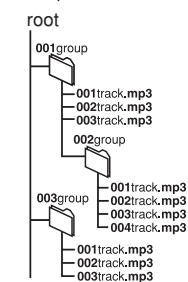
- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- This unit supports multi-session but if there are many sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.

Naming folders and files

Files are treated as contents and folders are treated as groups on this unit.

At the time of recording, prefix folder and file names. This should be with numbers that have an equal number of digits, and should be done in the order you want to play them (this may not work at times). Files must have the extension (➡ see below).

Example: **MP3**



WMA (Extension: ".WMA" or ".wma")

- Compatible compression rate: between 48 kbps and 320 kbps.
- You cannot play WMA files that are copy-protected.
- This unit does not support Multiple Bit Rate (MBR).

MP3 (Extension: ".MP3" or ".mp3")

- Compatible compression rate: between 32 kbps and 320 kbps.
- This unit does not support ID3 tags.
- Compatible sampling rates:
 - DVD-RAM, DVD-R/RW: 11.02, 12, 22.05, 24, 44.1 and 48 kHz
 - CD-R/RW: 8, 11.02, 12, 16, 22.05, 24, 32, 44.1 and 48 kHz

JPEG (Extension: ".JPG", ".jpg", ".JPEG" or ".jpeg")

- JPEG files taken on a digital camera that conform to DCF Standard (Design rule for Camera File system) Version 1.0 are displayed. Files that have been altered, edited or saved with computer picture editing software may not be displayed.
- This unit cannot display moving pictures, MOTION JPEG and other such formats, and still pictures other than JPEG (Example: TIFF), or play pictures with attached audio.

MPEG4 (Extension: ".ASF" or ".asf")

- You can play MPEG4 data [conforming to SD VIDEO specifications (ASF standard)/MPEG4 (Simple Profile) video system/G.726 audio system] recorded with Panasonic SD multi cameras or DVD video recorders with this unit.
- The recording date may differ from that of the actual date.

DivX (Extension: ".DIVX", ".divx", ".AVI" or ".avi")

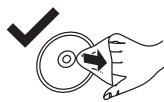
- You can play all versions of DivX® video (including DivX®6) [DivX video system/MP3, Dolby Digital or MPEG audio system] with standard playback of DivX® media files. Functions added with DivX Ultra are not supported.
- DivX files greater than 2 GB or have no index may not be played properly on this unit.
- This unit supports all resolutions up to maximum of 720 x 480 (NTSC)/720 x 576 (PAL).
- You can select up to eight types of audio and subtitles on this unit.

Disc handling precautions

- Do not attach labels or stickers to discs. This may cause disc warping, rendering it unusable.
- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not use scratch-proof protectors or covers.
- Do not use the following discs:
 - Discs with exposed adhesive from removed stickers or labels (rented discs, etc).
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.

To clean discs

Wipe with a damp cloth and then wipe dry.



Using the radio



Manual tuning

- 1 Press [BAND, TUNER] to select "FM" or "AM".
- 2 Press [◀◀] or [▶▶] (main unit: [◀◀, √/REW] or [▶▶, ∧/FF]) to select the frequency of the required station.
 - "ST" is displayed when a stereo FM broadcast is being received.
 - "TUNED" is displayed when a radio station is tuned.

PLAY MODE

To improve FM sound quality

Press [-PLAY MODE] to display "MONO".

Monaural sound is selected and noise reduces when reception is weak.

Press [-PLAY MODE] again to cancel the mode.

"MONO" is also canceled if the frequency is changed.

For Southeast Asia

TUNER

BAND

AM allocation setting (by main unit only)

This system can also receive AM broadcasts allocated in 10 kHz steps in addition to the 9 kHz steps.

To change the step from 9 kHz to 10 kHz

- 1 Select "FM".
- 2 Press and hold [BAND, TUNER].
After a few seconds the display changes to a flashing display of the current minimum frequency.
- 3 Continue to hold down [BAND, TUNER].
 - When the minimum frequency changes, release the button. To return to the original step, repeat the above steps.
 - After changing the setting, previously preset frequency will be cleared.

Memory preset (by remote control only)

20 FM and 15 AM stations can be preset.

Preparation

Press [BAND, TUNER] to select "FM" or "AM".

Automatic presetting

- 1 Tune to the frequency where presetting is to begin.
- 2 Press and hold [ENTER] to start presetting.



The tuner presets all the stations it can receive into the channels in ascending order. When finished, the last station memorized is tuned in.

Manual presetting

- 1 Press [◀◀] or [▶▶] to tune to the required station.
- 2 Press [ENTER].
- 3 Press the numeric buttons to select a channel.
For channels 10 to 20 press [≥10], then the two digits.
The station occupying a channel is erased if another station is preset to that channel.

Selecting a preset station

Press the numeric buttons to select the channel.

OR

Press [◀◀, √/REW] or [▶▶, ∧/FF] to select the channel.

Playing and recording using the cassette tapes



Basic play

You can use either DECK 1 or DECK 2 for tape playback.

Use normal position tapes.

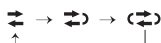
High position and metal position tapes can be played, but the unit will not be able to identify the characteristics of these tapes.

- 1 Press [◀▶, TAPE].
The unit turns on.
If a cassette was loaded, play starts automatically (One touch play).
- 2 Press [▲, OPEN] and insert the cassette.
Insert with the side to be played facing towards you and the exposed tape facing down. Close the holder by hand.
- 3 Press [◀▶, TAPE] to start play.
Every time you press the button:
For DECK 1
F▶
For DECK 2
F▶ ↔ ◀R
F▶: Forward side is played.
◀R: Reverse side is played.

PLAY MODE

Reverse mode (for DECK 2 only)

Every time you press and hold [-PLAY MODE]:



- : One side is played.
- ↔: Both sides are played.
(forward → reverse)
Play stops at the end of the reverse side.
- ↺: Both sides are played repeatedly until [■] (main unit: [■, STOP]) is pressed.

Stop



Fast forward or rewind



Select between loaded decks



DECK 1/2

(main unit: [DECK 1/2])

Note:

- Tape playback is momentarily interrupted if you open the other deck.
- Tapes exceeding 100 minutes are thin and can break or get caught in the mechanism.
- Tape slack can get caught up in the mechanism and should be taken up before the tape is played.
- Endless tapes can get caught up in the deck's moving parts if used incorrectly. Use tapes appropriate to this unit's auto-reverse mechanism.



Recording

Selection of tapes for recording

Use normal position tapes.
High position and metal position tapes can be used, but this unit will not be able to record or erase them correctly.

Preparation

Wind up the leader tape so recording can begin immediately.

Press [◀▶, TAPE] and then [■].

1 Press [OPEN, ▲] on the main unit for DECK 2 and insert the cassette to be recorded.

The tape direction is automatically set to "F▶".
Insert with the side to be recorded facing towards you and the exposed tape facing down.

2 Select the reverse mode of DECK 2.

Every time you press and hold [-PLAY MODE]:

▶ → ◀ → (▶◀)

▶ : One side only records.

▶, ◀ : Both sides record (forward → reverse).

"(▶◀)" is automatically changed to "▶" when [●, RECORD] on the main unit is pressed.

3 Select the source to be recorded.

Radio recording:

Select the preset station (⇒ page 22).

Disc recording:

① Insert the disc(s) you want to record.

Press [▶, DVD/CD] and then [■, STOP].

② Prepare the desired disc recording mode.

To record programmed items, perform steps 1 and 2, "Program play (up to 32 items)" (⇒ page 13).

Ensure the disc has stopped.

Tape-to-tape recording:

① Press [◀▶, TAPE] and then [■].

② Press [▲, OPEN] on the main unit to open DECK 1 and insert the cassette you want to record.

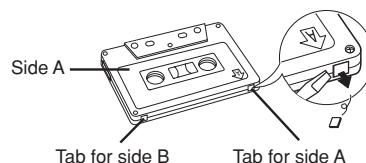
4 Press [●, RECORD] on the main unit to start recording.

To erase a recorded sound

- 1 Press [◀▶, TAPE] and then [■].
- 2 Insert the recorded cassette into DECK 2.
Ensure there is no cassette in DECK 1.
- 3 Press and hold [-PLAY MODE] to select the reverse mode.
- 4 Press [●, RECORD] on the main unit.

Erasure prevention

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



To re-record on a protected cassette

Cover the hole with adhesive tape.



Note:

- Multi-channel sources (3 to 5.1 channels) are automatically downmixed to 2 channels during recording.
- Changes to volume and sound or field quality do not affect recording.
- You cannot open DECK 1 while recording.
- You cannot fast-forward or rewind one deck while recording with the other.

Stop recording



If the tape finishes before the disc

The disc continues playing. Press [■] (main unit: [■, STOP]) to stop it.

Using the microphone For Southeast Asia only

The buttons described for “Using the microphone” are mainly for the main unit unless indicated otherwise.



Enjoying the microphone mixing

You can enjoy microphone mixing from various music sources (cassette, disc, radio or other equipment connected to this unit).

- 1 Firstly, lower the volume with [- MIC VOL+], then connect the microphone(s) to the microphone jack(s).

Every time you press the button:
MIC 1 ↔ MIC 2 ↔ MIC 3 ↔ MIC 4

Use a dynamic microphone.
Plug type : Ø6.3 mm monaural

- 2 Start playing the music source.
- 3 Adjust the volume with [- VOLUME+] and [- MIC VOL+] and sing along.

Note:

- If a strange noise (howling) is emitted during use, move the microphone away from the speakers, or turn down the microphone volume.
- When you are not using the microphone, disconnect it from the microphone jack, and turn down the microphone volume level to “MIC 1”.
- Sound adjustments can be made using microphone mixing but recording will not be affected.



Record microphone mixing

- 1 Press [OPEN, ▲] for DECK 2 and insert the cassette to be recorded.
Insert with the side to be recorded facing towards you and the exposed tape facing down.
- 2 Lower the volume with [- MIC VOL+], then connect the microphone(s) to the microphone jack(s).
- 3 Select the music source:
 - **When singing along with discs**
Insert the desired disc (⇒ page 10).
 - **When singing along with cassette**
Insert the desired cassette into DECK 1 (⇒ page 22).
This is applicable only during stop mode.
 - **When singing along with radio**
Select your desired station (⇒ page 22).
 - **When singing along from the other equipment**
Connect and prepare the other equipment (⇒ page 27).
- 4 Press [●, RECORD] and start microphone mixing.



To record your voice

- 1 Press [OPEN, ▲] for DECK 2 and insert the cassette to be recorded.
Ensure that there is no tape in DECK 1.
- 2 Lower the volume with [- MIC VOL+] then connect the microphone(s) to the microphone jack(s).
- 3 Press [●, RECORD] to start recording.
- 4 Speak through the microphone and adjust the volume with [- VOLUME+] and [- MIC VOL+].



Adjusting the echo effect

- 1 Lower the volume with [- MIC VOL+] then connect the microphone(s) to the microphone jack(s).
- 2 Press and hold [-ECHO].
Current setting appears on the display.
- 3 **While the current setting is displayed**
Press and hold [-ECHO] to change the setting.
Every time you press and hold the button:

→ ECHO 1 → ECHO 2 → ECHO 3 → ECHO 4
← ECHO OFF (off) ←

Note:

- The effect increases with the level.
- The setting will change only if you press and hold [-ECHO] right after the current setting is displayed.

Using sound effects

You may experience a reduction in sound quality when these sound field systems are used with some sources. If this occurs, turn the sound field system off.



Using the Advanced Surround

DVD-V DVD-VR

Enjoy a surround-like effect which broadens when playing discs with surround effects. Sound seems to come from speakers on either side of you.

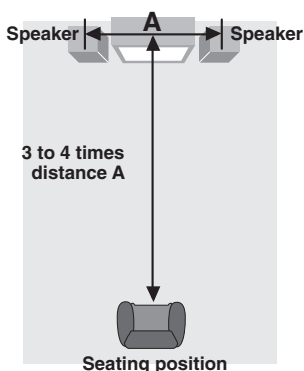
Press **[A.SRND]** (main unit: **[ADVANCED SURROUND]**).

Every time you press the button:

- Off
- 1 Natural
- 2 Enhanced

Optimum seating position

- This does not work or has less effect with some discs.
- Do not use in combination with surround effects on other equipment.



Using the sound field control

Press **[SOUND]** (main unit: **[SOUND EQ]**) to select a setting.

Every time you press **[SOUND]** on the remote control:

MANUAL EQ → HEAVY → CLEAR → SOFT
EQ-OFF ← HALL ← LIVE ← DISCO ←

Every time you press **[SOUND EQ]** on the main unit:

HEAVY → CLEAR → SOFT → DISCO
EQ-OFF ← HALL ← LIVE ←

- HEAVY** : Adds punch to rock.
- CLEAR** : Clarifies higher sounds.
- SOFT** : For background music.
- DISCO** : Reverberates sound to make you feel like you are in a disco.
- LIVE** : Makes vocals more alive.
- HALL** : Expands sound to make you feel like you are in a hall.
- EQ-OFF** : Canceled (no effect is added)
- MANUAL EQ**: (→ see right).

To check the current setting

Press **[SOUND]** (main unit: **[SOUND EQ]**).



Using the Manual Equalizer (MANUAL EQ) (by remote control only)

Create your own sound quality effects.

1 Press [SOUND] to select "MANUAL EQ".

2 (Within 12 seconds or so)

Change the sound quality with the cursor buttons.

① Select the sound range to be adjusted with **[◀]** or **[▶]**.

BASS ↔ MID ↔ TREBLE

② Adjust the level with **[▲]** or **[▼]**.
(-3 to +3)

Repeat step 2 to set the desired sound quality.

The original display is restored on the display panel in about 3 seconds.

To cancel

Press **[SOUND]** to select "EQ-OFF".

The changes you make are stored and automatically recalled the next time you select "MANUAL EQ".



Using the Super Sound Equalizer

Turning on the super sound equalizer gives you a more powerful sound.

Press **[S.SOUND EQ]** (main unit: **[SUPER SOUND EQ]**). The "S.SOUND EQ" indicator lights up.

To cancel

Press **[S.SOUND EQ]** (main unit: **[SUPER SOUND EQ]**) to turn off the indicator.



Using the subwoofer

1 Press and hold [-SUBWOOFER] (main unit: press [SUBWOOFER]).

Current setting appears on the display.

2 While current setting is displayed

Press and hold [-SUBWOOFER] (main unit: press [SUBWOOFER]) to change the setting.

Every time you press and hold the button:

SUB W1 → SUB W2 → SUB W3

Note:

The setting will change only if you press and hold **[-SUBWOOFER]** right after the current setting is displayed.

Using the timers



Setting the time

This is a 24-hour clock.

- 1 Press [-CLOCK/TIMER] to select "CLOCK".
Every time you press the button:



- 2 **(Within 7 seconds or so)**

Press [◀◀, ∇/REW] or [▶▶, ▲/FF] to set the time.

- 3 Press [-CLOCK/TIMER] to finish setting the time.

To display the time

Press [-CLOCK/TIMER] once when the unit is on or in standby mode.

The time is displayed for a few seconds.

Note:

Reset the clock regularly to maintain accuracy.



Using the play or record timer

You can set the timer to come on at a certain time to wake you up (play timer) or to record from the radio or the external equipment (record timer).

Play timer and record timer cannot be used together.

Turn the unit on and set the clock.

- For the play timer, prepare the desired music source; cassette (DECK 2 has the priority), disc number (1 ~ 5), radio or other external equipment, and set the volume.
- For the record timer, check the cassette's erasure prevention tabs (➡ page 23) and insert the tape in DECK 2 (➡ page 23) and tune to the radio station (➡ page 22) or select the external equipment (➡ page 27).

- 1 Press [-CLOCK/TIMER] to select the timer function.

Every time you press the button:



⏮PLAY : to set the play timer

⏭REC : to set the record timer

(Proceed to the next step **within 7 seconds**)

- 2 **(Within 7 seconds or so)**

Press [◀◀, ∇/REW] or [▶▶, ▲/FF] to set the "ON" time.

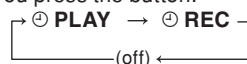
- 3 Press [-CLOCK/TIMER] to confirm.

- 4 Repeat steps 2 to 3 to set the "OFF" time.

To activate the timer

- 5 Press [⏮PLAY/REC] to display the timer's indicator.

Every time you press the button:



⏮PLAY : to turn the play timer on

⏭REC : to turn the record timer on

(The indicator does not appear if the start and finish times or the clock has not been set.)

- 6 Press [⏻] to turn off the unit.

The unit must be off for the timers to operate.

To change the settings

Perform steps 1 to 4 and 6 (➡ see left).

To change the source or volume

When the unit is on

- 1 Press [⏮PLAY/REC] to clear the timer indicator from the display.
- 2 Make changes to the source or volume.
- 3 Perform steps 5 and 6 (➡ see left).

To check the settings

Press [-CLOCK/TIMER] while the unit is on to select ⏮PLAY or ⏭REC.

The setting are shown in the following order.

- Play timer: start time→finish time→source
→volume
- Record timer: start time→finish time→source

When the unit is off

- 1 Press [-CLOCK/TIMER].
- 2 During the clock display, press [-CLOCK/TIMER] again.

To cancel the timer

Press [⏮PLAY/REC] to clear the timer indicator from the display.

(The timer comes on at the set time everyday if the timer is on)

If you use the unit after the timers are set

After using, check that the correct tape or disc are loaded before turning the unit off.

Note:

- The play timer will start at the preset time with volume increasing gradually to preset level.
- The record timer will start 30 seconds before the set time with the volume muted.
- The timer comes on at the set time every day if the timer is on.
- The unit must be in the standby mode for the timer to function.
- If you turn the unit off and on again while a timer is functioning, the finish time setting will not be activated.
- If MUSIC PORT is selected as the source when the timer comes on, the system turns on and engages MUSIC PORT as the source. If you wish to playback or record from the portable audio equipment, just activate the equipment's play mode and increase the volume. (See the portable audio equipment's instruction manual.)



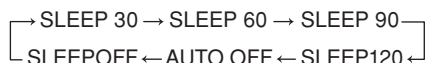
Using the sleep timer

This function enables you to turn off the unit automatically after the set time.

While enjoying the desired source

Press and hold successively to select the time (minutes).

Every time you press and hold the button:



To change the settings

Press and hold [–SLEEP] successively to select a new setting.

To confirm the remaining time

Press and hold [–SLEEP] to show the remaining time.

To cancel the sleep timer

Press and hold [–SLEEP] successively to select “SLEEPOFF”.

Note:

- The play and sleep timer or the record and sleep timer can be used together.
- The sleep timer always has priority. Be sure not to overlap timer settings.
- The sleep timer turns off when you perform the record function.

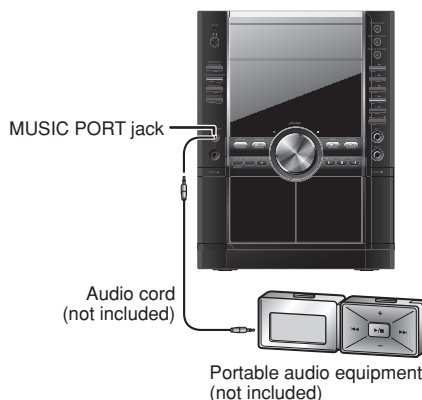
Using other equipment

Before connection

- Disconnect the AC power supply cord.
- Turn off all equipment and read the appropriate operating instructions.
- The equipment connections described are examples only.
- Peripheral equipment and optional cables are sold separately unless otherwise indicated.

Connecting to a portable audio equipment

This feature enables you to enjoy music from a portable audio equipment.



EXT-IN

Playing from a portable audio equipment

Switch off the equalizer function (if there is any) of the portable audio equipment before you plug into the MUSIC PORT jack. Otherwise, sound from the speaker may be distorted.

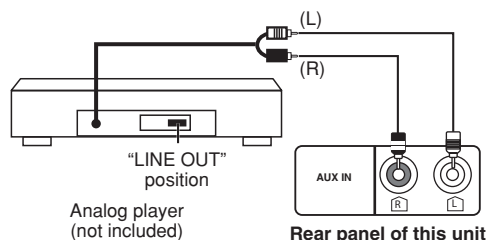
- 1 Plug the audio cord into the MUSIC PORT jack and press [EXT-IN] to select “MUSIC PORT”.
MUSIC PORT ↔ AUX
- 2 Play the portable audio equipment. (See the portable audio equipment’s instruction manual.)

RECORD Recording from a portable audio equipment

- 1 Press [EXT-IN] to select “MUSIC PORT”.
MUSIC PORT ↔ AUX
- 2 Play the portable audio equipment.
- 3 Press [●, RECORD] on the main unit to start recording.

Connecting to other external unit

You can connect to an analog player with a built-in phone equalizer.



EXT-IN **Playing or recording from other external unit**

- 1 Press [EXT-IN] repeatedly until "AUX" is displayed. MUSIC PORT ↔ AUX
- 2 For listening : Proceed to step 3.
For recording : Press [●, RECORD] on the main unit to start recording.
- 3 Start playback from the external source.

Note:

- For details, refer to the instruction manual of the unit which is to be connected.
- When units other than those described above are to be connected, please consult your audio dealer.
- Sound distortion may occur when you use an adaptor other than the one supplied.

Operating a television

Point the remote control at the television for the following operations.

To switch the television on or off



To switch the television's video input mode



Adjust the volume



Note:

Some models cannot be operated by this remote control.

EXT-IN

Changing the main unit and remote control mode

The remote control and main unit are factory-set to "REMOTE 1" mode.

If your remote control affects other equipment during operation, you can switch to operate in "REMOTE 2" mode.

To switch to "REMOTE 2" mode

- 1 While pressing and holding [EXT-IN] on the main unit Press and hold [2] until "REMOTE 2" appears on the main unit display.

- 2 Press and hold [ENTER] and [2] for at least 2 seconds.

The main unit and remote control are now set to operate in "REMOTE 2" mode.

To return to "REMOTE 1" mode

Perform steps 1 and 2 but use [1] instead of [2] for both steps. ("REMOTE 1" appears on the main unit during step 1.)

The remote control cannot work with the main unit if their modes are different.

"REMOTE 1" or "REMOTE 2" appears on the main unit display when you operate the remote control.*

× If "REMOTE 1" appears (The main unit is in "REMOTE 1" mode.)

Press and hold [ENTER] and [1] on the remote control for at least 2 seconds.

If "REMOTE 2" appears (The main unit is in "REMOTE 2" mode.)

Press and hold [ENTER] and [2] on the remote control for at least 2 seconds.

Note:

You can still operate a television using the remote control (➡ see left) even after switching the mode.

Digital Output

DVD-V DVD-VR VCD CD WMA MP3

Change the settings when you have connected equipment through this unit's COAXIAL OUT terminal.

PCM Digital Output

Select the maximum sampling frequency of "PCM Digital Output". Check the digital input limitations of the equipment you connect.

"Up to 48 kHz":

Signals over 48 kHz converted to 48 kHz or 44.1 kHz

"Up to 96 kHz":

Signals over 96 kHz converted to 48 kHz or 44.1 kHz

Note:

- Signals from copy-protected discs are converted to 48 kHz or 44.1 kHz irrespective of the setting.
- Some equipment cannot handle sampling frequencies of 88.2 kHz, even if they can handle 96 kHz. Read your equipment's operating instructions for details.

Dolby Digital, DTS Digital Surround and MPEG

"Bitstream" (Factory preset for "Dolby Digital" and "DTS Digital Surround"):

Select if the equipment you connected can decode the signal.

"PCM" (Factory preset for "MPEG"):

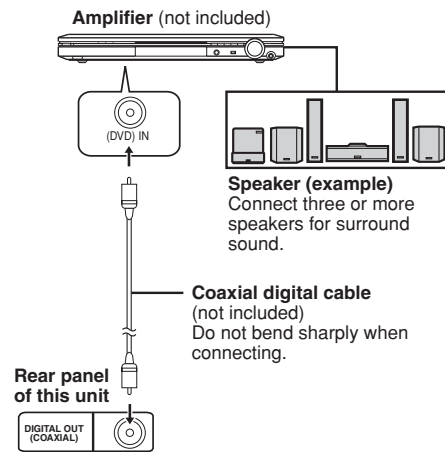
Select if the equipment you connected cannot decode the signal.

IMPORTANT

If the equipment you connected cannot decode the signal, the setting must be changed to "PCM". If not, signals the equipment cannot process will be output by this unit, causing high levels of noise which can damage your hearing and the speakers.

Home Theater—Enjoying more powerful sound

Enjoy the powerful movie theater and hall-like sound available with multiple channel audio found on DVD-Video by connecting an amplifier and speakers.



Recording Output

- With DVD, the following conditions must be met:
 - a) the disc does not have protection preventing digital recording, and
 - b) the recording equipment can handle signals with a sampling frequency of 48 kHz.
 - You cannot record WMA/MP3.
- When recording DVDs, make the following settings.
- "Advanced Surround": "Off" (➔ page 25).
 - "PCM Digital Output": "Up to 48 kHz" (➔ page 19, "Audio" tab).
 - "Dolby Digital"/"DTS Digital Surround"/"MPEG": "PCM" (➔ page 19, "Audio" tab).

Glossary

Decoder

A decoder restores the coded audio signals on DVDs to normal. This is called decoding.

DivX

DivX is a popular media technology created by DivX, Inc. DivX media files contain highly compressed video with high visual quality that maintains a relatively small file size.

Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio. A large amount of audio information can be recorded on one disc using this method.

DTS (Digital Theater Systems)

This surround system is used in many movie theaters around the world. There is good separation between the channels, so realistic sound effects are possible.

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.

Film and video

DVD-Videos are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.

For NTSC

Film is 24 or 30 frames per second, with motion picture film generally being 24 frames per second. Video is 60 fields per second (two fields making up one frame).

For PAL

Film is 25 frames per second. Video is 50 fields per second (two fields making up one frame).

Frame still and field still

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.

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.

Progressive/Interlace

The PAL video signal standard has 576 interlaced (i) scan lines, whereas progressive scanning, called 576p, uses twice the number of scan lines. For the NTSC standard, these are called 480i and 480p respectively.

Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video.

Your television must be compatible to enjoy progressive video.

MPEG4

A compression system for use on mobile devices or a network, that allows highly efficient recording at a low bit rate.

I/P/B

I: Intra coded picture

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

P: Predictive coded picture

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

B: Bidirectionally-predictive coded 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)

These are uncompressed digital signals, similar to those found on CDs.

Playback control (PBC)

If a Video CD has playback control, you can select scenes and information with menus.

Sampling frequency

Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding).

Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

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.

For a cleaner crisper sound (cassette deck)

Clean the heads regularly to assure good quality playback and recording. Use a cleaning tape (not included).

When moving the unit

- 1 Remove all discs.
- 2 Press [⏻/I] to turn the unit off.
- 3 Disconnect the AC power supply cord.

Troubleshooting guide

Before requesting service, make the following 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, consult your dealer for instructions.

| Power | | Page |
|---|---|-------|
| No power. | • Insert the AC power supply cord securely. | 4 |
| The unit is automatically switched to the standby mode. | • The unit was switched to standby by the sleep timer or auto-off function. | 9, 27 |

Unresponsive or inoperable function

| | | |
|--|---|-------|
| No response when buttons are pressed. | • This unit cannot play discs other than the ones listed in these operating instructions. | 7, 21 |
| | • Some operations may be prohibited by the disc. | — |
| | • The unit may not be operating properly due to lightning, static electricity or some other external factor. Turn the unit off then back to ON. Alternatively, turn the unit off, disconnect the AC power supply cord, and then reconnect it. | — |
| | • Condensation has formed: Wait 1 to 2 hours for it to evaporate. | — |
| No operations can be performed with the remote control. | • Check that the batteries are installed correctly. | 6 |
| | • The batteries are depleted: replace them with new ones. | 6 |
| | • Aim the remote control at the remote control sensor and operate. | 6, 8 |
| | • The remote control and main unit are in different modes. Change the remote control mode to match the main unit mode. | 28 |
| Cannot play DVDs. | • CD MODE is on. Press and hold [–CD MODE] to turn CD MODE off. | 12 |
| No picture or sound. | • Check the video or audio connection. | 4, 5 |
| | • Check the power or input setting of the connected equipment. | — |
| | • Check that the disc has something recorded in it. | — |
| You have forgotten your ratings password. Reset all the settings to Factory Preset. | • While stopped and “DVD/CD” is the source, press and hold [■, STOP] on the main unit and [≥10] on the remote control until “Initialised” disappears from the television. Turn the unit off and on again. All settings will return to the default values. | — |
| Other products respond to the remote control | • Change the remote control operating mode. | 28 |

Specific operation undesirable or unexpected

| | | |
|--|--|----|
| It takes time before play starts. | • Play may take time to begin when an MP3 track has still picture data. Even after the track starts, the correct play time will not be displayed. This is normal. MP3 | — |
| | • This is normal on DivX video. DivX | — |
| Folders deeper than the eighth layer on a data disc are not displayed correctly. WMA MP3 JPEG MPEG4 DivX | • Folders deeper than the eighth layer are displayed as the eighth layer. | — |
| A menu screen appears during skip or search. VCD | • This is normal for Video CDs. | — |
| Playback control menu doesn't appear. VCD with playback control | • Press [■] twice and then press [▶, DVD/CD]. | — |
| The program and random play functions do not work. DVD-V | • These functions do not work with some DVD-Videos. | — |
| Programmed items are not played. DVD-V | • Some items cannot be played even if you have programmed them. | — |
| Scenes are skipped intermittently. DVD-V DVD-VR | • If you change the volume or sound field/quality setting during “Advanced Disc Review”, the function continues without the on-screen display. Press [▶, DVD/CD] to cancel “Advanced Disc Review”. | 17 |

Subtitle

| | | |
|-----------------------------|--|----|
| Subtitle position is wrong. | • Adjust the position. (“Subtitle Position” in the Display Menu) | 17 |
| No subtitles. | • Display the subtitles. | 16 |
| | • Subtitles may not be displayed depending on the disc. | — |

Troubleshooting guide (continued)

| A-B repeat | | Page |
|--------------------------------------|--|------|
| Point B is automatically set. | • The end of an item becomes point B when it is reached. | 16 |

Marker

| | | |
|----------------------------|--|---------|
| Cannot add markers. | • You cannot add markers with DVD-VR. • If the disc's elapsed play time doesn't appear on the unit's display, you cannot add markers. | 17 — |
|----------------------------|--|---------|

Sound

| | | |
|-----------------------------------|--|---------|
| Sound distorted. | • Noise may occur when playing WMA. | — |
| Effects do not work. | • Some audio effects do not work or have less effect with some discs. • Advanced Surround does not work if you have changed the play speed. | — 25 |
| Humming heard during play. | • An AC power supply cord or fluorescent light is near the cables. Keep other appliances and cords away from this unit's cables. | — |
| No sound. | • There may be a pause in sound when you change the play speed. • Audio may not be output due to how files are created. DivX | 16 7 |

Menus

| | | |
|---|---|---------|
| The SETUP menu cannot be accessed. | • Select "DVD/CD" as the source. • Cancel program and random play. | — 13 |
|---|---|---------|

Picture abnormal or un-viewable

| | | |
|---|--|---------------|
| Picture distorted. | • Some distortion is normal during SEARCH. • Ensure that the unit is connected directly to the television, and is not connected through a video cassette recorder. • Change "Source Select" in Picture Menu. DivX | 11 4 17 |
| Picture size doesn't fit the screen. | • Change "TV Aspect" in the "Video" tab. • Change the Zoom setting. | 19 17 |
| The television may display incorrectly or colors appear faded. | • The unit and television are using different video systems. — For Australia and N.Z. Use a multi-system or PAL television. — For Southeast Asia Use a multi-system or NTSC television. • The system used on the disc does not match your television. — PAL discs cannot be correctly viewed on an NTSC television. — This unit can convert NTSC signals to PAL 60 for viewing on a PAL television ("NTSC Disc Output" in "Video" tab). | — — 19 |
| Menu is not displayed correctly. | • Restore the zoom ratio to "x1.00". ("Manual Zoom" in Display Menu) • Set "Subtitle Position" in Display Menu to "0". | 18 17 |
| Auto zoom function does not work well. | • Turn off television zoom function. • Use the other preset aspect ratios or manual adjustment. • Zoom function may not work well, especially in dark scenes and may not work depending on the type of disc. | — 17 — |

Progressive video

| | | |
|---|---|---------|
| There is ghosting when progressive output is on. | • This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output. Change "Video Output Mode" in Picture Menu to "480i" or "576i". | 17 |
| Picture not in progressive output. | • Select "480p" or "576p" in "Video Output Mode" in Picture Menu. • If the unit is connected to the television through VIDEO OUT terminal, output will be interlace, even if "PRG" is displayed. | 17 4 |

Listening to the radio

| | | |
|--|---|--------------|
| Noise is heard. "ST" flickers or doesn't light. Sound is distorted. | • Adjust the position of the FM or AM antenna. • Use an outdoor antenna. • Press [-PLAY MODE] to select "MONO". | 5 5 22 |
| A beat sound is heard. | • Turn the television off or separate it from the unit. | — |
| A low hum is heard during AM broadcasts. | • Separate the antenna from other cables and cords. | — |

| Unit displays | | Page |
|---|---|---------|
| Although the unit is on standby mode, the display lights up and changes continuously. | <ul style="list-style-type: none"> Turn off the demo function. If you set the clock, demo function will be turned off automatically. | 6 — |
| The display is dark. | <ul style="list-style-type: none"> Press and hold [–DIMMER] to brighten the display. | 9 |
| “NO PLAY” | <ul style="list-style-type: none"> You inserted a disc the unit cannot play; insert one that can. You inserted a blank disc. | 7 — |
| “NO DISC” | <ul style="list-style-type: none"> You have not inserted a disc; insert one. You have not inserted the disc correctly; insert it correctly. | — 10 |
| “F61” | <ul style="list-style-type: none"> Check and correct the speaker cord connections. If this does not fix the problem, there is a power supply problem. Consult the dealer. | 5 |
| “DVD U11” | <ul style="list-style-type: none"> Disc is dirty. Wipe it clean. | 21 |
| “ERROR” | <ul style="list-style-type: none"> Incorrect operation performed. Read the instructions and try again. | — |
| “DVD H □ □ □” “DVD F □ □ □ □” □ stands for a number. | <ul style="list-style-type: none"> Trouble may have occurred. The numbers following “H” and “F” depend on the status of the unit. Turn the unit off and back to on. Alternatively, turn the unit off, disconnect the AC power supply cord, and then reconnect it. If the service numbers fail to clear, note the service number and contact a qualified service person. | — — |
| “REMOTE 1” or “REMOTE 2” | <ul style="list-style-type: none"> Match the modes on the main unit and remote control. Depending on the number being displayed (“1” or “2”), press and hold [ENTER] and the corresponding numeric button ([1] or [2]) for at least 2 seconds. | 28 |

Television displays

| | | |
|--|---|-------|
| “This disc may not be played in your region” | <ul style="list-style-type: none"> You can only play DVD-Video if their region number is the same or includes the same region number as the unit or if the DVD Video is marked “ALL”. Confirm the region number for the unit on the back of the main unit. | Cover |
| No on-screen display. | <ul style="list-style-type: none"> Select “On” in “On-Screen Messages” in “Display” tab. | 19 |
| “⊘” | <ul style="list-style-type: none"> The operation is prohibited by the unit or disc. | — |
| “Cannot display group xx, content xx” | <ul style="list-style-type: none"> You are trying to display incompatible contents. | — |
| “Check the disc” | <ul style="list-style-type: none"> This disc may be dirty. | 21 |
| “Authorization Error” | <ul style="list-style-type: none"> You are trying to play the DivX VOD content that was purchased with a different registration code. You cannot play the content on this unit. DivX | 20 |
| “Rented Movie Expired” | <ul style="list-style-type: none"> The DivX VOD content has zero remaining plays. You cannot play it. DivX | 20 |

Using the cassette deck

| | | |
|----------------------------|---|----|
| Poor quality sound. | <ul style="list-style-type: none"> Clean the heads. | 30 |
| Recording is not possible. | <ul style="list-style-type: none"> If the erasure prevention tabs have been removed, cover the holes with adhesive tape. | 23 |

Disc trays

| | | |
|---|--|---------|
| Disc tray(s) cannot open. “CHGR ERR” is displayed. | <ul style="list-style-type: none"> Press [⏻/I] to release the jammed tray(s) as the unit will switch off. Switch it on again and the tray(s) will initialize to the previous tray(s) condition. If this still does not fix the problem, please consult the dealer. | 10 — |
|---|--|---------|

Memory reset (Initialization)

When the following situations occur, refer to the instructions below to reset the memory:

- There is no response when buttons are pressed.
- You want to clear and reset the memory contents.

To reset memory

- Disconnect the AC power supply cord. (Wait at least 3 minutes before proceeding to step 2)**
- While pressing and holding down [⏻/I] on the main unit, reconnect the AC power supply cord.**
“-----” appears on the display.
- Release [⏻/I].**
All the settings are returned to the factory preset. You will need to reset the memory items.

Specifications

AMPLIFIER SECTION

RMS Output Power Stereo mode (For reference only):

| | |
|-----------------------------|---|
| Front Ch | 115 W per channel (3 Ω), 1 kHz, 10 % THD |
| Subwoofer Ch | 115 W per channel (3 Ω), 100 Hz, 10 % THD |
| Total RMS Stereo mode power | 345 W |

For Southeast Asia

| | |
|-------------------|--------|
| PMPO output power | 3700 W |
|-------------------|--------|

FM/AM TUNER, TERMINALS SECTION

| | |
|----------------|----------------------------------|
| Preset station | FM 20 stations AM 15 stations |
|----------------|----------------------------------|

Frequency Modulation (FM)

| | |
|-------------------|-----------------------------------|
| Frequency range | 87.50 to 108.00 MHz (50 kHz step) |
| Sensitivity | 2.5 μV (IHF) |
| S/N 26dB | 1.3 μV |
| Antenna terminals | 75 Ω (unbalanced) |

Amplitude Modulation (AM)

| | |
|------------------------------------|-------------------------------|
| Frequency range | 522 to 1629 kHz (9 kHz step) |
| For Australia and N.Z. | 522 to 1629 kHz (9 kHz step) |
| For Southeast Asia | 520 to 1630 kHz (10 kHz step) |
| AM Sensitivity S/N 20dB at 999 kHz | 505 μV/m |

Digital audio output

| | |
|------------------------|----------|
| Coaxial digital output | Pin jack |
|------------------------|----------|

Music Port input jack

| | |
|-------------|---------------------|
| Sensitivity | 100 mV, 4.7 kΩ |
| Terminal | Stereo, 3.5 mm jack |

Phone jack

| | |
|----------|---------------------|
| Terminal | Stereo, 3.5 mm jack |
|----------|---------------------|

Mic jack

| | |
|-------------|------------------------------|
| Sensitivity | 0.7 mV, 600 Ω |
| Terminal | Mono, 6.3 mm jack (2 system) |

AUX

| | |
|-------------|------------------|
| Sensitivity | 2 V 8 kΩ |
| Terminal | Stereo, RCA jack |

CASSETTE DECK SECTION

| | |
|--------------|---------------------|
| Type | 1 way, Auto Reverse |
| Track system | 4-Track, 2 Channel |

Heads

| | |
|-----------------|-------------------------|
| Record/playback | Solid permalloy head |
| Erase | Double gap ferrite head |

Motor

| | |
|------------------|----------------|
| Recording system | DC servo motor |
|------------------|----------------|

Erasing system

| | |
|---------|---------|
| AC bias | 100 kHz |
|---------|---------|

Tape speed

| | |
|----------|---------|
| AC erase | 100 kHz |
| 4.8 cm/s | |

Overall frequency response (+3, -6 dB) at DECK OUT

| | |
|--------|-----------------|
| Normal | 35 Hz to 14 kHz |
|--------|-----------------|

S/N ratio

| | |
|--|--------------------|
| | 50 dB (A weighted) |
|--|--------------------|

Wow and flutter

| | |
|--|--------------|
| | 0.18% (WRMS) |
|--|--------------|

Fast forward and rewind time

| | |
|--------------------------|--|
| Approx. 120 seconds with | |
| C-60 cassette tape | |

VIDEO SECTION

| | |
|--------------|----------------------------|
| Video system | PAL625/50, PAL525/60, NTSC |
|--------------|----------------------------|

Composite video output

| | |
|--------------|---------------------|
| Output level | 1 Vp-p (75 Ω) |
| Terminal | Pin jack (1 system) |

Component video output

| | |
|-----------------------------------|-----------------|
| [NTSC: 480p/480i, PAL: 576p/576i] | |
| 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) |

Terminal

| | |
|---|--|
| Pin jack (Y: green, P _B : blue, P _R : red) (1 system) | |
|---|--|

DISC SECTION

Disc played (8 cm or 12 cm)

- (1) DVD (DVD-Video, DivX[®] ^{※6, ※7})
- (2) DVD-RAM (DVD-VR, JPEG ^{※4, ※7}, MP3 ^{※2, ※7}, MPEG4 ^{※5, ※7}, DivX ^{※6, ※7})
- (3) DVD-R (DVD-Video, DVD-VR, JPEG ^{※4, ※7}, MP3 ^{※2, ※7}, MPEG4 ^{※5, ※7}, DivX ^{※6, ※7})
- (4) DVD-R DL (DVD-Video, DVD-VR)
- (5) DVD-RW (DVD-Video, DVD-VR, JPEG ^{※4, ※7}, MP3 ^{※2, ※7}, MPEG4 ^{※5, ※7}, DivX ^{※6, ※7})
- (6) +R/RW (Video)
- (7) +R DL (Video)
- (8) CD, CD-R/RW [CD-DA, Video CD, SVCD ^{※1}, MP3 ^{※2, ※7}, WMA ^{※3, ※7}, JPEG ^{※4, ※7}, MPEG4 ^{※5, ※7}, DivX ^{※6, ※7}, HighMAT Level 2 (Audio and Image)]

- ※1 Conforming to IEC62107
- ※2 MPEG-1 Layer 3, MPEG-2 Layer 3
- ※3 Windows Media Audio Ver.9.0 L3
- ※4 Not compatible with Multiple Bit Rate (MBR)
- ※5 Exif Ver 2.1 JPEG Baseline files
- ※6 Picture resolution: between 160 x 120 and 6144 x 4096 pixels (Sub sampling is 4:0:0, 4:2:0, 4:2:2 or 4:4:4). Extremely long and slender pictures may not be displayed.
- ※7 MPEG4 data recorded with the Panasonic SD multi cameras or DVD video recorders
- Conforming to SD VIDEO specifications (ASF standard)/ MPEG4 (Simple Profile) video system/ G.726 audio system
- ※8 Plays all versions of DivX[®] video (including DivX[®]6) with standard playback of DivX[®] media files. Certified to the DivX Home Theater Profile. GMC (Global Motion Compensation) is not supported.
- ※9 The total combined maximum number of recognizable audio, picture and video contents and groups: 4000 audio, picture and video contents and 400 groups.

Pick up

| | |
|-------------|----------|
| Wavelength | |
| CD | 785 nm |
| DVD | 662 nm |
| Laser power | |
| CD | CLASS 1M |
| DVD | CLASS 1 |

Audio output (Disc)

| | |
|--------------------|----------------|
| Number of channels | (FL, FR), 2 ch |
|--------------------|----------------|

SPEAKER SECTION

Front Speakers

| | |
|------------------|---------------------------------------|
| Type | 3 way, 3 speaker system (Bass reflex) |
| Speaker unit(s) | Impedance 3 Ω |
| 1. Super tweeter | Piezo type |
| 2. Tweeter | 6 cm cone type |
| 3. Woofer | 16 cm cone type |

Input power (IEC)

| | |
|--|-------------|
| | 115 W (Max) |
|--|-------------|

Output sound pressure

| | |
|-----------------|--|
| 82 dB/W (1.0 m) | |
|-----------------|--|

Cross over frequency

| | |
|-----------------|--|
| 4.16 Hz, 10 kHz | |
|-----------------|--|

Frequency range

| | |
|---------------------------|--|
| 30 Hz to 280 kHz (-16 dB) | |
| 38 Hz to 21 kHz (-10 dB) | |
| 220 x 330 x 182 mm | |

Dimensions (WxHxD)

| | |
|------|--------|
| Mass | 2.6 kg |
|------|--------|

Subwoofer

| | |
|------|--------------------------------------|
| Type | 1 way 1 speaker system (Bass reflex) |
|------|--------------------------------------|

Speaker units

| | |
|---------------|--|
| Impedance 3 Ω | |
|---------------|--|

Input power (IEC)

| | |
|-----------------|--|
| 16 cm cone type | |
|-----------------|--|

Output sound pressure

| | |
|-------|--|
| 115 W | |
|-------|--|

Frequency range

| | |
|-----------------|--|
| 80 dB/W (1.0 m) | |
|-----------------|--|

Dimensions (WxHxD)

| | |
|--------------------------|--|
| 28 Hz to 173 Hz (-16 dB) | |
| 33 Hz to 148 Hz (-10 dB) | |
| 220 x 330 x 303 mm | |

Mass

| | |
|--------|--|
| 3.7 kg | |
|--------|--|

GENERAL

Power supply

| | |
|------------------------|--|
| AC 230V to 240V, 50 Hz | |
|------------------------|--|

For Australia and N.Z.

| | |
|--------------------------------------|--|
| AC 110 to 127V/220 to 240V, 50/60 Hz | |
|--------------------------------------|--|

For Southeast Asia

| | |
|-------|--|
| 125 W | |
|-------|--|

Power consumption

| | |
|----------------------|--|
| 250 x 330 x 333.6 mm | |
|----------------------|--|

Dimensions (WxHxD)

| | |
|------|--------|
| Mass | 7.5 kg |
|------|--------|

Operating temperature range

| | |
|---------------|--|
| +5°C to +35°C | |
|---------------|--|

Operating humidity range

| | |
|--------------------------------|--|
| 5% to 90% RH (no condensation) | |
|--------------------------------|--|

Power consumption in standby mode

| | |
|---------------------|--|
| 0.9 W (approximate) | |
|---------------------|--|

Note:

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

Language code list

| | | | | | | | | | |
|------------------|------|--------------|------|-------------------|------|-----------------|------|-------------|------|
| Abkhazian: | 6566 | Danish: | 6865 | Italian: | 7384 | Norwegian: | 7879 | Swedish: | 8386 |
| Afar: | 6565 | Dutch: | 7876 | Japanese: | 7465 | Oriya: | 7982 | Tagalog: | 8476 |
| Afrikaans: | 6570 | English: | 6978 | Javanese: | 7487 | Pashto, Pushto: | 8083 | Tajik: | 8471 |
| Albanian: | 8381 | Esperanto: | 6979 | Kannada: | 7578 | Persian: | 7065 | Tamil: | 8465 |
| Ameharic: | 6577 | Estonian: | 6984 | Kashmiri: | 7583 | Polish: | 8076 | Tatar: | 8484 |
| Arabic: | 6582 | Faroese: | 7079 | Kazakh: | 7575 | Portuguese: | 8084 | Telugu: | 8469 |
| Armenian: | 7289 | Fiji: | 7074 | Kirghiz: | 7589 | Punjabi: | 8065 | Thai: | 8472 |
| Assamese: | 6583 | Finnish: | 7073 | Korean: | 7579 | Quechua: | 8185 | Tibetan: | 6679 |
| Aymara: | 6589 | French: | 7082 | Kurdish: | 7585 | Rhaeto-Romance: | 8277 | Tigrinya: | 8473 |
| Azerbaijani: | 6590 | German: | 7089 | Laotian: | 7679 | Romanian: | 8279 | Tonga: | 8479 |
| Bashkir: | 6665 | Galician: | 7176 | Latin: | 7665 | Russian: | 8285 | Turkish: | 8482 |
| Basque: | 6985 | Georgian: | 7565 | Latvian, Lettish: | 7686 | Samoan: | 8377 | Turkmen: | 8475 |
| Bengali; Bangla: | 6678 | German: | 6869 | Lingala: | 7678 | Sanskrit: | 8365 | Twi: | 8487 |
| Bhutani: | 6890 | Greek: | 6976 | Lithuanian: | 7684 | Scots Gaelic: | 7168 | Ukrainian: | 8575 |
| Bihari: | 6672 | Greenlandic: | 7576 | Macedonian: | 7775 | Serbian: | 8382 | Urdu: | 8582 |
| Breton: | 6682 | Guarani: | 7178 | Malagasy: | 7771 | Serbo-Croatian: | 8372 | Uzbek: | 8590 |
| Bulgarian: | 6671 | Gujarati: | 7185 | Malay: | 7783 | Shona: | 8378 | Vietnamese: | 8673 |
| Burmese: | 7789 | Hausa: | 7265 | Malayalam: | 7776 | Sindhi: | 8368 | Volapük: | 8679 |
| Byelorussian: | 6669 | Hebrew: | 7387 | Maltese: | 7784 | Singhalese: | 8373 | Welsh: | 6789 |
| Cambodian: | 7577 | Hindi: | 7273 | Maori: | 7773 | Slovak: | 8375 | Wolof: | 8779 |
| Catalan: | 6765 | Hungarian: | 7285 | Marathi: | 7782 | Slovenian: | 8376 | Xhosa: | 8872 |
| Chinese: | 9072 | Icelandic: | 7383 | Moldavian: | 7779 | Somali: | 8379 | Yiddish: | 7473 |
| Corsican: | 6779 | Indonesian: | 7378 | Mongolian: | 7778 | Spanish: | 6983 | Yoruba: | 8979 |
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