

Pioneer

Blu-ray Disc PLAYER

BDP-320

Register Your Product on

www.pioneerelectronics.com (US)

www.pioneerelectronics.ca (Canada)

Operating Instructions



Thank you for buying this Pioneer product.

Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

IMPORTANT



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

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION:

TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



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

D3-4-2-1-1_A1_En

IMPORTANT NOTICE

THE SERIAL NUMBER FOR THIS EQUIPMENT IS LOCATED IN THE REAR. PLEASE WRITE THIS SERIAL NUMBER ON YOUR ENCLOSED WARRANTY CARD AND KEEP IN A SECURE AREA. THIS IS FOR YOUR SECURITY.

D1-4-2-6-1*_A1_En

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

D8-10-1-2_A1_En

Information to User

Alterations or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

D8-10-2_A1_En

CAUTION

This product satisfies FCC regulations when shielded cables and connectors are used to connect the unit to other equipment. To prevent electromagnetic interference with electric appliances such as radios and televisions, use shielded cables and connectors for connections.

D8-10-3a_A1_En

CAUTION : USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

CAUTION : THE USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD. D6-8-2-1_En

This Class B digital apparatus complies with Canadian ICES-003.

D8-10-1-3_A1_En

WARNING

To prevent a fire hazard, do not place any naked flame sources (such as a lighted candle) on the equipment.

D3-4-2-1-7a_A_En

IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



P1-4-2-2_En

CAUTION

This product is a class 1 laser product, but this product contains a laser diode higher than Class 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel. The following caution label appears on your unit. Location: inside of the unit

**CLASS 1
LASER PRODUCT**

CAUTION CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.
ATTENTION RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. ÉVITEZ TOUT EXPOSITION AU FAISCEAU.
ADVARSEL KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING KLASSE 3B SYNLIG OCH OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.
VORSICHT BEI GEÖFFNETER ABOECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERÄTENNEREN VORHANDEN. NICHT DEM LASERSTRAHL AUSSETZEN!
PRECAUCIÓN CUANDO SE ABRE HAY RADIACIÓN LASER DE CLASE 3B VISIBLE E INVISIBLE. EVITE LA EXPOSICIÓN A LOS RAYOS LASER.
VARO! AVATTAESSA OLET ALTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LUOKAN 3B LASERSÄTELYLLE. ÄLÄ KATSO SÄTEESEEN.
注意 打開時會有CLASS 3B可見和不可見鐳射輻射，請勿受鐳射束輻射。
注意 ここを開くとCLASS 3Bの可視レーザー光及び不可視レーザー光が出ます。ビームを直接見たり、触れたりしないこと。

D3-4-2-1-8*_C_En

VENTILATION CAUTION

When installing this unit, make sure to leave space around the unit for ventilation to improve heat radiation (at least 10 cm at top, 10 cm at rear, and 10 cm at each side).

WARNING

Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the product, and to protect it from overheating. To prevent fire hazard, the openings should never be blocked or covered with items (such as newspapers, table-cloths, curtains) or by operating the equipment on thick carpet or a bed.

D3-4-2-1-7b_A_En

WARNING

This equipment is not waterproof. To prevent a fire or shock hazard, do not place any container filled with liquid near this equipment (such as a vase or flower pot) or expose it to dripping, splashing, rain or moisture.

D3-4-2-1-3_B_En

Operating Environment

Operating environment temperature and humidity: +5 °C to +35 °C (+41 °F to +95 °F); less than 85 %RH (cooling vents not blocked)

Do not install this unit in a poorly ventilated area, or in locations exposed to high humidity or direct sunlight (or strong artificial light)

D3-4-2-1-7c*_A1_En

WARNING

Before plugging in for the first time, read the following section carefully.


The voltage of the available power supply differs according to country or region. Be sure that the power supply voltage of the area where this unit will be used meets the required voltage (e.g., 230 V or 120 V) written on the rear panel.

D3-4-2-1-4_A_En

If the AC plug of this unit does not match the AC outlet you want to use, the plug must be removed and appropriate one fitted. Replacement and mounting of an AC plug on the power supply cord of this unit should be performed only by qualified service personnel. If connected to an AC outlet, the cut-off plug can cause severe electrical shock. Make sure it is properly disposed of after removal. The equipment should be disconnected by removing the mains plug from the wall socket when left unused for a long period of time (for example, when on vacation).

D3-4-2-1a_A_En

CAUTION

The  STANDBY/ON switch on this unit will not completely shut off all power from the AC outlet. Since the power cord serves as the main disconnect device for the unit, you will need to unplug it from the AC outlet to shut down all power. Therefore, make sure the unit has been installed so that the power cord can be easily unplugged from the AC outlet in case of an accident. To avoid fire hazard, the power cord should also be unplugged from the AC outlet when left unused for a long period of time (for example, when on vacation).

D3-4-2-2a_A_En

WARNING: Handling the cord on this product or cords associated with accessories sold with the product will expose you to chemicals listed on proposition 65 known to the State of California and other governmental entities to cause cancer and birth defect or other reproductive harm.

Wash hands after handling

D36-P4_A_En

This product contains mercury. Disposal of this material may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronics Industries Alliance : www.eiae.org.

K057_En

This product is for general household purposes. Any failure due to use for other than household purposes (such as long-term use for business purposes in a restaurant or use in a car or ship) and which requires repair will be charged for even during the warranty period.

K041_En

POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. If you find it damaged, contact the Pioneer service center on the back cover, or your dealer for a replacement.

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



C67-7-3_En



Dear Customer:

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

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level:

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

Once you have established a comfortable sound level:

- Set the dial and leave it there.

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

We Want You Listening For A Lifetime

Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

Decibel Level Example

30	Quiet library, soft whispers
40	Living room, refrigerator, bedroom away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at two feet.

THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE

90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.



5001_En

Contents

01 Before you start

What's in the box	7
Putting the batteries in the remote control	7
Software updating	7
Types of discs/files that can be played	8
Playable discs	8
Playable files	10
Part Names and Functions	11
Remote Control	11
Front Panel	12
Front Panel Display	12
Rear Panel	13

02 Connecting up

Connecting using an HDMI cable	14
About HDMI	14
About KURO LINK function	15
Connecting a TV	16
Connecting an AV receiver or amplifier	16
Connecting video and audio cables	16
Connecting a TV using a video/audio cable	16
Connecting an AV receiver or amplifier using audio cables	17
Connecting components to the USB port	17
About USB (external storage) devices	17
Connecting the USB (external storage) device	18
Network connection	18
Connecting via an Ethernet hub	18
Connecting the power cord	18

03 Getting Started

Making settings using the Setup Navigator menu	19
Operating the TV with the player's remote control	20
TV Preset code list	21
Using the TOOLS menu	21
Switching the video output terminal to be viewed	22
Switching the output video resolution	22

04 Playback

Playing discs or files	24
Forward and reverse scanning	25
Playing specific titles, chapters or tracks	25
Skipping content	25
Playing in slow motion	25
Step forward and step reverse	25
Switching the camera angles	25
Switching the subtitles	25
Switching the audio and secondary audio	26
Switching the secondary video	26
Displaying the disc information	26
Playback functions	27
Using the Play Mode functions	28
Playing from a specific time (Time Search)	28
Playing a specific title, chapter or track (Search)	28
Playing a specific section within a title or track repeatedly (A-B Repeat)	28
Playing repeatedly (Repeat Play)	29
Playing in random order (Random Play)	29
About Play Mode types	30

Playing from the Home Media Gallery	31
Playing discs	31
Playing image files	31
Playing audio files	32
Playing in the desired order (HMG Playlist)	32

05 Adjusting audio and video

Adjusting the video	34
Adjusting the audio	35
Adjusting the Audio DRC	35
Adjusting the output level of the different speakers during BD/DVD playback (Channel Level)	35
Adjusting the audio delay (Lip Sync)	36

06 Advanced settings

Changing the settings	37
Operating the Initial Setup screen	37
Software updating	46
Restoring all the settings to the factory default settings	46
About the audio output settings	47
Language Code Table and Country/Area Code Table	49

07 Additional information

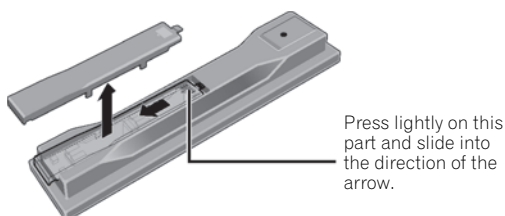
Licenses	50
Cautions on use	56
Moving the player	56
Place of installation	56
Turn the power off when not using the player	56
Condensation	56
Cleaning the player	56
Caution for when the unit is installed in a rack with a glass door	56
Cleaning the pickup lens	56
Handling discs	56
Troubleshooting	57
Playback	57
KURO LINK	61
Network	61
Others	62
Glossary	63
Specifications	65

What's in the box

- Remote control x 1
- Video/audio cable (yellow/white/red plugs) x 1
- AA/R6 dry cell batteries x 2
- Power cord x 1
- Warranty card
- Operating instructions (this document)

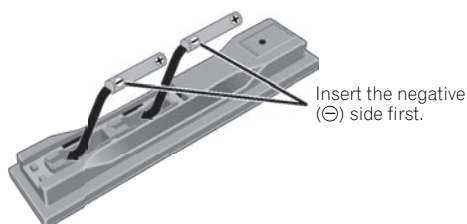
Putting the batteries in the remote control

1 Open the rear cover.



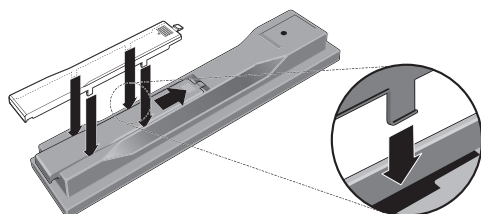
2 Insert the batteries (AA/R6 x 2).

Insert as indicated by the ⊕/⊖ marks into the battery compartment.



3 Close the rear cover.

Close securely (a click should be heard).



⚠ Caution

- Do not use any batteries other than the ones specified. Also, do not use a new battery together with an old one.

- When loading the batteries into the remote control, set them in the proper direction, as indicated by the polarity marks (⊕ and ⊖).
- Do not heat batteries, disassemble them, or throw them into flames or water.
- Batteries may have different voltages, even if they look similar. Do not use different kinds of batteries together.
- To prevent leakage of battery fluid, remove the batteries if you do not plan to use the remote control for a long period of time (1 month or more). If the fluid should leak, wipe it carefully off the inside of the case, then insert new batteries. If a battery should leak and the fluid should get on your skin, flush it off with large quantities of water.
- When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country/area.

• WARNING

Do not use or store batteries in direct sunlight or other excessively hot place, such as inside a car or near a heater. This can cause batteries to leak, overheat, explode or catch fire. It can also reduce the life or performance of batteries.

D3-4-2-3-3_En

Software updating

Please refer to our website for information regarding software updates.


IN THE U.S.A.: <http://www.pioneerblu-ray.com>

IN CANADA: <http://www.pioneerblu-ray.ca>

Types of discs/files that can be played

Playable discs

Discs with the logo marks below indicated on the disc label, package or jacket can be played.

Disc type	Logo	Application format					
		BDMV ¹	BDAV	DVD-Video	DVD VR	CD-DA DTS-CD	DATA-DISC ²
BD ³	BD-ROM	✓	✓	✗	✗	✗	✗
	BD-R ⁴	✓	✓	✗	✗	✗	✗
	BD-RE	✓	✓	✗	✗	✗	✗
DVD							
	DVD-ROM	✓	✗	✓	✗	✗	✓
							
		✓	✗	✓	✓	✗	✓
		✓	✗	✓	✓	✗	✓
	DVD+R ^{3,4}	✓	✗	✓	✗	✗	✓
	DVD+RW ⁴	✓	✗	✓	✗	✗	✓
	CD-DA (Audio CD)	✗	✗	✗	✗	✓	✗
	CD-R ⁴	✗	✗	✗	✗	✓	✓
	CD-RW ⁴	✗	✗	✗	✗	✓	✓
CD	CD-ROM	✗	✗	✗	✗	✓	✓

1. Including the AVCHD format.

2. Discs on which image or audio files are recorded.

3. Including dual-layered discs.

4. Finalize (close) them before playing them on this player.

5. DVD-R for Authoring discs (3.95 and 4.7 GB) cannot be played.

6. Version 1.0 DVD-RW discs cannot be played.

"Blu-ray Disc" and  are trademarks.

 is a trademark of DVD Format/Logo Licensing Corporation.

❖ Discs that cannot be played

- HD DVDs
- DVD Audio discs
- DVD-RAM discs
- SACDs
- Video CDs
- SVCDs

It is possible that some discs other than the ones listed above may not be playable either.

This player conforms to NTSC standards. Discs for which "NTSC" is indicated on the disc label, package or jacket can be played.



Note

- Some discs cannot be played, even if one of the logo marks on the previous page is indicated.
- To play 8 cm discs, set the disc in the 8 cm disc depression in the center of the disc tray. No adapter is necessary. 8 cm BD-ROMs cannot be played.

❖ About audio formats

The following audio formats are supported on this player:

- Dolby TrueHD
- Dolby Digital Plus
- Dolby Digital
- DTS-HD Master Audio
- DTS-HD High Resolution Audio
- DTS Digital Surround
- MPEG
- MPEG-2 AAC
- Linear PCM

To enjoy the surround sound of Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio and DTS-HD High Resolution Audio, it is recommended to connect the player to an AV receiver or amplifier compatible with these audio formats using an HDMI cable. After loading a BD containing sound in one of these audio formats, select the audio format on the menu screen.

See *About the audio output settings* on page 47 for the output conditions of the different formats.

Manufactured under license from Dolby Laboratories. Dolby and the double-D symbol are trademarks of Dolby Laboratories.

Manufactured under license under U.S. Patent #'s: 5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,226,616; 6,487,535; 7,392,195; 7,272,567; 7,333,929; 7,212,872 & other U.S. and worldwide patents issued & pending. DTS is a registered trademark and the DTS logos, Symbol, DTS-HD and DTS-HD Master Audio | Essential are trademarks of DTS, Inc. © 1996-2008 DTS, Inc. All Rights Reserved.

❖ Playing BDs

- BDs (BDMV) compatible with the formats below can be played.

- Blu-ray Disc Read-Only (ROM) Format Version 2
- Blu-ray Disc Recordable (R) Format Version 2
- Blu-ray Disc Rewritable (RE) Format Version 3

This player supports BD-ROM Profile 2.

BONUSVIEW functions such as playback of secondary video (Picture-in-Picture) and secondary audio can be used. The data used with the BONUSVIEW functions (the secondary video (Picture-in-Picture) and secondary audio data) may be stored in the storage. For details on secondary video and secondary audio playback, refer to the disc's instructions.

BONUSVIEW™

"BONUSVIEW" is trademark of Blu-ray Disc Association.

BD-LIVE functions such as downloading movie trailers or additional audio and subtitle languages and playing on-line games can be enjoyed over the Internet. The data downloaded with the BD-LIVE function (trailers, etc.) is stored in the storage. Refer to the disc's instructions for details about BD-LIVE functions.



"BD-LIVE" logo is trademark of Blu-ray Disc Association.

With BD-ROMs, it is possible to use BD-J (Java) applications to create highly interactive titles, for example including games.



Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

The player's internal storage has a maximum capacity of roughly 1 GB. Use an external storage connected to the **USB** port if you want to store large quantities of data (page 17). If a message saying there is not enough storage space appears, erase any unnecessary data (page 44).

- BDs (BD-RE) compatible with the formats below can be played.
 - Blu-ray Disc Recordable (R) Format Version 1
 - Blu-ray Disc Rewritable (RE) Format Version 2

❖ Playing DVDs



This label indicates playback compatibility with DVD-RW discs recorded in VR format (Video Recording format). However, for discs recorded with a record-only-once encrypted program, playback can only be achieved using a CPRM compatible device.

The AVCHD is a high definition (HD) digital video camera recorder format recording high-definition onto certain media by using highly efficient codec technologies.



"AVCHD" and the "AVCHD" logo are trademarks of Panasonic Corporation and Sony Corporation.

❖ About region numbers

Blu-ray Disc Player and BD-ROM or DVD-Video discs are assigned region numbers according to the region in which they are sold.

This player's region numbers are:

- BD-ROM: A
- DVD-Video: 1

Discs not including these numbers cannot be played.

Discs playable on this player are as shown below.

- BDs: A (including A) and ALL
- DVDs: 1 (including 1) and ALL

❖ Playing CDs

Regarding copy protected CDs: This player is designed to conform to the specifications of the Audio CD format. This player does not support the playback or function of discs that do not conform to these specifications.

❖ DualDisc playback

A DualDisc is a new two-sided disc, one side of which contains DVD content — video, audio, etc. — while the other side contains non-DVD content such as digital audio material.

The DVD side of a DualDisc can be played on this player (excluding any DVD-Audio content).

The non-DVD, audio side of the disc is not compatible with this player.

It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.

For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

❖ Playing discs created on computers or BD/DVD recorders

- It may not be possible to play discs recorded using a computer due to the application settings or computer's environment settings. Record discs in a format playable on this player. For details, contact the dealer.
- It may not be possible to play discs recorded using a computer or a BD/DVD recorder, if burn quality is not good due to characteristics of the disc, scratches, dirt on the disc, dirt on the recorder's lens, etc.

Playable files

Image and audio files recorded on DVDs and CDs can be played.

⚠ Caution

- In DVD, only the one recorded by the ISO 9660 file system can be played.
- Some files may not be playable.
- For some files, it may not be possible to use certain functions during playback.
- It may not be possible to play some files, even if they have the extension of a file playable on this player.
- Files protected by DRM (Digital Rights Management) cannot be played.

❖ Supported image file formats

• JPEG

File format: JFIF Ver. 1.02/Exif Ver. 2.2

Resolution: Up to 4096 x 4096 pixels

Only baseline JPEG files are supported.

❖ Supported audio file formats

• Windows Media™ Audio 9 (WMA9)

Bit rate: Up to 192 kbps

Sampling frequencies: 22.05 kHz, 32 kHz, 44.1 kHz and 48 kHz

Windows Media is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

This product includes technology owned by Microsoft Corporation and cannot be used or distributed without a license from Microsoft Licensing, Inc.

• MPEG-1 Audio Layer 3 (MP3)

Bit rate: Up to 320 kbps

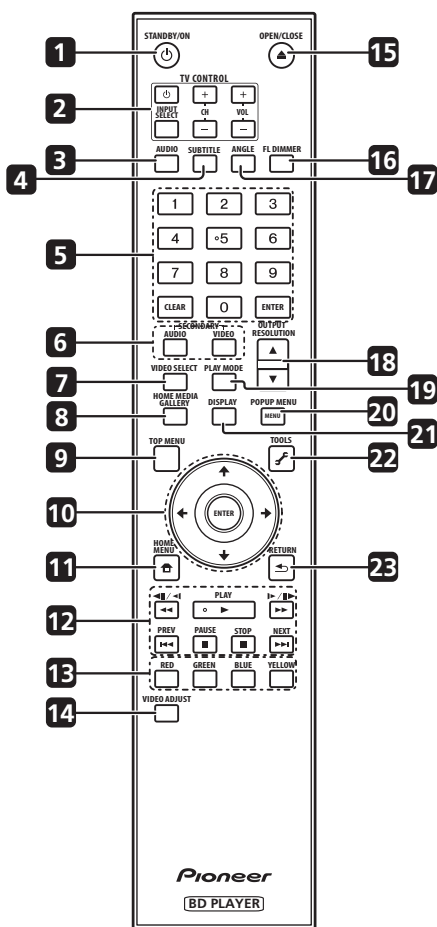
Sampling frequencies: 8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz and 48 kHz

❖ Playable file extensions

- **Image files**
.jpg and .jpeg
- **Audio files**
.wma and .mp3

Part Names and Functions

Remote Control



- 1 **STANDBY/ON** – Press to turn the power on and off.
- 2 **TV CONTROL** – (page 20)
- 3 **AUDIO** – (page 26)
- 4 **SUBTITLE** – (page 25)
- 5 **Number buttons** – Use these to select and play the title/chapter/track you want to view or listen to and to select items from menus.
CLEAR – Press to clear the numeric number, etc.
ENTER – Press to execute the selected item or enter a setting that has been changed, etc.
- 6 **SECONDARY AUDIO** – (page 26)
SECONDARY VIDEO – (page 26)

- 7 **VIDEO SELECT** – (page 22)
- 8 **HOME MEDIA GALLERY** – (page 31)
- 9 **TOP MENU** – Press to display the top menu of the BD-ROM or DVD-Video.
- 10 **↑/↓/←/→** – Use to select items, change settings and move the cursor.
ENTER – Press to execute the selected item or enter a setting that has been changed, etc.

- 11 **HOME MENU** – (page 37)
- 12 **PLAY** – (page 24)
PAUSE – (page 24)
STOP – (page 24)
PREV/NEXT – (page 25)
◀/▶/◀◀/▶▶ – (page 25)
▶/▶▶/◀◀◀ – (page 25)

- 13 **RED/GREEN/BLUE/YELLOW** – Use these to navigate BD-ROM menus.
- 14 **VIDEO ADJUST** – (page 34)
- 15 **OPEN/CLOSE** – Press to open and close the disc tray.

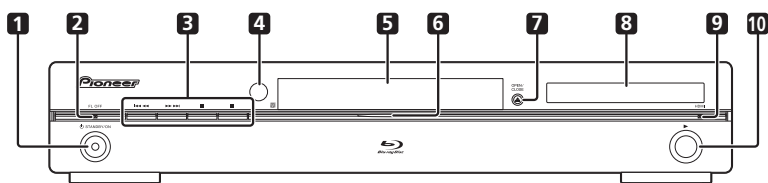
- 16 **FL DIMMER** – When pressed, the brightness of the player's front panel display and the status of the indicators on the player's front panel changes.

Front panel display	Indicators		
	Blu-ray	FL OFF	HDMI ¹
Bright	Bright	Off	Lit
Medium	Bright	Off	Lit
Dark	Dark	Off	Lit
Off	Off	Lit	Off

1. This lights when an HDMI-compatible device is connected to an **HDMI OUT** terminal (page 14).

- 17 **ANGLE** – (page 25)
- 18 **OUTPUT RESOLUTION** – (page 22)
- 19 **PLAY MODE** – (page 28)
- 20 **POP UP MENU/MENU** – Press to display the BD-ROM or DVD-Video menus.
- 21 **DISPLAY** – (page 26)
- 22 **TOOLS** – (page 21)
- 23 **RETURN** – Press to return to the previous screen.

Front Panel

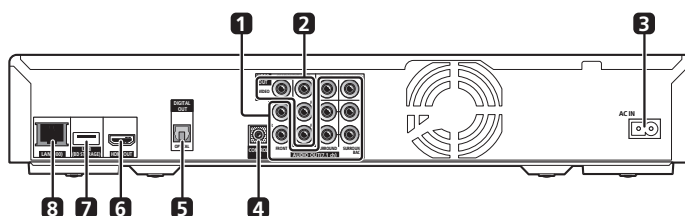


- 1 **⏻ STANDBY/ON** – Press to turn the power on and off.
- 2 **FL OFF indicator** – Lights when the player's front panel display is turned off pressing **FL DIMMER**.
- 3 **⏮/⏪** – Press to skip to the beginning of the previous title/chapter/track/file. Press and hold to start reverse scanning (page 25).
⏩/⏭ – Press to skip to the beginning of the next title/chapter/track/file. Press and hold to start forward scanning (page 25).
⏸ – Press during playback to pause. Press again to restart playback.
■ – Press to stop playback.
- 4 **Remote control sensor** – Point the remote control to this, then operate it within approximately 23 feet (7 m).
 The player may have trouble capturing remote control signals if there is a fluorescent light nearby. If this happens, move the player away from the fluorescent light.
- 5 **Disc tray**
- 6 **Blu-ray indicator** – Lights when the power is turned on.
- 7 **▲ OPEN/CLOSE** – Press to open and close the disc tray.
- 8 **Front panel display**
- 9 **HDMI indicator** – (page 14)
- 10 **▶** – Press to start playback.

Front Panel Display



- 1 **▶** – (page 24)
- 2 **⏸** – (page 24)
- 3 **HD** – This lights when an HDMI cable is connected and video signals are being output with a resolution of 1080/24p, 1080/60i, 1080/60p or 720/60p. It also lights when a component video cable is connected and video signals are being output with a resolution of 1080/60i or 720/60p.
- 4 **LAN** – (page 18)
- 5 **PQLS** – (page 15)
- 6 **Character display** – Displays the title/chapter/track number, elapsed time, etc.
- 7 **24HZ/50HZ/60HZ** – The frequency of the video frame or field being output lights.
- 8 **EXT** – (page 17)
- 9 **CONTROL** – (page 15)



- | | |
|--|---|
| <p>1 AUDIO OUT (7.1 ch) terminals – (page 16)</p> <p>2 VIDEO OUT terminals
 VIDEO – (page 16)
 COMPONENT VIDEO – (page 16)</p> <p>3 AC IN – (page 18)</p> <p>4 CONTROL IN terminal – Use to control this player from the remote sensor of another Pioneer component with a CONTROL OUT terminal and bearing the SR mark. Connect the CONTROL OUT terminal of the other component to CONTROL IN on this player using a mini-plug cord (commercially available).</p> | <p>5 DIGITAL OUT (OPTICAL) terminal – (page 17)</p> <p>6 HDMI OUT terminal – (page 16)</p> <p>7 USB (BD STORAGE) port – (page 17)</p> <p>8 LAN (100) terminal – (page 18)</p> |
|--|---|



Caution

- Be sure to connect cables for outputting the audio and video signals.
- When connected via System Control, point the remote control toward the connected component (such as an AV receiver or amplifier). The remote will not work correctly when pointed at this player.
- You cannot use System Control with components that do not have a System Control terminal or with components manufactured by companies other than Pioneer.

Connecting up

Be sure to turn off the power and unplug the power cord from the power outlet whenever making or changing connections.

After connecting, make the settings at the **Setup Navigator** menu according to the type of cable connected (page 19).

Also refer to the operating instructions of the device being connected.

Connecting using an HDMI cable

The audio and video signals can be transferred to HDMI-compatible devices as digital signals with no loss of sound or video quality.



Note

- Make the settings at the **Setup Navigator** menu according to connected HDMI-compatible device (page 19).
- The **HDMI indicator** on the player's front panel lights when an HDMI-compatible device is connected to an **HDMI OUT** terminal (page 12).
- 1080p video signals may not be output, depending on the HDMI cable being used.

About HDMI

This player incorporates High-Definition Multimedia Interface (HDMI™) technology.



HDMI, the HDMI Logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

The player supports Deep Color.

The conventional players can transmit a video signal with 8 bit color depth in the YCbCr 4:4:4 or RGB formats, the players supporting Deep Color can transmit a video signal with a color bit depth of greater than 8 bits per color component. Subtle color gradations can be reproduced when connected to a TV that supports Deep Color.

This product is compatible with "x.v.Color" that have the capability to realize a wide-gamut color space based on the xvYCC specifications.

Playing video signals conforming to "xvYCC" standards on this player when connected to an "x.v.Color"-compatible TV, etc., expands color reproduction

capabilities, allowing natural colors to be reproduced more faithfully than ever.

"x.v.Color" is a promotion name given to the products that have the capability to realize a wide-gamut color space based on the international standard specifications defined as xvYCC.

x.v.Color

"x.v.Color" and x.v.Color are trademarks of Sony Corporation.

❖ Audio signals that can be transferred with the player's HDMI OUT terminal

- Dolby TrueHD
- Dolby Digital Plus
- Dolby Digital
- DTS-HD Master Audio
- DTS-HD High Resolution Audio
- DTS Digital Surround
- MPEG-2 AAC
- Linear PCM

Linear PCM audio signals meeting the following conditions can be output:

- Sampling frequency: 32 kHz to 192 kHz
- Number of channels: Up to 8 (up to 6 for a 192 kHz sampling frequency)

For details, see *About the audio output settings* on page 47.

❖ About the HDMI High Speed Transmission

This player outputs 1080/60p and Deep Color video signals. If your TV supports 1080/60p or Deep Color signals, use a High Speed HDMI™ cable in order to take advantage of the maximum performance the player and TV can offer. Also set **HDMI High Speed Transmission to On** (page 39).

High Speed HDMI™ cables are tested to carry signals up to 1080p. 1080/24p, 1080/60i, 1080/60p and 720/60p video signals that are capable of Deep Color can also be carried.



Note

- Set **HDMI High Speed Transmission to Off** when using an HDMI cable other than a High Speed HDMI™ cable (a Standard HDMI™ cable).

- The following restrictions apply when **HDMI High Speed Transmission** is set to **Off**:
 - Deep Color signals are not output.
 - If the output video resolution is set to **Auto**, the signals are output with a resolution of 1080/60i when TV's preferred resolution is 1080/60p.
 - When the output video resolution is set to 480i or 480p, Dolby TrueHD and DTS-HD Master Audio audio signals are output as Dolby Digital, DTS Digital Surround or linear PCM signals. 96 kHz or 192 kHz multi-channel audio signals are output as linear PCM 2-channel audio signals (page 47).
- When an HDMI cable with a built-in equalizer is connected, it may not operate properly.

❖ When connected to a DVI device

- **It is not possible to connect DVI devices (computer displays, for example) that are not compatible with HDCP.** HDCP is a specification to protect audiovisual content across the DVI/HDMI interface.
- No audio signals are output. Connect using an audio cable, etc.
- This player is designed for connection with HDMI-compatible devices. When connected to a DVI device, it may not operate properly depending on the DVI device.

About KURO LINK function

The functions listed below work when a Pioneer KURO LINK-compatible Flat Panel TV or AV system (AV receiver or amplifier, etc.) is connected to the player using an HDMI cable.

Functions operated from the TV

Such player operations as starting and stopping playback and displaying the menus can be performed from the Flat Panel TV.

Auto-select function

The input switches automatically on the Flat Panel TV and AV system (AV receiver or amplifier, etc.) when playback is started on the player or the Home Menu or Home Media Gallery is displayed. When the input is switched, the playback picture, the Home Menu or Home Media Gallery appears on the Flat Panel TV.

Simultaneous power function

When playback on the player is started or the Home Menu or Home Media Gallery is displayed, if the Flat Panel TV's power was off, its power turns on automatically. When the Flat Panel TV's power is turned off, the player's power automatically turns off.

Unified language function

When the language information from a connected Flat Panel TV is received, you can have the player's on-screen display language change automatically to that of the Flat Panel TV. This function is available only when playback is stopped and the menu screen is not displayed.

⚠ Caution

- Also refer to the operating instructions of the Flat Panel TV and AV system (AV receiver or amplifier, etc.).

📝 Note

- **CONTROL** on the player's front panel display lights when the KURO LINK function is activated (page 12).

❖ To use the KURO LINK function

- The KURO LINK function only works when outputting video signals from the **HDMI OUT** terminal.
- The KURO LINK function works when **KURO LINK** is set to **On** on the player (page 39).
- The KURO LINK function operates when KURO LINK is set to On for all devices connected with HDMI cables. Once connections and the settings of all the devices are finished, be sure to check that the player's picture is output to the Flat Panel TV. (Also check after changing the connected devices and reconnecting HDMI cables.) The KURO LINK function may not operate properly if the player's picture is not properly output to the Flat Panel TV.
- Use High Speed HDMI™ cables when using the KURO LINK function. The KURO LINK function may not operate properly if other HDMI cables are used.
- For some models, the KURO LINK function may be referred to as "HDMI Control".
- The Simultaneous power function is activated when the player is set as follows (page 39):

Display Power On: On
Display Power Off: On

❖ About PQLS function

The PQLS (Precision Quartz Lock System) is a transfer control technology using the KURO LINK function. The player's output signals are controlled from the AV receiver or amplifier to achieve high quality sound playback using the quartz oscillator of AV receiver or amplifier. This eliminates the influence of the jitter generated upon transfer which can adversely affect the sound quality.

- This player supports the "PQLS 2ch Audio" that is only activated when playing an audio CD (CD-DA).
- The PQLS function is only activated when a Pioneer AV receiver or amplifier compatible with the "PQLS 2ch Audio" function is connected directly to the player's **HDMI OUT** terminal using an HDMI cable.
- The PQLS function is activated when the player is set as follows (page 39):
KURO LINK: On
PQLS: Auto
- Also refer to the operating instructions of AV receiver or amplifier.
- Please see the Pioneer website for AV receivers or amplifiers that support the PQLS function.

⚠ Caution

- If the output video resolution is switched when playing an audio CD (CD-DA), the PQLS function does not work. This function will work again after playback stops and restarts.

📝 Note

- **PQLS** on the player's front panel display lights when the PQLS function is activated (page 12).

❖ About connections to components of other makes supporting the KURO LINK function

The functions listed below work when a TV or AV system (AV receiver or amplifier, etc.) supporting the player's KURO LINK function is connected to the player using an HDMI cable. (Depending on your TV or AV system (AV receiver or amplifier, etc.), it could happen that not all of the functions will work.)

- Functions operated from the TV
- Auto-select function
- Simultaneous power function
- Unified language function

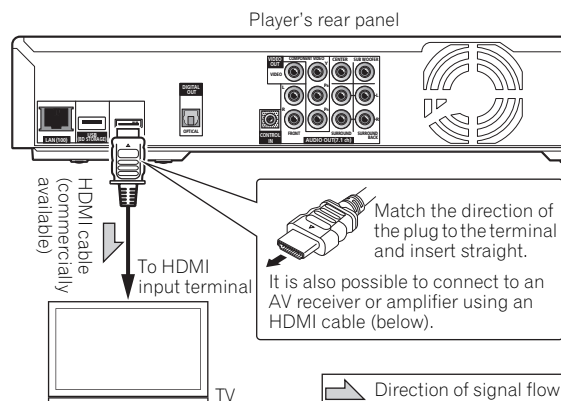
Please see the Pioneer website for the latest information on brands and model numbers of other brands that support the KURO LINK function.

Connecting a TV

See *Connecting an AV receiver or amplifier* below to connect an AV receiver or amplifier using an HDMI cable.

⚠ Caution

- Hold the plug when connecting and disconnecting the cable.
- Placing a load on the plug could result in faulty contact and no video signals being output.

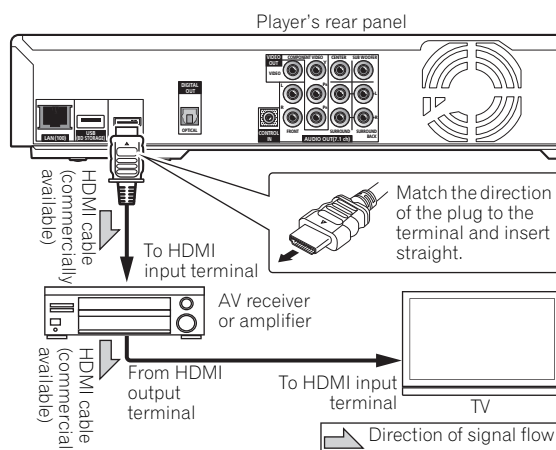


Connecting an AV receiver or amplifier

Connect to an AV receiver or amplifier in order to enjoy the surround sound of Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS-HD Master Audio, DTS-HD High Resolution Audio or DTS Digital Surround. For instructions on connecting the TV and speakers to the AV receiver or amplifier, refer to the operating instructions of AV receiver or amplifier.

⚠ Caution

- Hold the plug when connecting and disconnecting the cable.
- Placing a load on the plug could result in faulty contact and no video signals being output.



Connecting video and audio cables

📝 Note

- Make the settings in the **Setup Navigator** menu according to the type of cable connected (page 19).
- To output video signals from this player, connect using one of the following (not including when connected using an HDMI cable): a component video cable or a video cable.

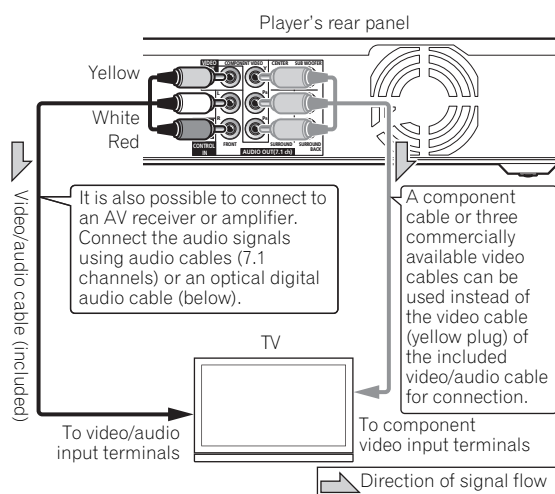
Connecting a TV using a video/audio cable

⚠ Caution

- **Connect the player's video output directly to your TV.**

This player supports analog copy protection technology. Therefore the picture may not be displayed properly if connected to a TV via a DVD recorder/video deck or when playing the player's output material that is recorded by a DVD recorder/

video deck. Furthermore, the picture may not be displayed properly due to the copy protection when the player is connected to a TV with a built-in video deck. For details, contact the manufacturer of your TV.



Note

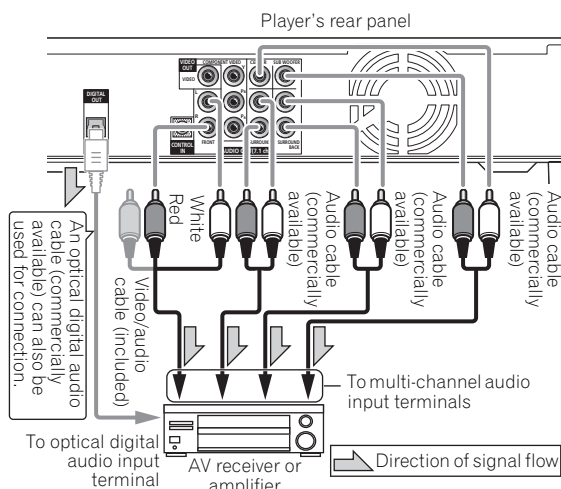
- Video signals are output with a resolution of 480/60i when connected using a video cable.
- When connected to the TV using a component video cable, video signals are not output with a resolution of 1080/24p or 1080/60p.
- Depending on the output video resolution setting, the picture may not be output (page 22).

Connecting an AV receiver or amplifier using audio cables

When connecting to a 7.1-channel compatible AV receiver or amplifier – Connect using 4 audio cables (diagram below).

When connecting to a 5.1-channel compatible AV receiver or amplifier – Connect using 3 audio cables (do not connect to the surround back left and right terminals).

- To switch the video from the AV receiver or amplifier, also connect the video output terminals.
- After connecting, set **Audio Output Mode** to **Multi-channel** (page 38).



Note

- To connect to the 2-channel audio input terminals on a TV, etc., connect to **FRONT (L/R)**.

Connecting components to the USB port

The data downloaded with the BD-LIVE function and the data used with the BONUSVIEW function when playing BD-ROMs can be stored on a device connected to the **USB** port (external storage).

About USB (external storage) devices

The USB (external storage) devices that can be connected to the player are as shown below.

- USB 2.0-compatible memory devices or hard disks
- FAT16 or FAT32 file system, minimum 1 GB capacity (2 GB or more recommended)

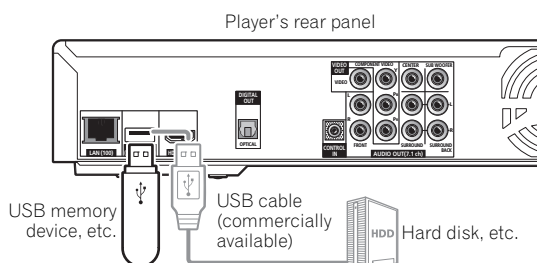
Note

- Devices formatted with a file system other than the above cannot be used. Such devices may however be usable if they are formatted from the player.
- External storage devices may not be recognized if they contain multiple partitions.
- Some external storage devices may not operate with this player.
- Operation of external storage devices (USB memory devices, external hard disks, etc.) is not guaranteed.

Connecting the USB (external storage) device

⚠ Caution

- Be sure to turn the player's power off before connecting or disconnecting external storage devices.
- Use empty external storage devices (on which nothing is stored).
- When using an external hard disk as the external storage device, be sure to turn on the hard disk's power before turning on the player's power.
- If the external storage device is write-protected, be sure to disable the write-protection.
- When connecting the USB cable, hold onto the plug, set the plug in the proper direction for the port and insert it horizontally.
- Placing excessive loads on the plug may result in poor contact, making it impossible to write data on the external storage device.
- The player is equipped with an internal storage. This internal storage cannot be used when an external storage device is connected.
- When a USB memory device or external hard disk is connected and the player's power is turned on, do not unplug the power cord.



📝 Note

- The **EXT** indicator on the player's front panel display lights when data can be stored on the external storage (page 12).
- Devices may not work if connected to the **USB** port via a memory card reader or USB hub.
- Use a USB cable with a length of 2 meters or less.

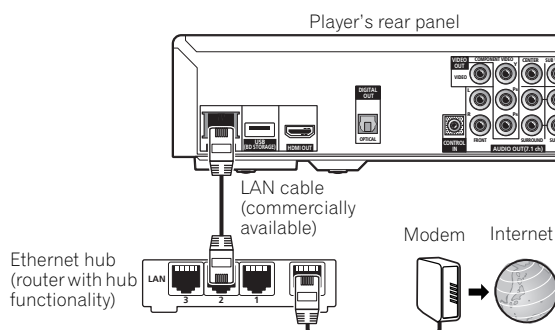
Network connection

BD-LIVE functions such as downloading movie trailers or additional audio and subtitle languages and playing on-line games can be enjoyed over the Internet. The player's software can also be updated over the Internet (page 46). Connect an Ethernet hub (or a router with hub functionality) that is connected to the Internet to the player.

Be sure to use a 100BASE-TX compatible Ethernet hub or router.

Connecting via an Ethernet hub

The player can be connected to an Ethernet hub using a LAN cable.

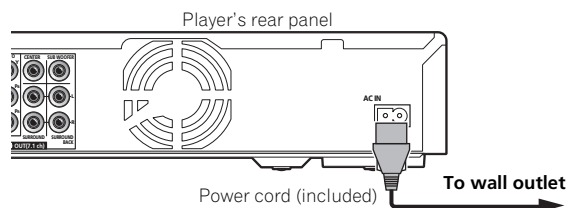


📝 Note

- **LAN** on the player's front panel display lights when there is an active local area network (LAN) connection (page 12).
- If there is an available DHCP server in your local area network, the IP address is obtained automatically. Otherwise, set IP address manually (page 43).
- For some Internet service providers, you may have to set the individual network configuration manually. In this case, see page 43.
- Pioneer is not responsible for any malfunction of the player due to communication error/malfunctions associated with your network connection and/or your connected equipment. Please contact your Internet service provider or network device manufacturer.

Connecting the power cord

Connect the power cord after all the connections between devices have been completed.



Chapter 3

Getting Started

03

Making settings using the Setup Navigator menu

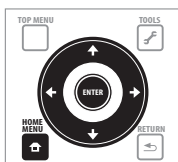
Be sure to perform these settings when using the player for the first time.

⚠ Caution

- Before turning on the power, check that the connections between the player and other devices are correct. Also, turn on the power of the devices connected to the player before turning on the player's power.
- When using a Pioneer Flat Panel TV or front projector compatible with the KURO LINK function, set KURO LINK to On on the connected device before turning on the player's power.
- The screen in step 10 and test tones are output simultaneously according to the settings in steps 4 to 7. Lower the volume of the devices connected with the player.

📝 Note

- When a Pioneer Flat Panel TV or front projector compatible with the KURO LINK function is connected to the player using an HDMI cable, the player is automatically set to the optimum picture quality for the connected device.



1 Turn on the TV's power and switch the input.
See the TV's operating instructions for instructions on operating the TV.

2 Turn on the player's power.
Press **STANDBY/ON**.

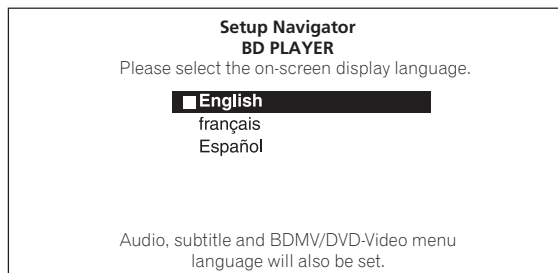
Check that the **Setup Navigator** menu is displayed.

❖ If the Setup Navigator menu is not displayed

▶ Press **HOME MENU** to display the Home Menu, select **Initial Setup** → **Setup Navigator** → **Start**, then press **ENTER**.

3 Select the OSD language.

Use **↑/↓** to select, then press **ENTER**.



When a Pioneer Flat Panel TV that is compatible with KURO LINK is connected to this player's **HDMI OUT** terminal, language settings are imported from the Pioneer Flat Panel TV's language settings before **Setup Navigator** begins.

4 Select and set the video and audio output terminals.

Select the actually connected video and audio output terminals.

Use **↑/↓/←/→** to select, then press **ENTER**.

Setting item	Output terminal name	
Video	HDMI	HDMI OUT
	COMPONENT	VIDEO OUT COMPONENT VIDEO
	VIDEO	VIDEO
Audio	HDMI	HDMI OUT
	DIGITAL AUDIO	DIGITAL OUT
	ANALOG AUDIO	AUDIO OUT

⚠ Caution

- When **HDMI** is selected for **Video**, no video signals are output from the **COMPONENT VIDEO** or **VIDEO** output terminals.
- When **COMPONENT** or **VIDEO** is selected at **Video**, no video signals are output from the **HDMI OUT** terminal.
- The video and audio signals output from the set output terminals are output synchronously (lip synchronization).
- When **COMPONENT** or **VIDEO** is selected at **Video**, no sound is output if **HDMI** is selected at **Audio**. Follow the procedure below to redo the connections, then select the proper connection at the setup screen.
 - When connecting using component video cables or a video cable to watch the picture, connect to an AV receiver or amplifier, or a TV using either analog audio cables (7.1 channels or 2 channels), an optical digital audio cable (page 17).

- To listen to audio with the player connected to an AV receiver or amplifier with an HDMI cable, connect the TV to the AV receiver or amplifier using an HDMI cable (page 16).
- When **HDMI** or **DIGITAL AUDIO** is selected at **Audio**, linear PCM audio signals (2 channels) are output from all terminals other than the ones selected at **Audio**.
- When **ANALOG AUDIO** is selected at **Audio**, no audio signals are output from the **HDMI OUT** or **DIGITAL OUT** terminals.

For steps 5 to 7, the step to which you should proceed depends on the combination of the Video and Audio settings.

5 Select and set the HDMI High Speed Transmission setting for the HDMI OUT terminal.

Use **←/→** to select, then press **ENTER**.

When **HDMI High Speed Transmission** for the **HDMI OUT** terminal is set to **On**, use a High Speed HDMI™ cable. The picture and sound may not be output properly if any other HDMI cable (for example a standard HDMI™ cable) or an HDMI cable with built-in equalizer is used.

6 Select the output video resolution from the COMPONENT VIDEO output terminals.

Use **↑/↓** to select, then press **ENTER**.

For details on the resolution settings, see *Switching the output video resolution* on page 22.

7 Select the aspect ratio of your TV.

Use **↑/↓** to select, then press **ENTER**.

8 Check the settings.

Select **Proceed**, then press **ENTER**.

9 Output test tones.

Use **←/→** to select **Yes**, then press **ENTER**.

10 Finish the Setup Navigator menu.

Use **←/→** to select **Finish**, then press **ENTER**.

To redo the settings from the start, select **Go Back**.

Depending on the output terminal setting of step 4 or the HDMI cable being used, it may happen that no picture and/or sound is output. If this happens, the setup returns to step 4 if there is no operation for over 30 seconds. Once the setup returns to step 4, redo the settings according to the connected devices and the HDMI cable being used.

11 Checking the picture quality settings or setting the picture quality

If a Pioneer Flat Panel TV or projector is connected to the player and **HDMI** is selected for **Video** in step 4, the player sets the picture quality automatically. The automatic picture quality setting screen appears. Press **ENTER**.

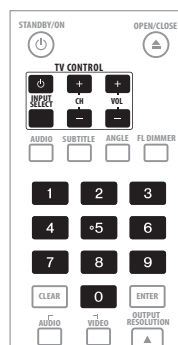
When the automatic picture quality setting screen does not appear, the manual picture quality setting screen appears. Use **↑/↓** to select the connected component, then press **ENTER**.

Operating the TV with the player's remote control

When the manufacturer code for your brand of TV is set on the player's remote control, the TV can be operated using the player's remote control.

⚠ Caution

- For some models it may not be possible to operate the TV with the player's remote control, even for TVs of brands listed on the manufacturer code list.
- The setting may be restored to the default after the batteries are replaced. If this happens, reset it.



1 Input the 2-digit manufacturer code.

Press the number buttons (0 to 9) to input the code while pressing **TV CONTROL** ⏻.

✎ Note

- The factory setting is 00 (PIONEER).
- If you make a mistake when inputting the code, release **TV CONTROL** ⏻ then start over from the beginning.
- When there are multiple codes for a manufacturer, try inputting them in the indicated order until the TV can be operated.

2 Check that the TV can be operated.

Operate the TV using **TV CONTROL**.

⏻ – Press to turn the TV's power on and off.

INPUT SELECT – Press to switch the TV's input.

CH +/- – Press to select the TV channel.

VOL +/- – Press to adjust the volume.

TV Preset code list

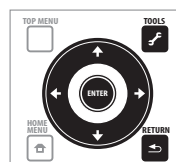
Manufacturer Code(s)

PIONEER 00, 31, 32, 07, 36, 42, 51, 22
ACURA 44
ADMIRAL 31
AIWA 60
AKAI 32, 35, 42
AKURA 41
ALBA 07, 39, 41, 44
AMSTRAD 42, 44, 47
ANITECH 44
ASA 45
ASUKA 41
AUDIOGONIC 07, 36
BASIC LINE 41, 44
BAUR 31, 07, 42
BEKO 38
BEON 07
BLAUPUNKT 31
BLUE SKY 41
BLUE STAR 18
BPL 18
BRANDT 36
BTC 41
BUSH 07, 41, 42, 44, 47, 56
CASCADE 44
CATHAY 07
CENTURION 07
CGB 42
CIMLINE 44
CLARIVOX 07
CLATRONIC 38
CONDOR 38
CONTEC 44
CROSLEY 32
CROWN 38, 44
CRYSTAL 42
CYBERTRON 41
DAEWOO 07, 44, 56
DAINICHI 41
DANSAI 07
DAYTON 44
DECCA 07, 48
DIXI 07, 44
DUMONT 53
ELIN 07
ELITE 41
ELTA 44
EMERSON 42
ERRES 07
FERGUSON 07, 36, 51
FINLANDIA 35, 43, 54
FINLUX 32, 07, 45, 48, 53, 54
FIRSTLINE 40, 44
FISHER 32, 35, 38, 45
FORMENTI 32, 07, 42
FRONTECH 31, 42, 46
FRONTECH/PROTECH 32
FUJITSU 48
FUNAI 40, 46, 58
GBC 32, 42
GE 00, 01, 08, 07, 10, 11, 17, 02, 28, 18
GEC 07, 34, 48
GELOSO 32, 44
GENERAL 29
GENEXXA 31, 41
GOLDSTAR 10, 23, 21, 02, 07, 50
GOODMANS 07, 39, 47, 48, 56
GORENJE 38
GPM 41
GRAETZ 31, 42
GRANADA 07, 35, 42, 43, 48
GRADIENTE 30, 57
GRANDIN 18
GRUNDIG 31, 53
HANSEATIC 07, 42
HCM 18, 44
HINARI 07, 41, 44
HISAWA 18
HITACHI 31, 33, 34, 36, 42, 43, 54, 06, 10, 24, 25, 18
HUANYU 56
HYPSON 07, 18, 46
ICE 46, 47
IMPERIAL 38, 42
INDIANA 07
INGELEN 31
INTERFUNK 31, 32, 07, 42
INTERVISION 46, 49
ISUKAI 41
ITC 42
ITT 31, 32, 42
JEC 05
JVC 13, 23
KAISUI 18, 41, 44
KAPSCH 31
KENDO 42
KENNEDY 32, 42
KORPEL 07
KOYODA 44
LEYCO 07, 40, 46, 48
LIESENK&TTER 07
LOEWE 07
LUXOR 32, 42, 43
M-ELECTRONIC 31, 44, 45, 54, 56, 07, 36, 51
MAGNADYNE 32, 49
MAGNAFON 49
MAGNAVOX 07, 10, 03, 12, 29
MANESTH 39, 46
MARANTZ 07
MARK 07
MATSUI 07, 39, 40, 42, 44, 47, 48
MCMICHAEL 34
MEDIATOR 07
MEMOREX 44
METZ 31
MINERVA 31, 53
MITSUBISHI 09, 10, 02, 21, 31
MULTITECH 44, 49
NEC 59
NECKERMANN 31, 07
NEI 07, 42
NIKKAI 05, 07, 41, 46, 48
NOBLIKO 49
NOKIA 32, 42, 52
NORDMENDE 32, 36, 51, 52
OCEANIC 31, 32, 42
ORION 32, 07, 39, 40
OSAKI 41, 46, 48
OSO 41
OSUME 48
OTTO VERSAND 31, 32, 07, 42
PALLADIUM 38
PANAMA 46
PANASONIC 31, 07, 08, 42, 22
PATHO CINEMA 42
PAUSA 44

PHILCO 32, 42
PHILIPS 31, 07, 34, 56, 68
PHOENIX 32
PHONOLA 07
PROFEX 42, 44
PROTECH 07, 42, 44, 46, 49
QUELLE 31, 32, 07, 42, 45, 53
R-LINE 07
RADIOLA 07
RADIOHACK 10, 23, 21, 02
RBM 53
RCA 01, 10, 15, 16, 17, 18, 61, 62, 09
REDIFFUSION 32, 42
REX 31, 46
ROADSTAR 41, 44, 46
SABA 31, 36, 42, 51
SAISHO 39, 44, 46
SALORA 31, 32, 42, 43
SAMBERS 49
SAMSUNG 07, 38, 44, 46, 69, 70
SANYO 35, 45, 48, 21, 14, 91
SBR 07, 34
SCHAUB LORENZ 42
SCHNEIDER 07, 41, 47
SEG 42, 46
SEI 32, 40, 49
SELECO 31, 42
SHARP 02, 19, 27, 67, 90
SIAREM 32, 49
SIEMENS 31
SINUDYNE 32, 39, 40, 49
SKANTIC 43
SOLAVOX 31
SONOKO 07, 44
SONOLOR 31, 35
SONTEC 07
SONY 04
SOUNDWAVE 07
STANDARD 41, 44
STERN 31
SUSUMU 41
SYSLINE 07
TANDY 31, 41, 48
TASHIKO 34
TATUNG 07, 48
TEC 42
TELEAVIA 36
TELEFUNKEN 36, 37, 52
TELETECH 44
TENSAI 40, 41
THOMSON 36, 51, 52, 63
THORN 31, 07, 42, 45, 48
TOMASHI 18
TOSHIBA 05, 02, 26, 21, 53
TOWADA 42
ULTRAVOX 32, 42, 49
UNIDEN 92
UNIVERSUM 31, 07, 38, 42, 45, 46, 54
VESTEL 07
VICTOR 13
VOXSON 31
WALTHAM 43
WATSON 07
WATT RADIO 32, 42, 49
WHITE WESTINGHOUSE 07
YOKO 07, 42, 46
ZENITH 03, 20

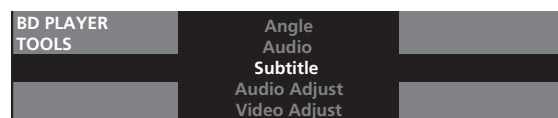
Using the TOOLS menu

Various functions can be called out according to the player's operating status.



1 Display the TOOLS menu.

Press **TOOLS**.



2 Select and set the item.

Use / to select, then press **ENTER**.



Note

- Items that cannot be changed are displayed in gray. The items that can be selected depend on the player's status.

❖ To change the setting of the selected item

Use ◀/▶ to change.

❖ To close the TOOLS menu

Press **TOOLS** or **RETURN**.

❖ TOOLS menu item list

Item	Description
Play from Beginning	Play the selected title, track or file from the start.
Slideshow	Play a slideshow of the image files on the selected disc or folder.
Play Mode	Display the Play Mode screen (page 28).
Video Adjust	Display the picture quality adjustment screen (page 34).
Secondary Video	Switch the BD-ROM's secondary video (Picture-in-Picture) (page 26).
Subtitle	Switch the subtitles (page 25).
Angle	Switch the BD-ROM/DVD-Video disc's camera angles (page 25).
Rotate	Rotate the image while playing a slideshow (page 32).
Audio Adjust	Display the audio adjustment menu (page 35).
Audio	Switch the audio (page 26).
Secondary Audio	Switch the BD-ROM's secondary audio (page 26).
Now Playing	Display the playback screen of the currently playing track or file.
Original/Play List	Switch the DVD-R/-RW's (VR format) list screen between the original list and the playlist.
Add to HMG Playlist	Add the selected track or file to the HMG Playlist (page 32).
Delete from HMG Playlist	Delete the selected track or file from the HMG Playlist (page 33).
Output Video Resolution	Switch the output video resolution from the various output terminals (page 22).

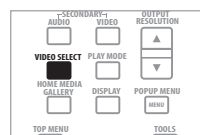
Switching the video output terminal to be viewed

Use the procedure below to switch the video output signal to be viewed between the **HDMI OUT** terminal and an analog output terminal (**COMPONENT VIDEO** or **VIDEO** output terminals).

⚠ Caution

- The picture may not be displayed for a while when the video output terminal is switched.

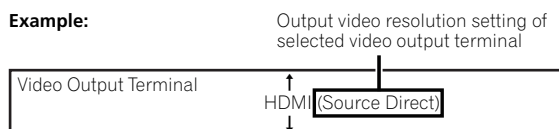
- When the **HDMI OUT** terminal is selected, no video signals are output from the other video output terminals.
- When a video output terminal other than the **HDMI OUT** terminal is selected, no audio and video signals are output from the **HDMI OUT** terminal.



► Press VIDEO SELECT.

- The current video output terminal is displayed on the TV screen and on the player's front panel display. To switch the video output terminals, press **↑/↓**.

Example:



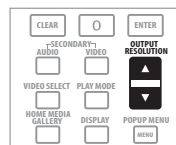
- The video output terminal setting can also be switched by pressing **◀◀ / ▶▶** on the player's front panel.

Switching the output video resolution

Use the procedure below to switch the output video resolution from the various video output terminals.

⚠ Caution

- On some devices (TV, AV receiver or amplifier, etc.), the video or audio may not be output properly when the resolution is switched. If this happens, use **OUTPUT RESOLUTION** to set a resolution at which the video and audio are properly output.
- When video signals are being output with a resolution of 1080/24p, 1080/60i, 1080/60p or 720/60p from the **HDMI OUT** terminal or **COMPONENT VIDEO** output terminals, the picture may be output with an aspect ratio of 16:9, even if the **TV Aspect Ratio** is set to **4:3 (Standard)**.
- The picture may not be displayed for a while when the resolution is switched.

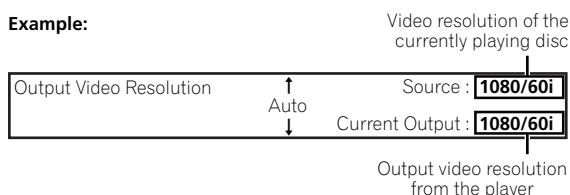


► Press OUTPUT RESOLUTION.

- The current output video resolution setting is displayed on the TV screen and on the player's front panel display. To switch the output video resolution, press **OUTPUT RESOLUTION** again or press **↑/↓**.

- The output video resolution depends on the video output terminal below.

Example:



- The output video resolution setting can also be switched by selecting **Output Video Resolution** from the **TOOLS** menu.

❖ About Film material

The film material is a video signal with a frame rate of 24 frames/second. For example, these materials include 1080/24p, 720/24p, etc.

❖ About the output video resolution

The output video resolution setting and the resolution of the picture that is actually output differ for the different terminals. See the table below.

Output video resolution setting	HDMI ¹		COMPONENT/VIDEO ¹		
	HDMI OUT terminal	COMPONENT VIDEO/VIDEO output terminals	HDMI OUT terminal	COMPONENT VIDEO output terminals ²	VIDEO output terminal ²
Auto ³	Resolution preferred by TV ^{4,5,6}	No video signals are output	No video signals are output	—	—
480i	480/60i			480/60i	480/60i
480p	480/60p			480/60p	
1080i	1080/60i			1080/60i ^{7,8}	
1080p ³	1080/60p ^{9,10}			—	—
Source Direct	Resolution recorded on disc ^{5,11,12}			Resolution recorded on disc ^{8,11,12,13}	480/60i

- The video output terminal set at **Video** in the **Setup Navigator** (page 19) or the video output terminal selected with **VIDEO SELECT** (page 22).
- Depending on the BD, the pictures may not be output.
- This cannot be selected when the video output terminal is set to **COMPONENT/VIDEO**.
- The pictures are output with the preferred output resolution of the device (TV, AV receiver or amplifier, etc.) connected to **HDMI OUT** terminal.
- For details on the output of film material (1080/24p or 720/24p video signals), see *To output film material* above.
- Sources with a resolution of 720/60p and 720/24p are output at 1080/60i even if the TV's recommended resolution is 1080/60p.
- DVD-Video or DVD-R/-RW (VR format) may be output at 480/60p.
- BD-ROM or BD-R/-RE may be output at 480/60p.
- Depending on the connected HDMI cable, the video signals may not be output.
- Sources with a resolution of 720/60p and 720/24p are output at 1080/60i.
- Depending on the connected TV, the video signals may not be output.
- 720/24p film material is output at 720/60p.
- 1080/24p film material is output at 1080/60i.

❖ To output film material

To output 1080/24p film material from **HDMI OUT** terminal, set the output video resolution to either **Auto** or **Source Direct**.

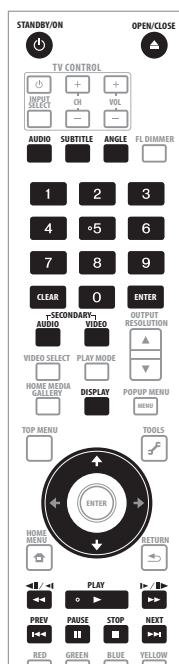
⚠ Caution

- 1080/24p signals can only be output from the **HDMI OUT** terminal. They cannot be output from other video terminals.
- When **Auto** is selected, the picture is output at 60 frames/second if your TV is not compatible with 1080/24p signals.
- When **Source Direct** is selected, the signals are output as such, even if your TV is not compatible with 1080/24p signals. If the picture is not displayed properly, use **OUTPUT RESOLUTION** to set an output video resolution at which the video and audio signals are properly output.
- Even if **Auto** or **Source Direct** is selected, 720/24p video signals are output at 60 frames/second.

Playing discs or files

This section describes the player's main operations.

For the types of discs that can be played, see *Playable discs* on page 8. For the types of files that can be played, see *Playable files* on page 10. Image and audio files recorded on discs are played with the Home Media Gallery (page 31).



- 1 Press **STANDBY/ON** to turn on the power. Turn the TV's power on and switch its input beforehand.
- 2 Press **OPEN/CLOSE** to open the disc tray and load the disc.

Note

- Load the disc with the printed side facing up.
- Several dozen seconds are required to read the disc. Once reading is completed, the type of disc is displayed on the player's front panel display.



- 3 Press **PLAY** to play the disc. ▶ on the player's front panel display lights during playback.

- To pause, press **PAUSE** during playback. **PAUSE** on the player's front panel display lights when playback is paused.
- To stop, press **STOP** during playback.

Note

- Some discs start playing automatically when the disc tray is closed.
- DVD-Video discs have parental lock features. Input the password registered in the player's settings to unlock the parental lock. For details, see page 45.
- For some BD-R/-RE, playback protection is set for the disc or titles. Input the code number set for the disc to unlock the protection.
- Check *Troubleshooting* on page 57 if video or audio signals are not being output properly.

❖ If the disc menu is displayed

For some discs, the disc menu is displayed automatically when playback starts. The contents of the disc menu and the way to operate differ from disc to disc.

❖ Resuming playback from where it was stopped (resume playback function)

- When **STOP** is pressed during playback, the point at which the disc stopped is stored in the memory. When **PLAY** is pressed, playback resumes from that point.
- For audio CDs and audio files, playback starts from the beginning of the track/file that was playing.
- If the stop mode was set while playing a slideshow of image files, playback starts from the image file last displayed.
- To cancel the resume playback function, press **STOP** while playback is stopped.

Note

- The resume playback function is canceled automatically in the following cases:
 - When the disc tray is opened.
 - When the file list window is switched.
 - When the power is turned off. (For BDs and DVDs this does not cancel the resume playback function.)
- The resume playback function cannot be used for some discs.

Forward and reverse scanning

- ▶ **During playback, press ◀◀ or ▶▶.**
 - The scanning speed switches each time the button is pressed. The speed steps depend on the disc or file (the speed is displayed on the TV screen).
 - Forward or reverse scanning is also possible by holding the button down. Normal playback resumes when the button is released.

❖ To resume normal playback

- ▶ Press ▶ **PLAY**.

Playing specific titles, chapters or tracks

- ▶ **Input the number of the title, chapter or track you want to play.**
 - Use the number buttons (0 to 9) to input the number, then press **ENTER**.
 - Press **CLEAR** to clear the values you have input.

Skipping content

- ▶ **Press ◀◀ PREV or ▶▶ NEXT.**
 - When ▶▶ **NEXT** is pressed, the playback skips ahead to the beginning of the next title/chapter/track/file.
 - When ◀◀ **PREV** is pressed, the playback skips back to the beginning of the currently playing title/chapter/track/file. Press twice to skip back to the beginning of the previous title/chapter/track/file.

Playing in slow motion

- ▶ **While playback is paused, press and hold ◀||/◀ or ||/▶▶.**
 - The speed switches each time the button is pressed (the speed is displayed on the TV screen). The speed steps depend on the disc or file.

❖ To resume normal playback

- ▶ Press ▶ **PLAY**.

Step forward and step reverse

- ▶ **While playback is paused, press ◀||/◀ or ||/▶▶.**
 - The picture moves a step forward or reverse each time the button is pressed.

❖ To resume normal playback

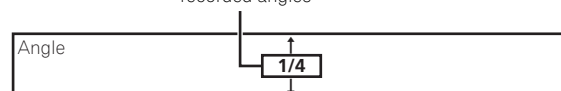
- ▶ Press ▶ **PLAY**.

Switching the camera angles

For BD-ROM and DVD-Video discs on which multiple angles are recorded, the angles can be switched during playback.

- ▶ **During playback, press ANGLE.**
 - The current angle and total number of recorded angles are displayed on the TV screen and on the player's front panel display.
To switch the angles, press **ANGLE** again or press ↑/↓.

Example: Current angle/Total number of recorded angles



- The angles can also be switched by selecting **Angle** from the **TOOLS** menu.
- If the angles are not switched when **ANGLE** is pressed, switch them from the menu screen.

Switching the subtitles

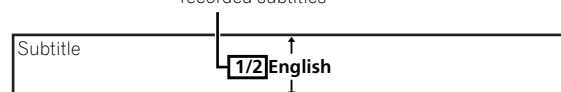
For discs on which multiple subtitles are recorded, the subtitles can be switched during playback.

⚠ Caution

- The subtitles cannot be switched for discs recorded on a DVD or BD recorder. Also refer to the operating instructions of the device used for recording.

- ▶ **During playback, press SUBTITLE.**
 - The current subtitle and total number of recorded subtitles are displayed on the TV screen and on the player's front panel display.
To switch the subtitle, press **SUBTITLE** again or press ↑/↓.

Example: Current subtitle/Total number of recorded subtitles



- The subtitles can also be switched by selecting **Subtitle** from the **TOOLS** menu.
- If the subtitles are not switched when **SUBTITLE** is pressed, switch them from the menu screen.

❖ Turning the subtitles off

- ▶ Press **SUBTITLE**, then press **CLEAR**.

Switching the audio and secondary audio

For discs or files on which multiple audio streams/channels are recorded, audio streams/channels can be switched during playback. Also use this procedure to switch the secondary audio for BD-ROMs on which secondary audio is recorded.

► During playback, press **AUDIO**.

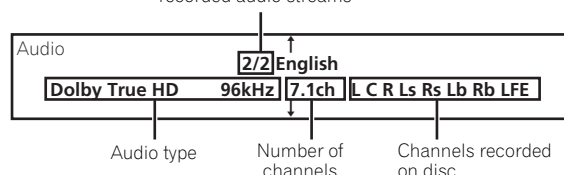
- The current audio and total number of recorded audio streams are displayed on the TV screen and on the player's front panel display.

To switch the audio, press **AUDIO** again or press **↑/↓**.

- To switch the secondary audio, press **SECONDARY AUDIO**.

Example:

Current audio/Total number of recorded audio streams



- The audio/secondary audio can also be switched by selecting **Audio** or **Secondary Audio** from the **TOOLS** menu.
- If the audio/secondary audio is not switched when **AUDIO/SECONDARY AUDIO** is pressed, switch it from the menu screen.

❖ Turning the Secondary Audio off

- Press **SECONDARY AUDIO**, then press **CLEAR**.

Switching the secondary video

Use the procedure below to switch the secondary video (Picture-in-Picture) recorded on the BD-ROM.

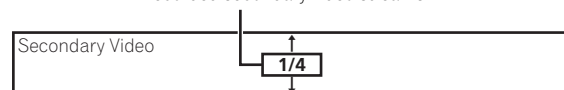
► During playback, press **SECONDARY VIDEO**.

- The current secondary video and total number of recorded secondary video streams are displayed on the TV screen and on the player's front panel display.

To switch the secondary video, press **SECONDARY VIDEO** again or press **↑/↓**.

Example:

Current secondary video/Total number of recorded secondary video streams



- The secondary video can also be switched by selecting **Secondary Video** from the **TOOLS** menu.
- If the secondary video is not switched when **SECONDARY VIDEO** is pressed, switch it from the menu screen.

❖ Turning the Secondary Video off

- Press **SECONDARY VIDEO**, then press **CLEAR**.

Displaying the disc information

► Press **DISPLAY**.

The disc information appears on the TV screen. The information switches each time the button is pressed.

The information display differs during playback and when playback is stopped.

Playback functions

The functions that can be used differ according to the type of disc and file. In some cases, some of the functions cannot be used. Check the usable functions on the table below.

Function ¹	Disc/file type							
	BD-ROM	BD-R /-RE	DVD-Video	DVD-R /-RW (VR format)	AVCHD	Image file	Audio file	Audio CD
Forward and reverse scanning ²	✓ ³	✓ ³	✓ ³	✓ ³	✓ ³	✗	✓ ⁴	✓ ⁴
Playing specific titles, chapters or tracks	✓	✓	✓	✓	✓	✗	✗	✓
Skipping content	✓	✓	✓	✓	✓	✓	✓	✓
Playing in slow motion ^{2,5}	✓	✓	✓	✓	✓	✗	✗	✗
Step forward and step reverse ²	✓	✓	✓	✓	✓	✗	✗	✗
Switching the camera angles ⁶	✓	✗	✓	✗	✗	✗	✗	✗
Switching the subtitles ⁷	✓	✓	✓	✓	✓	✗	✗	✗
Switching the audio ⁸	✓	✓	✓	✓	✓	✗	✗	✓
Switching the secondary audio ⁹	✓ ¹⁰	✗	✗	✗	✗	✗	✗	✗
Switching the secondary video ¹¹	✓ ¹²	✗	✗	✗	✗	✗	✗	✗
Displaying the disc information	✓	✓	✓	✓	✓	✓	✗	✗

1. Some functions may not work for some discs or files, even if indicated [✓] on the table.

2. For some discs, normal playback resumes automatically when the chapter switches.

3. No sound is produced during forward and reverse scanning.

4. Sound is produced during forward and reverse scanning.

5. • No sound is output during slow motion playback.

• It is not possible to switch the speed during reverse slow motion playback.

6. Angle mark  is displayed for scenes at which multiple angles are recorded if **Angle/Secondary Indicator** is set to **On** (page 41).


7. • The types of recorded subtitles depend on the disc and file.

• In some cases the subtitle may switch or the switching screen provided on the disc may be displayed immediately, without the current subtitle or the total number of subtitles recorded on the disc being displayed.

8. The types of recorded audio streams depend on the disc and file.


9. • The types of recorded secondary audio streams depend on the disc and file.

• In some cases the secondary audio may switch or the switching screen provided on the disc may be displayed immediately, without the current secondary audio or the total number of secondary audio streams recorded on the disc being displayed.

• Secondary audio mark  is displayed for scenes at which secondary audio is recorded if **Angle/Secondary Indicator** is set to **On** (page 41).

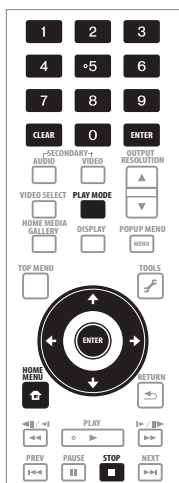
10. Some discs do not include secondary audio.

11. • In some cases the secondary video may switch or the switching screen provided on the disc may be displayed immediately, without the current secondary video or the total number of secondary video streams recorded on the disc being displayed.

• Secondary video mark  is displayed for scenes at which secondary video is recorded if **Angle/Secondary Indicator** is set to **On** (page 41).

12. Some discs do not include secondary video.

Using the Play Mode functions



Playing from a specific time (Time Search)

1 During playback, press PLAY MODE to display the Play Mode screen.

The Play Mode screen can also be displayed by selecting **Play Mode** from the **TOOLS** menu.

2 Select Time Search.

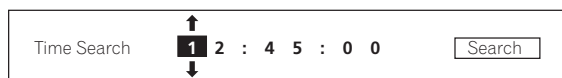
Use \uparrow/\downarrow to select, then press **ENTER**.

3 Input the time.

Use the number buttons (0 to 9) or \uparrow/\downarrow to input the time.

Use \leftarrow/\rightarrow to move the cursor.

- To play from 45 minutes, input **0, 0, 4, 5, 0** and **0**, then press **ENTER**.
- To play from 1 hour 20 minutes, input **0, 1, 2, 0, 0** and **0**, then press **ENTER**.
- Press **CLEAR** to clear the values you have input.



4 Starting playback from the specified time.

Use \leftarrow/\rightarrow to select **Search**, then press **ENTER**.

❖ Closing the Play Mode screen

Press **PLAY MODE** or **HOME MENU**.

Playing a specific title, chapter or track (Search)

1 Press PLAY MODE to display the Play Mode screen.

The Play Mode screen can also be displayed by selecting **Play Mode** from the **TOOLS** menu.

2 Select the type of search.

Use \uparrow/\downarrow to select, then press **ENTER**.

See the table on page 30 for the search types.

3 Input the number.

Use the number buttons (0 to 9) or \uparrow/\downarrow to input the number.

Use \leftarrow/\rightarrow to move the cursor.

- To search for title 32, input **0, 3** and **2**, then press **ENTER**.
- Press **CLEAR** to clear the values you have input.



4 Starting playback from the specified title, chapter or track.

Use \leftarrow/\rightarrow to select **Search**, then press **ENTER**.

Playing a specific section within a title or track repeatedly (A-B Repeat)

Use this procedure to play a specific section within a title or track repeatedly.

1 During playback, press PLAY MODE to display the Play Mode screen.

The Play Mode screen can also be displayed by selecting **Play Mode** from the **TOOLS** menu.

2 Select A-B Repeat.

Use \uparrow/\downarrow to select, then press **ENTER**.

3 Select the starting point for A-B Repeat.

Use \leftarrow/\rightarrow to select **A (Start)**, then press **ENTER**.



4 Select the end point for A-B Repeat.

Use \leftarrow/\rightarrow to select **B (End)**, then press **ENTER**.

A-B Repeat playback starts.

❖ To cancel A-B Repeat play

- Select **Off** from the Repeat/Random screen, then press **ENTER**.
- During playback, press **STOP** or **CLEAR**.

**Note**

- A-B Repeat play is canceled in the following cases:
 - When the angle is switched (for BD-ROM and DVD-Video discs only).
 - When you search outside the repeat range.
 - When you start other Repeat Play or Random Play.

Playing repeatedly (Repeat Play)

Use this procedure to play the currently playing disc, title, chapter, track or file repeatedly.

1 During playback, press **PLAY MODE** to display the **Play Mode** screen.

The Play Mode screen can also be displayed by selecting **Play Mode** from the **TOOLS** menu.

2 Select Repeat/Random.

Use **↑/↓** to select, then press **ENTER**.

3 Select the type of Repeat Play.

Use **↑/↓** to select, then press **ENTER**.

See the table on page 30 for the types of Repeat Play.

❖ To cancel Repeat Play

- Select **Off** from the Repeat/Random screen, then press **ENTER**.
- During playback, press **■ STOP** or **CLEAR**.

**Note**

- The type of repeat modes depends on the disc and file being played. See the table on page 30.
- Repeat Play is canceled in the following cases:
 - When the angle is switched (for BD-ROM and DVD-Video discs only).
 - When you search outside the repeat range.
 - When you start other Repeat Play or Random Play.

Playing in random order (Random Play)

Use this procedure to play the tracks or files in random order.

1 During playback, press **PLAY MODE** to display the **Play Mode** screen.

The Play Mode screen can also be displayed by selecting **Play Mode** from the **TOOLS** menu.

2 Select Repeat/Random.

Use **↑/↓** to select, then press **ENTER**.

3 Select the Random Play.

Use **↑/↓** to select, then press **ENTER**.

❖ To cancel Random Play

- Select **Off** from the Repeat/Random screen, then press **ENTER**.





- During playback, press **■ STOP** or **CLEAR**.

**Note**

- Random Play is canceled in the following cases:
 - When you use the search function.
 - When you start Repeat Play.

About Play Mode types

The functions that can be used differ according to the type of disc and file. In some cases, some of the functions cannot be used. Check the usable functions on the table below.

Play Mode type		Mark ¹	Disc/file type							
			BD-ROM ²	BD-R /-RE	DVD-Video ²	DVD-R /-RW (VR format)	AVCHD	Image file	Audio file	Audio CD
Repeat Play	Playing a specific section within a title or track repeatedly (A-B Repeat)	A-B	✓	✓	✓	✓	✓	✗	✗	✓
	Playing a title repeatedly (Title Repeat)		✓	✓	✓	✓	✓	✗	✗	✗
	Playing a chapter repeatedly (Chapter Repeat)		✓	✓	✓	✓	✓	✗	✗	✗
	Playing a track or file repeatedly (Track Repeat)		✗	✗	✗	✗	✗	✗	✓	✓
	Playing all the titles, tracks or files on the disc repeatedly (All Repeat)		✗	✓	✗	✓ ³	✗	✓ ⁴	✓ ⁵	✓ ⁶
Random Play	Playing the tracks or files in random order (Random Track/File)	RDM	✗	✗	✗	✗	✗	✓	✓	✓
Search	Playing from a specific time (Time Search)	—	✓	✓	✓	✓	✓	✗	✗	✓
	Playing a specific title (Title Search)	—	✓	✓	✓	✓	✓	✗	✗	✗
	Playing a specific chapter (Chapter Search)	—	✓	✓	✓	✓	✓	✗	✗	✗
	Playing a specific track (Track Search)	—	✗	✗	✗	✗	✗	✗	✗	✓

1. The type of Play Mode is indicated by the mark.

2. For BD-ROM and DVD-Video discs, some of the functions cannot be used with some titles.

3. The original titles are played repeatedly. However, the playlist titles cannot be played repeatedly.

4. The files in the folder are played repeatedly.

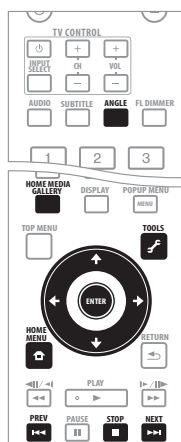
5. The files in the folder or HMG Playlist are played repeatedly.

6. The tracks in the disc or HMG Playlist are played repeatedly.

Playing from the Home Media Gallery

The Home Media Gallery lets you display a list of the titles, tracks or files recorded on the disc. The discs that can be played from the Home Media Gallery are as shown below (see also page 8).

- BD-R/-RE discs
- DVD-R/-RW (VR format) discs
- Audio CDs (CD-DAs and DTS-CDs)
- DVDs/CDs on which only data files of image or audio files, etc. are recorded



Playing discs

1 Press HOME MEDIA GALLERY to display the Home Media Gallery.

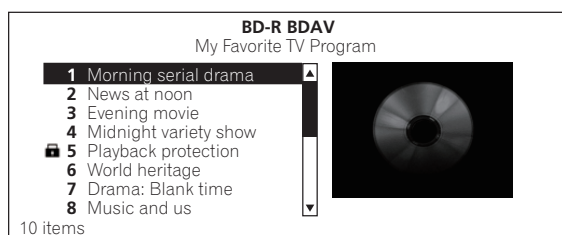
The Home Media Gallery can also be displayed by selecting **Home Media Gallery** from the Home Menu then pressing **ENTER**.

2 Select the disc.

Use **↑/↓** to select, then press **ENTER**.

3 Select the title or track to be played.

Use **↑/↓** to select, then press **ENTER**.



Playback starts.

❖ Closing the Home Media Gallery

Press **HOME MEDIA GALLERY** or **HOME MENU**.

Note

- When playing an audio CD (CD-DA or DTS-CD), the Now Playing screen is displayed.
- Some BD-R/-RE discs have playback protection. To cancel the protection, input the password set for the disc.
- To play DVD-R/-RW (VR format) playlists, switch to the playlist using the **Original/Play List** command on the **TOOLS** menu (page 21).

Playing image files

1 Press HOME MEDIA GALLERY to display the Home Media Gallery.

The Home Media Gallery can also be displayed by selecting **Home Media Gallery** from the Home Menu then pressing **ENTER**.

2 Select the disc.

Use **↑/↓** to select, then press **ENTER**.

3 Select Photos.

Use **↑/↓** to select **Photos**, then press **ENTER**.

4 Select Folders or All Photos.

Use **↑/↓** to select, then press **ENTER**.

- **Folders** – The files in the selected folder are displayed.
- **All Photos** – All the recorded files are displayed.

If you have selected **All Photos**, proceed to step 6.

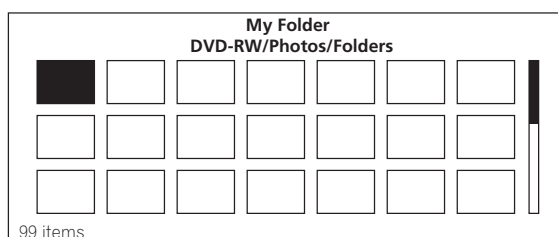
5 Select the folder containing the file you want to play.

Use **↑/↓/←/→** to select, then press **ENTER**.

A list of the files and folders in the selected folder is displayed.

6 Select and set the file you want to play.

Use **↑/↓/←/→** to select, then press **ENTER**.



A slideshow starts from the selected file, and continues until the end of the list is reached. Use **◀◀/▶▶** to display the previous or next file.

❖ About Slideshow

A display of the files on the disc or in the folder that switches automatically.

❖ Rotating images

- ▶ Press **ANGLE** while playing a slideshow.
- The image rotates each time the button is pressed (90° → 180° → 270° → 0° → ...).

The image can also be rotated by selecting **Rotate** from the **TOOLS** menu.

Playing audio files

1 Press HOME MEDIA GALLERY to display the Home Media Gallery.

The Home Media Gallery can also be displayed by selecting **Home Media Gallery** from the Home Menu then pressing **ENTER**.

2 Select the disc.

Use **↑/↓** to select, then press **ENTER**.

3 Select Music.

Use **↑/↓** to select **Music**, then press **ENTER**.

4 Select Folders or All Songs.

Use **↑/↓** to select, then press **ENTER**.

- **Folders** – The files in the selected folder are displayed.
- **All Songs** – All the recorded files are displayed.

If you have selected **All Songs**, proceed to step 6.

5 Select the folder containing the file you want to play.

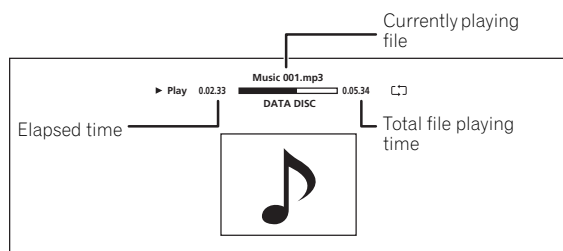
Use **↑/↓** to select, then press **ENTER**.

A list of the files and folders in the selected folder is displayed.

6 Select and set the file you want to play.

Use **↑/↓** to select, then press **ENTER**.

Playback starts from the selected file, and continues until the end of the list is reached. Use **◀◀/▶▶** to play the previous or next file. The Now Playing screen (shown below) is displayed.



Playing in the desired order (HMG Playlist)

The discs that can add tracks and files to the HMG (Home Media Gallery) Playlist are as shown below.

- Audio CDs (CD-DAs and DTS-CDs)
- DVDs/CDs on which audio files are recorded

❖ Adding tracks/files

Use this procedure to add tracks and files, and create the HMG Playlist.

1 Press HOME MEDIA GALLERY to display the Home Media Gallery.

The Home Media Gallery can also be displayed by selecting **Home Media Gallery** from the Home Menu pressing **ENTER**.

2 Select the disc.

Load the disc beforehand.

Use **↑/↓** to select, then press **ENTER**.

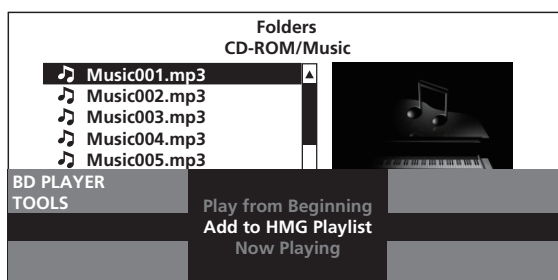
3 Select the track/file to be added.

Use **↑/↓** to select.

4 Press **TOOLS** to display the TOOLS menu.

5 Select Add to HMG Playlist.

Use **↑/↓** to select, then press **ENTER**.



The track or file selected in step 3 is added to the HMG Playlist. To add more tracks or files, repeat steps 3 to 5.

❖ To add the currently playing track/file to the HMG Playlist

1 While the track/file is playing, press **TOOLS** to display the TOOLS menu.

2 Use **↑/↓** to select Add to HMG Playlist, then press **ENTER**.



Note

- A maximum of 24 tracks/files can be added to the HMG Playlist.
- The HMG Playlist is cleared in the following cases:
 - When the power is turned off.
 - When the disc tray is opened.

❖ Playing the HMG Playlist

1 Press HOME MEDIA GALLERY to display the Home Media Gallery.

The Home Media Gallery can also be displayed by selecting **Home Media Gallery** from the Home Menu pressing **ENTER**.

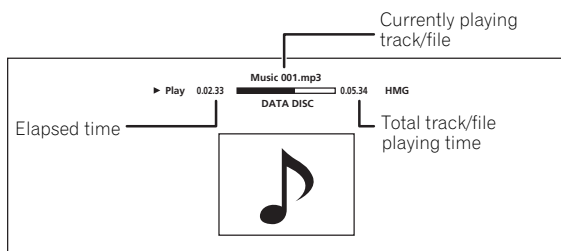
2 Select HMG Playlist.

Use **↑/↓** to select, then press **ENTER**.

3 Select the track/file to be played.

Use **↑/↓** to select, then press **ENTER**.

Playback starts from the selected track/file, and continues until the end of the list is reached. Use **⏮**/**⏭** to play the previous or next track/file. The Now Playing screen (shown below) is displayed.



❖ Deleting tracks/files from the HMG Playlist

1 Select the track/file to be deleted, then press

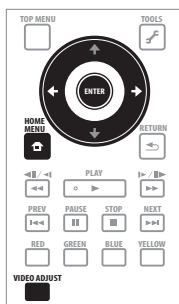
⚙ **TOOLS** to display the **TOOLS** menu.

2 Use **↑/↓** to select Delete from HMG Playlist, then press **ENTER**.

Adjusting audio and video

Adjusting the video

The quality of the playback picture can be adjusted according to the TV you are using.



1 During playback, press VIDEO ADJUST to display the Video Adjust screen.

The Video Adjust screen can also be displayed by selecting **Video Adjust** from the **TOOLS** menu.

2 Select a preset.

Select using **←/→** according to the TV being used.



- **Pioneer PDP** – Select this when connected to a Pioneer plasma TV.
- **Pioneer LCD** – Select this when connected to a Pioneer liquid crystal display TV.
- **Pioneer Projector** – Select this when connected to a Pioneer front projector.
- **PDP** – Select this when connected to a plasma TV of another brand.
- **LCD** – Select this when connected to a liquid crystal display of another brand.
- **Projector** – Select this when connected to a front projector of another brand.
- **Professional** – With this setting, video signal processing is restrained. Select this when connected to a professional monitor.
- **Memory1 to 3** – Picture quality settings with adjusted parameters can be stored in the memory. For a description of the parameters, see *When Memory1, 2 or 3 is selected* below.

❖ When Memory1, 2 or 3 is selected

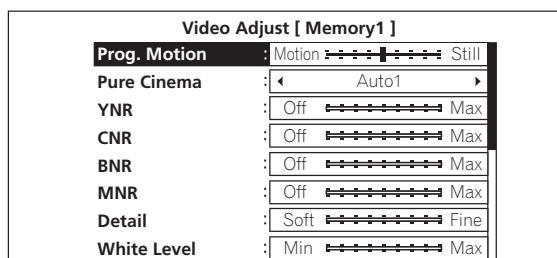
1 Select Adjustments.

Use **↓** to select **Adjustments**, then press **ENTER**.

A detailed settings screen appears.

2 Select the item to be adjusted.

Use **↑/↓** to select.



3 Adjust the picture quality.

When **←/→** are pressed, the adjustments can be made viewing the picture. The detailed settings screen reappears when **ENTER** is pressed.



- **Prog.Motion** – Adjust according to the type of image (moving or still image). This is effective mainly when outputting video materials as progressive images.
- **Pure Cinema** – This setting optimizes the operation of the progressive scanning circuit for playing film materials. Normally set it to **Auto1**. If the picture seems unnatural, switch this to **Auto 2**, **On** or **Off** (page 35).
- **YNR** – Reduces noise in the luminance (Y) signal.
- **CNR** – Reduces noise in the chroma (C) signal.
- **BNR** – Reduces the block noise (block-shaped distortion generated upon MPEG compression).
- **MNR** – Reduces the mosquito noise (distortion along the contours of the picture generated upon MPEG compression).
- **Detail** – Adjusts the picture's contours.
- **White Level** – Adjusts the level of the white portions.
- **Black Level** – Adjusts the level of the black portions.
- **Black Setup** – Select the black level as the setup level. Normally select **7.5 IRE**. If the black level is too bright due to the combination with the connected TV, select **0 IRE**.
- **Gamma Correction** – Adjusts how the dark portions of the picture look.
- **Hue** – Adjusts the balance between green and red.
- **Chroma Level** – Adjusts the density of the colors.



Note

- **Prog.Motion** and **Pure Cinema** have the effect only for pictures recorded in the interlaced scan format (480i or 1080i signals).

- **Prog.Motion** is disabled when **Pure Cinema** is set to **On**.
- **Black Setup** has the effect only for pictures output from the **VIDEO** output terminals.
- **YNR, CNR, BNR** and **MNR** have no effect on 1080/24p video signals output from the **HDMI OUT** terminal.

❖ Closing the Video Adjust screen

Press **HOME MENU**.

❖ About Pure Cinema

There are two types of video signals:

- **Video material** – Video signals recorded at 30 frames/second
- **Film material** – Video signals recorded at 24 frames/second

“Pure Cinema” uses signal processing suited for “film material” when converting 480i or 1080i interlaced video signals into progressive video signals, resulting in clear picture reproduction without losing the quality of the material.

is displayed on the disc information screen when playing the “film material” pictures of BD-ROM, BD-R/-RE and DVD-Video discs (page 26).

Adjusting the audio



Adjusting the Audio DRC

Audio DRC (Dynamic Range Control) has the effect of playing loud sounds softly and soft sounds loudly. Adjust the setting for example when viewing movies late at night and the dialogs are difficult to hear.

1 During playback, display the **TOOLS** menu.

Press **TOOLS**.

2 Select and set **Audio Adjust**.

Use to select, then press **ENTER**.

3 Select and set **Audio DRC**.

Use to select, then press **ENTER**.

4 Adjust the setting.

Use to switch between **Off**, **Low**, **Medium**, **High** and **Auto**.

❖ Closing the Audio DRC screen

Press **ENTER** or **HOME MENU**.

Note

- This only affects the Dolby TrueHD, Dolby Digital Plus and Dolby Digital audio signals of BDs and DVDs.
- When **Auto** is selected, the setting has the same effect as **High** or **Off** for Dolby TrueHD signals, depending on the content. For Dolby Digital Plus and Dolby Digital, the setting has the same effect as **Off**.
- Audio DRC affects the audio signals output from the following audio output terminals:
 - Analog audio signals output from the **AUDIO OUT** terminals.
 - Linear PCM audio signals output from the **DIGITAL OUT** terminal or **HDMI OUT** terminal.
- The effect may be weak for some discs.

Adjusting the output level of the different speakers during BD/DVD playback (Channel Level)

Caution

- **Channel Level** of the speakers set to **None** or **No** at **Speaker Setup** cannot be adjusted (page 42).

1 During playback, display the **TOOLS** menu.

Press **TOOLS**.

2 Select and set **Audio Adjust**.

Use to select, then press **ENTER**.

3 Select and set **Channel Level**.

Use to select, then press **ENTER**.

4 Adjust the output level.

Use to select, to adjust.

The output levels of the **L**, **C**, **R**, **SL**, **SR**, **SBL**, **SBR** and **SW** speakers can be adjusted within the range of -6.0 dB to $+6.0$ dB.

L	◀ 0.0 dB ▶
C	0.0 dB
R	0.0 dB
SR	0.0 dB
SBR	0.0 dB
SBL	0.0 dB
SL	0.0 dB
SW	0.0 dB

5 Press **ENTER** to set.

Note

- The adjustment of **Channel Level** is only applicable to the sound output from **AUDIO OUT**.
- This cannot be adjusted when in the following cases:
 - **Output Terminal** is set to **HDMI** or **DIGITAL AUDIO** (page 46).
 - **Audio Output Mode** is set to **2 Channel** (page 38).

– **Channel Level** is set to **Fix** (page 38).

❖ Closing the Channel Level screen

Press  **HOME MENU**.



Adjusting the audio delay (Lip Sync)

Adjust the audio delay for the selected video output terminal if the video and audio are not synchronized.



1 During playback, display the **TOOLS** menu.

Press  **TOOLS**.



2 Select and set **Audio Adjust**.

Use / to select, then press **ENTER**.

3 Select and set **Lip Sync**.

Use / to select, then press **ENTER**.




4 Select **Auto** or **Manual**.

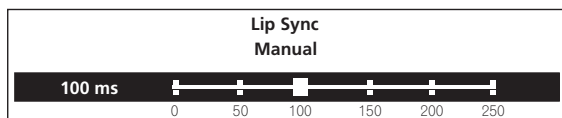
Use / to select.

- **Auto** – The player automatically adjusts the timing of the video and audio when connected to a device equipped with the HDMI Auto Lipsync Correction feature using an HDMI cable.
- **Manual** – Adjust manually while viewing the video.

If you have selected **Manual**, proceed to step 5.

5 Adjusting the amount of audio delay.

Press , then use / to adjust.



The audio delay can be adjusted from 0 to 250 ms in steps of 5 ms.



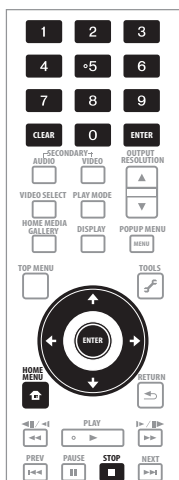
Note

- The **Lip Sync** adjustment is only applicable to the output terminal set at **Output Terminal** (page 46).
- The sound may be interrupted while setting the delay.

❖ Closing the Lip Sync screen

Press **ENTER** or  **HOME MENU**.

Changing the settings



Operating the Initial Setup screen

1 When playback is stopped, display the Home Menu screen.

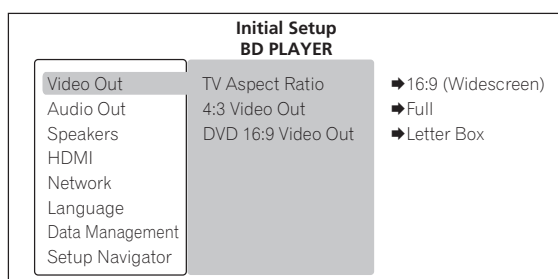
Press **HOME MENU**.

2 Select and set Initial Setup.

Use / to select, then press **ENTER**.

3 Select the item and change the setting.

Use /// to select, then press **ENTER**.



❖ Closing the Initial Setup screen

Press **HOME MENU**.



Note

- Items that cannot be changed are indicated in gray. The items that can be selected depend on the player's status.
- In Options, the factory default settings are indicated in bold.

Setting	Options	Explanation
Video Out	16:9 (Widescreen)	Select this when connected to a wide (16:9) TV.
	4:3 (Standard)	Select this when connected to a conventional TV.
4:3 Video Out	Full	4:3 pictures are displayed over the entire screen.
	Normal	4:3 pictures are displayed with vertical black bars along the sides. Select this when you cannot switch the aspect ratio to 4:3 on the TV.
4:3 Video Out is only valid when TV Aspect Ratio is set to 16:9 (Widescreen) .		
DVD 16:9 Video Out	Letter Box	16:9 pictures are displayed with black bars at the top and bottom when viewing on a 4:3 screen.
	Pan & Scan	The picture is displayed over the entire screen, with the left and right sides of the 16:9 picture cropped. Select this to view 4:3 pictures over the entire screen. For some discs, the picture will be displayed in the Letter Box mode even if Pan & Scan is set.
<ul style="list-style-type: none"> • DVD 16:9 Video Out is only valid when TV Aspect Ratio is set to 4:3 (Standard). • DVD 16:9 Video Out is only valid when playing 16:9 pictures of DVD-Video or DVD-R/-RW (VR format) discs. When other 16:9 pictures are played, they are output in the Letter Box mode. 		

Setting		Options	Explanation
Audio Out	Dolby Digital Out * Only valid for the DIGITAL OUT terminal.	Dolby Digital 1	Dolby Digital audio signals are output. With BD-ROMs, the secondary audio and interactive audio are mixed for output.
		Dolby Digital 2	Dolby Digital audio signals are output. With BD-ROMs, the signals are output without mixing the secondary audio and interactive audio signals.
		Dolby Digital → PCM	Select this when the connected AV receiver or amplifier, etc., is not compatible with Dolby Digital audio signals. The Dolby Digital audio signals are converted into linear PCM audio signals for output.
	DTS Out * Only valid for the DIGITAL OUT terminal.	DTS 1	DTS Digital Surround audio signals are output. With BD-ROMs, the secondary audio and interactive audio are mixed for output.
		DTS 2	DTS Digital Surround audio signals are output. With BD-ROMs, the signals are output without mixing the secondary audio and interactive audio signals.
		DTS → PCM	Select this when the connected AV receiver or amplifier, etc., is not compatible with DTS Digital Surround audio signals. The DTS Digital Surround audio signals are converted into linear PCM audio signals for output.
	AAC Out * Only valid for the DIGITAL OUT terminal.	AAC	Select this when the connected AV receiver or amplifier, etc., is compatible with AAC audio signals. The AAC audio signals are output.
		AAC → PCM	Select this when the connected AV receiver or amplifier, etc., is not compatible with AAC audio signals. The AAC audio signals are converted into linear PCM audio signals for output.
	DTS Downmix	Stereo	DTS-HD Master Audio signals, DTS-HD High Resolution Audio signals or DTS Digital Surround audio signals converted to linear PCM audio signals are converted into 2-channel (stereo) signals for output.
		Lt/Rt	DTS-HD Master Audio signals, DTS-HD High Resolution Audio signals or DTS Digital Surround audio signals converted to linear PCM audio signals are converted into 2-channel signals compatible with Dolby Surround for output (when the connected AV receiver or amplifier, etc., is compatible with Dolby Pro Logic, the AV receiver or amplifier outputs the linear PCM audio signals as surround audio signals).
Speakers	Audio Output Mode * Only valid for the AUDIO OUT terminals.	2 Channel	Select this when the TV's analog 2-channel (stereo) audio input terminals are connected to the player's AUDIO OUT terminals.
		Multi-channel	Select this when the multi-channel audio input terminals of an AV receiver or amplifier, etc., are connected to the player's AUDIO OUT terminals.
	Speaker Setup * Only valid for the AUDIO OUT terminals.	When an AV receiver or amplifier, etc., is connected to the player's AUDIO OUT terminals, set whether or not speakers are connected to an AV receiver or amplifier, etc., their size and their crossover frequency. For details, see <i>Changing the speaker setup</i> on page 42.	
	Speaker Distance * Only valid for the AUDIO OUT terminals.	Specify the distance of your speakers from your listening position (page 42).	
	Channel Level	Fix	The output for the various speakers is set to the maximum.
	* Only valid for the AUDIO OUT terminals.	Variable	The output level of the various speakers is set within the range of -6.0 dB to +6.0 dB (in 0.5 dB steps) (page 42).

Setting	Options	Explanation
HDMI	HDMI High Speed Transmission On	Select this when connected with a High Speed HDMI™ cable (page 14).
	Off	Select this when connected with a Standard HDMI™ cable (page 14).
The player's setting screen is closed if the output video resolution is switched by changing the HDMI High Speed Transmission setting.		
HDMI Color Space	Auto	Select this to automatically switch the video output between YCbCr and RGB signals according to the connected equipment.
	YCbCr 4:4:4	Select this to output the video signals as YCbCr 4:4:4 signals.
	YCbCr 4:2:2	Select this to output the video signals as YCbCr 4:2:2 signals.
	RGB (16 to 235)	Select this to output the video signals as RGB signals. Choose this if the colors seem too dense and all the dark colors are displayed in a uniform black when RGB (0 to 255) is selected.
	RGB (0 to 255)	Select this to output the video signals as RGB signals. Choose this if the colors seem too faint and the black seems too bright when RGB (16 to 235) is selected.
Normally it is recommended to set this to Auto . When set to Auto , the optimum video signals for your TV are output.		
HDMI Audio Out	Auto	The signals are output with as many audio channels as possible. In cases when the number of channels does not decrease when the signals are output as such without converting them to linear PCM, they are output as such (page 47).
	PCM	Select this when you want the secondary audio and interactive audio signals to be mixed for output or when you want to output prioritizing sampling frequency over the number of channels (page 47).
	Off	Select this when you do not want to output the audio from the HDMI output terminal.
KURO LINK	On	Select this to control the player with the remote control of the AV device connected using an HDMI cable. Also refer to <i>About KURO LINK function</i> on page 15.
	Off	Select this when you do not want to control the player with the remote control of the AV device connected using an HDMI cable.
Display Power On * Only valid when KURO LINK is set to On .	On	Select this when you want the TV to turn on each time playback is started or the Home Menu or Home Media Gallery is displayed on the player.
	Off	Select this when you do not want the TV to turn on each time playback is started or the Home Menu or Home Media Gallery is displayed on the player.
Display Power Off * Only valid when KURO LINK is set to On .	On	Select this when you want the player's power to turn off together with the TV's power.
	Off	Select this when you do not want the player's power to turn off together with the TV's power.
PQLS * Only valid when KURO LINK is set to On .	Auto	Enables PQLS function (page 15).
	Off	Disables PQLS function (page 15).
Network	IP Address	Select this to set the IP address of the player and DNS server (page 43).
	Proxy Server	Only set the proxy server if so instructed by your Internet service provider (page 43).
	Display Network Configuration	Select this to display a list of the network settings (page 44).
	Connection Test	Select this to test the network connection (page 44).

	Setting	Options	Explanation
Language	OSD Language	English	Select this to set the language of the on-screen displays to English.
		available languages	Choose a language for the on-screen displays from the listed languages.
	Audio Language * For some discs, it may not be possible to change to the selected language.	English	Select this to set both the BD-ROM and DVD-Video default audio language to English.
		available languages	Choose a language from the listed languages to set the default audio language for BD-ROM and DVD-Video playback.
		Other	Continue to the next screen to set the default audio language for BD-ROM and DVD-Video playback. You can select the language name or enter the code number (see on page 49 for the code table).
	If a language not recorded on the BD/DVD is set, one of the recorded languages is automatically selected and played.		
	Subtitle Language * For some discs, it may not be possible to change to the selected language.	English	Select this to set the default subtitle language for BD-ROM and DVD-Video playback to English.
		available languages	Choose a language from the listed languages to set the default subtitle language for BD-ROM and DVD-Video playback.
		Other	Continue to the next screen to set the default subtitle language for BD-ROM and DVD-Video playback. You can select the language name or enter the code number (see on page 49 for the code table).
	If a language not recorded on the BD/DVD is set, one of the recorded languages is automatically selected and played.		
BDMV/DVD-Video Menu Lang. * For some discs, it may not be possible to change to the selected language.	w/Subtitle Language	Sets the language of BD-ROM and DVD-Video menus to the same as that set for the subtitle language.	
	available languages	Choose a language from the listed languages to set the default language for BD-ROM and DVD-Video menus.	
	Other	Continue to the next screen to set the default menu language for BD-ROM and DVD-Video menus. You can select the language name or enter the code number (see on page 49 for the code table).	
If a language not recorded on the BD/DVD is set, one of the recorded languages is automatically selected and played.			
Subtitle Display	On	Select this to display the subtitles.	
	Off	Select this if you do not want to display the subtitles. Note that on some discs the subtitles are displayed by force.	
Data Management	Individual/Shared Data Erase	Use this to display the list of data used for the BD-LIVE and BONUSVIEW functions and to erase the data (page 44).	
	Remove the disc from the disc tray when changing the setting.		
	Application Data Erase	Use this to erase bookmarks, high scores of games and other data (page 44).	
	Remove the disc from the disc tray when changing the setting.		
	Storage Format	Select this to format the storage device on which the data used by the BD-LIVE and BONUSVIEW functions is stored (page 44).	
	Remove the disc from the disc tray when changing the setting.		
Setup Navigator	Start making the settings using the Setup Navigator menu. For details, see <i>Making settings using the Setup Navigator menu</i> on page 19.		

Setting	Options	Explanation
Playback	Still Picture	Field This eliminates instability of the picture when playback is paused.
		Frame This makes pictures clear when playback is paused, but instability may be observed.
		Auto Field or Frame is switched automatically according to the disc or file being played.
	Angle/Secondary Indicator	On Select this to display the angle mark, secondary video mark and secondary audio mark on the TV screen (pages 25 and 26).
		Off Select this if you do not want to display the angle mark, secondary video mark and secondary audio mark on the TV screen.
	Hybrid Disc Playback	BD The BD layer of hybrid discs with two or more layers (BD and DVD or CD) is played.
		DVD The DVD layer of hybrid discs with two or more layers (BD and DVD) is played. If there is no DVD layer, the BD layer is played.
		CD The CD layer of hybrid discs with two or more layers (BD and CD) is played. If there is no CD layer, the BD layer is played.
	Remove the disc from the disc tray when changing the setting.	
	BDMV/BDAV Playback Priority	BDMV Select this to play the BDMV format on BD-R/-RE discs containing both BDMV and BDAV formats.
	BDAV Select this to play the BDAV format on BD-R/-RE discs containing both BDMV and BDAV formats.	
Remove the disc from the disc tray when changing the setting.		
Parental Lock	Set Password (Change Password)	Register (change) the password for parental lock settings or for unlocking to play DVD-Video with parental lock feature (page 45).
	DVD-Video Parental Lock	Change the player's parental lock level (page 45).
	BDMV Parental Lock	Change the restricted age (page 45).
	Country Code	Change the Country/Area code (page 45).
Options	Output Terminal	Set the terminals from which the player's video and audio signals are to be output (page 46).
	On Screen Display	On Select this to display the operation indicators (Play, Stop, etc.) on the TV screen.
		Off Select this if you do not want to display the operation indicators (Play, Stop, etc.) on the TV screen.
	Screen Saver	On The screen saver is automatically activated if there is no operation for over 1 minute after playback is stopped or paused. The screen saver is automatically activated if there is no operation for over 1 minute after the Home Menu or Home Media Gallery is displayed while playing a BD or DVD. With audio CDs and audio files, the screen saver is automatically activated if no button is operated for over 1 minute, even while the audio CD or audio file is playing. The screen saver turns off when an operation is performed on the player or remote control.
		Off The screen saver is not activated.
	Auto Power Off	On Select this to turn the power off automatically (the power turns off automatically if no operation is performed for over 30 minutes).
		Off Select this if you do not want the power to turn off automatically.
Software Update	The Software Update function can check for and download updated system software from the network server (page 46).	

❖ Changing the speaker setup

Set whether or not speakers are connected to an AV receiver or amplifier, etc., their size and their crossover frequency. This setting is only valid for the **AUDIO OUT** terminals.

When there are no speakers whose speaker size is set to **Small**, select **Bypass** for the crossover frequency.

When there are speakers whose speaker size is set to **Small**, select the crossover frequency (**Bypass** cannot be selected).

⚠ Caution

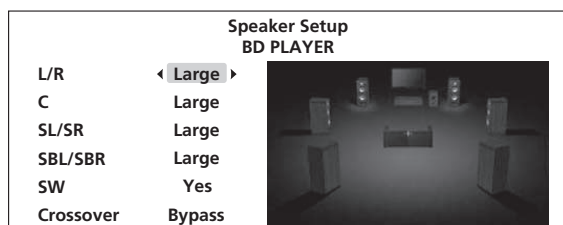
- The **Speaker Setup** cannot be selected when **Audio Output Mode** is set to **2 Channel**. Change the setting to **Multi-channel** (page 38).

1 Select and set Speakers → Speaker Setup → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Select the speaker and change the setting.

Use **↑/↓** to select, then use **←/→** to change the setting.



- L/R** (front left and right speakers): **Large/Small**
- C** (center speaker): **Large/Small/None**
- SL/SR** (left and right surround speakers): **Large/Small/None**
- SBL/SBR** (left and right surround back speakers): **Large/Small/None**
- SW** (subwoofer): **Yes/No**
- Crossover**: **Bypass/50 Hz/80 Hz/100 Hz/150 Hz**

📝 Note

- Depending on the combination of settings of the different speakers, the settings of speakers other than the one you have changed may also change automatically.
- When a subwoofer with a filter bypass function is connected and there is no speaker whose speaker size is set to **Small**, if the subwoofer's filter is set to be bypassed, the player's high precision digital filter is used. In this case, set the crossover frequency to something other than **Bypass**.
- Upon purchase, the crossover frequency is set to **Bypass**.

❖ Adjusting the distance of the different speakers

Adjust the distance between you and the different speakers. This setting is only valid for the **AUDIO OUT** terminals.

⚠ Caution

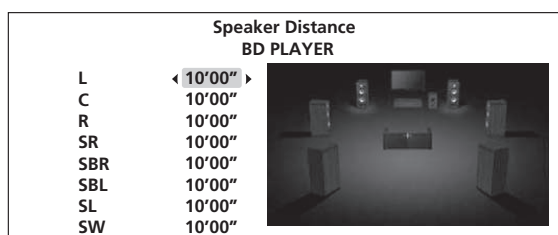
- This cannot be selected when **Audio Output Mode** is set to **2 Channel**. Change the setting to **Multi-channel** (page 38).
- Speaker Distance** of the speakers set to **None** or **No** at **Speaker Setup** cannot be adjusted (above).

1 Select and set Speakers → Speaker Distance → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Select the speaker and adjust the distance.

Use **↑/↓** to select, then use **←/→** to adjust.



- The distance of all the speakers can be set to between 1 inch and 45 feet, in units of 1 inch.

❖ Adjusting the output level of the different speakers (Channel Level)

Adjust each output level of the different speakers by using test tones. This setting is only valid for the **AUDIO OUT** terminals.

⚠ Caution

- This cannot be selected when **Audio Output Mode** is set to **2 Channel**. Change the setting to **Multi-channel** (page 38).
- Channel Level** of the speakers set to **None** or **No** at **Speaker Setup** cannot be adjusted (above).
- Test tones are output. Lower the volume of the device connected to the player.

1 Select and set Speakers → Channel Level, then Fix or Variable.

Use **↑/↓** to select, then press **ENTER**.

- Fix** – The output level of all the speakers is set to the maximum.
- Variable** – The output level of all the speakers is set 6.0 dB lower than when **Fix** is selected. From this point, the output levels of the **L**, **C**, **R**, **SL**, **SR**, **SBL**, **SBR** and **SW** speakers can be adjusted within the range of -6.0 dB to +6.0 dB.

If you have selected **Variable**, proceed to step 2.

2 Select and set the method for switching the speaker to be adjusted.


Use \leftarrow/\rightarrow to select, then press **ENTER**.

- **Auto** – Switch the speaker to be adjusted automatically.
- **Manual** – Switch the speaker to be adjusted manually.

3 Adjust the output level.

Use \uparrow/\downarrow to select, \leftarrow/\rightarrow to adjust.

Channel Level BD PLAYER	
L	◀ 0.0 dB ▶
C	0.0 dB
R	0.0 dB
SR	0.0 dB
SBR	0.0 dB
SBL	0.0 dB
SL	0.0 dB
SW	0.0 dB



Note

- You can also adjust while listening to the sound being played (page 35).
- The volume of the test tones output from the subwoofer may seem lower than the tones output from the other channels. Adjust the subwoofer based on the sound during playback (page 35).
- When **Auto** is selected, the speaker cannot be selected with \uparrow/\downarrow . In this case, test tones are not output from the subwoofer.

❖ Setting the IP address

1 Select and set Network → IP Address → Next Screen.

Use \uparrow/\downarrow to select, then press **ENTER**.

2 Set IP address.

Use $\uparrow/\downarrow/\leftarrow/\rightarrow$ to set the IP address of the player or DNS server, then press **ENTER**.

Network BD PLAYER	
IP Address	
Auto Set IP Address	◀ Off ▶
IP Address	<input type="text"/>
Subnet Mask	<input type="text"/>
Default Gateway	<input type="text"/>
Auto Set DNS Server Address	Off
DNS Server (Primary)	<input type="text"/>
DNS Server (Secondary)	<input type="text"/>

• Auto Set IP Address

On – The player's IP address is obtained automatically. Select this when using a broadband router or broadband modem that has a DHCP (Dynamic Host Configuration Protocol) server function. This player's IP address will automatically be allocated from the DHCP server.

Off – The player's IP address must be set manually. Use the number buttons (0 to 9) to input the IP address, subnet mask and default gateway.

• Auto Set DNS Server Address

On – The DNS server's IP address is obtained automatically.

Off – The DNS server's IP address must be set manually. Use the number buttons (0 to 9) to input the DNS server's IP address stipulated by your Internet service provider.

Note

- When **Auto Set IP Address** is set to **Off**, **Auto Set DNS Server Address** is also set to **Off**.
- For information on DHCP server function, refer to the network device's operating instructions.
- You may need to contact your Internet service provider or network administrator when inputting the IP address manually.

❖ Setting the proxy server

Only set the proxy server if so instructed by your Internet service provider.

1 Select and set Network → Proxy Server → Next Screen.

Use \uparrow/\downarrow to select, then press **ENTER**.

2 Select and set Use or Not use at Proxy Server.

Use \leftarrow/\rightarrow to change, then press \downarrow .

Network BD PLAYER	
Proxy Server	
Proxy Server	◀ Use ▶
Server Select Method	<input type="text"/>
Server Name	<input type="text"/>
Port Number	<input type="text"/>

- **Use** – Select this when using a proxy server.
- **Not use** – Select this when not using a proxy server.

If you have selected **Use**, proceed to step 3.

3 Select and set Server Select Method.

Use \leftarrow/\rightarrow to change, then press \downarrow .

- **IP Address** – Input the IP address.
- **Server Name** – Input the server name.

4 Input IP Address or Server Name.

Use the number buttons (0 to 9) to input the number if you select IP address by step 3. Use \leftarrow/\rightarrow to move the cursor. Use the number buttons (0 to 9) to input characters if you select Server Name by step 3.

The characters that can be input for the server name are listed on the table below. Pressing a button repeatedly cycles through the characters shown.

- If you want to enter two characters in succession that are both on the same button (for example a **P** and an **R**), press **➡** after inputting the first character then input the second character.
- Use **CLEAR** to delete the last character.
- Use **⬅/➡** to move the displayed characters when all the input characters cannot be displayed.

Key	Characters	Key	Characters
1	1 . -	6	m n o 6
2	a b c 2	7	p q r s 7
3	d e f 3	8	t u v 8
4	g h i 4	9	w x y z 9
5	j k l 5	0	0

5 Input Port Number.

Press **↓**, use the number buttons (0 to 9) to input the number.

6 Press ENTER to set.

❖ Displaying the network settings

▶ **Select and set Network → Display Network Configuration → Next Screen.**

Use **↑/↓** to select, then press **ENTER**.

The MAC address, IP address, subnet mask, default gateway and DNS server (primary and secondary) settings are displayed.

When **Auto Set IP Address** is set to **On**, the values obtained automatically are displayed.

Note

- "0.0.0.0" is displayed when each IP address has not been set.

❖ Testing the network connection

▶ **Select and set Network → Connection Test → Start.**

Use **↑/↓** to select, then press **ENTER**.

"Network connection test completed successfully." is displayed once the test is completed. If any other message is displayed, check the connections and/or settings (pages 18 and 43).

❖ Changing to other language at language setting

1 Select and set Language.

Use **↑/↓** to select, then press **ENTER**.

2 Select and set Audio Language, Subtitle Language or BDMV/DVD-Video Menu Lang.

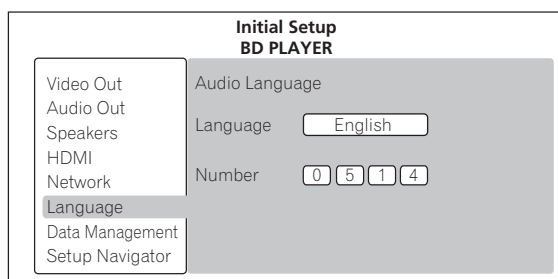
Use **↑/↓** to select, then press **ENTER**.

3 Select and set Other.

Use **↑/↓** to select, then press **ENTER**.

4 Change the language.

Use **⬅/➡** to change, then press **ENTER**.



- The language can also be changed using the number buttons. Use **↑/↓** to move the cursor to **Number**, use the number buttons (0 to 9) to input the number, then press **ENTER**. Refer to *Language Code Table and Country/Area Code Table* on page 49.

Note

- If a language not recorded on the BD/DVD is set, one of the recorded languages is automatically selected and played.

❖ Erasing data that has been added to BDs and application data

Use this procedure to erase data that has been added to BDs (data downloaded with the BD-LIVE function and data used with the BONUSVIEW function) and application data.

Caution

- Some time is required to erase the data.
- Do not unplug the power cord while data is being erased.
- This operation does not work when a disc is loaded.

1 Select and set Data Management.

Use **↑/↓** to select, then press **ENTER**.

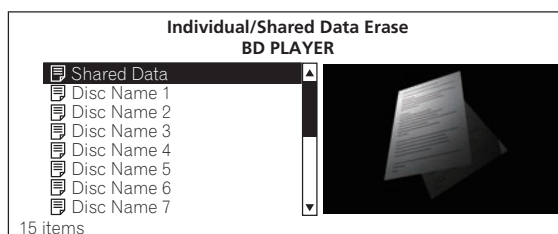
2 Select and set the erase menu.

Use **↑/↓** to select, then press **ENTER**.

• Individual/Shared Data Erase

Use this procedure to select and erase data downloaded with the BD-LIVE function and data used with the BONUSVIEW function (page 9).

Select **Next Screen**, then press **ENTER**. The list screen appears.



When a disc name is selected, the data downloaded with the BD-LIVE function and data used with the BONUSVIEW is erased.

When **Shared Data** is selected, all the data downloaded with the BD-LIVE function and not associated to discs is erased.

Use **↑/↓** to select the data to be erased, then press **ENTER**.

- **Application Data Erase**

Use this procedure to erase BD-ROM application data (high scores of games, bookmarks data, etc.).

Select **Start**, then press **ENTER**.

- **Storage Format**

Use this procedure to format the storage in which the data downloaded with the BD-LIVE function and data used with the BONUSVIEW function is stored (page 9).

When this is done, all the data on the external storage device is erased.

Select **Start**, then press **ENTER**.

3 Select Yes, then press ENTER.

Use **←/→** to select, then press **ENTER**.

❖ Registering or Changing the password

Use this procedure to register or change the code number required for the Parental Lock settings.

1 Select and set Parental Lock → Set Password → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Input the password.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.

3 Re-input the password.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.

- To change the password, input the previously registered password, then input the new password.



Note

- We recommend making a note of the password.
- If you forget the password, reset the player to the factory default setting, then register the password again (page 46).

❖ Changing the Parental Lock level for viewing DVDs

Some DVD-Video discs containing scenes of violence, for example, have Parental Lock levels (check the indications on the disc's jacket or elsewhere). To restrict viewing these discs, set the player's level to the level lower than the discs.

1 Select and set Parental Lock → DVD-Video Parental Lock → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Input the password.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.

3 Change the level.

Use **←/→** to change, then press **ENTER** to set.



Note

- The level can be set to **Off** or between **Level1** and **Level8**. When set to **Off**, viewing is not restricted.

❖ Changing the Age Restriction for viewing BD-ROMs

For BD-ROMs containing scenes of violence, for example, viewing can be restricted by setting an age restriction for the BD-ROMs.

1 Select and set Parental Lock → BDMV Parental Lock → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Input the password.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.

3 Change the age.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.



Note

- When **Age Restriction** is set to **255**, viewing is not restricted.

❖ Changing the Country/Area code

1 Select and set Parental Lock → Country Code → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Input the password.

Use the number buttons (0 to 9) or **↑/↓** to input the number, then press **ENTER** to set.

Use **←/→** to move the cursor.

3 Change the country/area code.

Use **←/→** to change, then press **ENTER** to set.

- The the country/area code can also be changed using the number buttons. Use **↑/↓** to move the cursor to **Number**, use the number buttons (0 to 9) to input the number, then press **ENTER**. Refer to *Language Code Table and Country/Area Code Table* on page 49.

❖ Setting the output terminals

Set the terminals from which the player's video and audio signals are to be output.

1 Select and set Options → Output Terminal → Next Screen.

Use **↑/↓** to select, then press **ENTER**.

2 Select and set the video and audio output terminals.

Select the actually connected video and audio output terminals.

Use **↑/↓/←/→** to select, then press **ENTER**.

For details on the settings, refer to step 4 on page 19.

When **COMPONENT** or **VIDEO** is selected for **Video**, no sound is output from the **HDMI OUT** terminal (a warning message is displayed).

Software updating

The software of the player can be updated by connecting it to the Internet using a LAN cable.

Before updating the software, make sure that you have connected the player to the network and made the necessary settings (pages 18 and 43).



Caution

- Do not unplug the power cord during software updating. Otherwise, the updating will be aborted and malfunction may occur with the player.
- There are two processes for software updating, downloading and updating. Both processes may take a certain period of time.
- Depending on the Internet connection conditions, downloading may take a long time.
- Other operations are defeated during software updating. Furthermore updating process cannot be canceled.
- When the front panel display is off, turn it on with **FL DIMMER**. When updating the player's software with the front panel display off, do not unplug the power cord until the **FL OFF** indicator turns off.



Note

- Steps **1** to **4** are the operations performed by the user (they are intended to download the software from the Internet).
- Steps **5** to **7** are the operations performed (automatically) by the player (they are intended to update the software).

1 When playback is stopped, display the Home Menu screen.

Press **HOME MENU**.

2 Select and set Initial Setup.

Use **↑/↓** to select, then press **ENTER**.

3 Select and set Options → Software Update → Start.

Use **↑/↓** to select, then press **ENTER**.

- If the player is already running the latest software, the message "The player's software is up to date and does not need updating." is displayed.

4 Select and set Yes.

Use **←/→** to select **Yes**, then press **ENTER**.

- The help menu is displayed if the player cannot connect to the Internet. Check the connections and settings (pages 18 and 43).

5 Downloading of the software start.

The software download status is displayed on the screen.

- Depending on the Internet connection conditions, software downloading may take a certain period of time.

6 Updating starts.

The front panel display shows messages such as "DATA CHECK", "WRT SYS1", "WRT DRV" and "WRT FLC".

- Software updating may take a certain period of time.

7 Updating completes.

The front panel display shows "DOWNLOAD OK" and the player turns off automatically.

Restoring all the settings to the factory default settings

1 Check that the player's power is turned on.

2 When a disc is playing, press **■** to stop playback.

Eject the disc from the player.

3 While pressing **■**, press **○** **STANDBY/ON**.

Operate using the buttons on the player's front panel.



Note

- After restoring all the settings to the factory default settings, use **Setup Navigator** to reset the player (page 19).
- When all the settings are restored to the factory defaults, all the data for the secondary video (Picture-in-Picture), secondary audio, bookmarks, etc., is erased.

About the audio output settings

The audio signals that are output differ according to the audio format recorded on the disc and the player's settings. Check on the table below.

Caution

- When **ANALOG AUDIO** is selected at **Output Terminal**, no audio signals are output from the **HDMI OUT** terminal or **DIGITAL OUT** terminal (pages 19 and 46).
- When **HDMI** or **DIGITAL AUDIO** is selected at **Output Terminal**, linear PCM audio signals (2 channels) are output from all terminals other than the ones selected at **Output Terminal** (pages 19 and 46).
- The output from all terminals other than the ones selected for **Audio** does not sound as intended by the content provider.

Audio format		AUDIO OUT terminals		DIGITAL OUT terminal		HDMI OUT terminal	
		2ch ¹	Multi-channel ¹	Converted to linear PCM audio ²	Not converted to linear PCM audio ³	PCM ⁴	Auto ⁴
BD-ROM	Dolby Digital		5.1-channel audio			5.1-channel audio	Dolby Digital ^{6,7}
	Dolby Digital Plus		7.1-channel audio		Dolby Digital ⁵	7.1-channel audio	Dolby Digital Plus ^{6,7}
	Dolby TrueHD					7.1-channel audio ⁸	Dolby TrueHD ^{6,7,9}
	DTS Digital Surround	Converted to 2-channel audio	7.1-channel audio	Converted to 2-channel audio		7.1-channel audio	DTS Digital Surround ^{6,10}
	DTS-HD High Resolution Audio				DTS Digital Surround ⁵	7.1-channel audio ⁸	DTS-HD High Resolution Audio ^{6,8,10}
	DTS-HD Master Audio		7.1-channel audio				DTS-HD Master Audio ^{6,10,11}
	Linear PCM				Converted to 2-channel audio	7.1-channel audio ⁸	
BD-R/-RE	Dolby Digital	Converted to 2-channel audio	5.1-channel audio	Converted to 2-channel audio	Dolby Digital	5.1-channel audio	Dolby Digital ⁷
	MPEG-2 AAC				MPEG-2 AAC		MPEG-2 AAC
	MPEG						
	Linear PCM				2-channel audio		
DVD-Video	Dolby Digital	Converted to 2-channel audio	5.1-channel audio	Converted to 2-channel audio	Dolby Digital	5.1-channel audio	Dolby Digital ⁷
	DTS Digital Surround				DTS Digital Surround		DTS Digital Surround ¹⁰
	MPEG						
	Linear PCM				2-channel audio		
DVD-R/-RW (VR format)	Dolby Digital	Converted to 2-channel audio	5.1-channel audio	Converted to 2-channel audio	Dolby Digital	5.1-channel audio	Dolby Digital ⁷
	MPEG						
	Linear PCM				2-channel audio		

- When **Audio Output Mode** is set to **2 Channel** or **Multi-channel** (page 38).
- When **Dolby Digital Out** is set to **Dolby Digital → PCM**, **DTS Out** is set to **DTS → PCM**, or **AAC Out** is set to **AAC → PCM** (page 38).
- When **Dolby Digital Out** is set to **Dolby Digital 1/Dolby Digital 2**, **DTS Out** is set to **DTS 1/DTS 2** or **AAC Out** is set to **AAC** (page 38).
- When **HDMI Audio Out** is set to **PCM** or **Auto** (page 39).
- When outputting Dolby Digital or DTS Digital Surround bitstream with **Dolby Digital Out** set to **Dolby Digital 2** and **DTS Out** set to **DTS 2**, the secondary audio and interactive audio signals are not mixed for output.
- When outputting the bitstream of Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS Digital, DTS-HD Master Audio, DTS-HD High Resolution Audio or DTS Digital Surround, the secondary audio and interactive audio signals are not mixed for output.
- If the connected HDMI device is not compatible with Dolby TrueHD or Dolby Digital Plus bitstream, the signals are output in linear PCM (7.1 channels) or Dolby Digital bitstream.
If the connected HDMI device is not compatible with Dolby Digital bitstream, the signals are output in linear PCM (2 channels).
- When the output video resolution is set to 480i or 480p, the signals may be output in linear PCM (2 channels), depending on **HDMI High Speed Transmission** setting and/or the connected HDMI device (page 14).

9. When the output video resolution is set to 480i or 480p, the signals may be output in linear PCM (2 channels) or Dolby Digital bitstream, depending on **HDMI High Speed Transmission** setting and/or the connected HDMI device (page 14).
10. If the connected HDMI device is not compatible with DTS-HD Master Audio or DTS-HD High Resolution Audio, the signals are output in linear PCM (7.1 channels) or DTS Digital Surround bitstream.
If the connected HDMI device is not compatible with DTS Digital Surround bitstream, the signals are output in linear PCM (2 channels).
11. When the output video resolution is set to 480i or 480p, the signals may be output in linear PCM (2 channels) or DTS Digital Surround, depending on **HDMI High Speed Transmission** setting and/or the connected HDMI device.

**Note**

- Only compatible with 7.1-channel surround back. 6.1-channel surround back is output in 7.1 channels. In other cases, output as audio signals of 5.1-channels or less.
- When outputting linear PCM audio signals, if the number of compatible channels of the connected HDMI device is lower, the signals are output with the number of channels for which the device is compatible.
- The audio signals output from the **DIGITAL OUT** terminal have a sampling frequency of 48 kHz (44.1 kHz for audio CDs).

Language Code Table and Country/Area Code Table

06

❖ Language Code Table

Language name, language code, input code

Abkhazian, **ab/abk**, 0102
 Afar, **aa/aar**, 0101
 Afrikaans, **af/af**, 0106
 Albanian, **sq/sqi**, 1917
 Amharic, **am/amh**, 0113
 Arabic, **ar/ara**, 0118
 Armenian, **hy/hye**, 0825
 Assamese, **as/asm**, 0119
 Aymara, **ay/aym**, 0125
 Azerbaijani, **az/aze**, 0126
 Bashkir, **ba/bak**, 0201
 Basque, **eu/eus**, 0521
 Belarusian, **be/bel**, 0205
 Bengali, **bn/ben**, 0214
 Bihari, **bh/bih**, 0208
 Bislama, **bi/bis**, 0209
 Breton, **br/bre**, 0218
 Bulgarian, **bg/bul**, 0207
 Burmese, **my/mya**, 1325
 Catalan, **ca/cat**, 0301
 Central Khmer, **km/khm**, 1113
 Chinese, **zh/zho**, 2608
 Corsican, **co/cos**, 0315
 Croatian, **hr/hrv**, 0818
 Czech, **cs/ces**, 0319
 Danish, **da/dan**, 0401
 Dutch, **nl/nld**, 1412
 Dzongkha, **dz/dzo**, 0426
 English, **en/eng**, 0514
 Esperanto, **eo/epo**, 0515
 Estonian, **et/est**, 0520
 Finnish, **fi/fin**, 0609
 Fijian, **fj/fij**, 0610
 Faroese, **fo/fao**, 0615
 French, **fr/fra**, 0618
 Galician, **gl/glg**, 0712
 Georgian, **ka/kat**, 1101
 German, **de/deu**, 0405
 Greek, **el/ell**, 0512
 Guarani, **gn/grn**, 0714
 Gujarati, **gu/guj**, 0721
 Hausa, **ha/hau**, 0801
 Hebrew, **iw/heb**, 0923
 Hindi, **hi/hin**, 0809
 Hungarian, **hu/hun**, 0821
 Icelandic, **is/isl**, 0919
 Indonesian, **in/ind**, 0914
 Interlingua, **ia/ina**, 0901
 Interlingue, **ie/ile**, 0905
 Inupiaq, **ik/ikp**, 0911
 Irish, **ga/gle**, 0701
 Italian, **it/ita**, 0920
 Japanese, **ja/jpn**, 1001
 Javanese, **jw/jav**, 1023
 Kalaallisut, **kl/kal**, 1112
 Kannada, **kn/kan**, 1114
 Kashmiri, **ks/kas**, 1119
 Kazakh, **kk/kaz**, 1111
 Kinyarwanda, **rw/kin**, 1823
 Kirghiz, **ky/kir**, 1125
 Korean, **ko/kor**, 1115
 Kurdish, **ku/kur**, 1121
 Lao, **lo/lao**, 1215
 Latin, **la/lat**, 1201
 Latvian, **lv/lav**, 1222
 Lingala, **ln/lin**, 1214
 Lithuanian, **lt/lit**, 1220
 Macedonian, **mk/mkd**, 1311

Malagasy, **mg/mlg**, 1307
 Malay, **ms/msa**, 1319
 Malayalam, **ml/mal**, 1312
 Maltese, **mt/mlt**, 1320
 Maori, **mi/mri**, 1309
 Marathi, **mr/mar**, 1318
 Mongolian, **mn/mon**, 1314
 Moldavian, **mo/mol**, 1315
 Nauru, **na/nau**, 1401
 Nepali, **ne/nep**, 1405
 Norwegian, **no/nor**, 1415
 Occitan, **oc/oci**, 1503
 Oriya, **or/ori**, 1518
 Oromo, **om/orm**, 1513
 Panjabi, **pa/pan**, 1601
 Persian, **fa/fas**, 0601
 Polish, **pl/pol**, 1612
 Portuguese, **pt/por**, 1620
 Pushto, **ps/pus**, 1619
 Quechua, **qu/que**, 1721
 Romanian, **ro/ron**, 1815
 Romansch, **rm/roh**, 1813
 Rundi, **rn/run**, 1814
 Russian, **ru/rus**, 1821
 Samoan, **sm/smo**, 1913
 Sango, **sg/sag**, 1907
 Sanskrit, **sa/san**, 1901
 Scottish Gaelic, **gd/gla**, 0704
 Serbian, **sr/srp**, 1918
 Serbo-Croatian, **sh/---**, 1908
 Shona, **sn/sna**, 1914
 Sindhi, **sd/snd**, 1904
 Sinhalese, **si/sin**, 1909
 Slovak, **sk/slk**, 1911
 Slovenian, **sl/slv**, 1912
 Somali, **so/som**, 1915
 Sotho, Southern, **st/sot**, 1920
 Spanish, **es/spa**, 0519
 Sundanese, **su/sun**, 1921
 Swahili, **sw/swa**, 1923
 Swati, **ss/ssw**, 1919
 Swedish, **sv/swe**, 1922
 Tagalog, **tl/tgl**, 2012
 Tajik, **tg/tgk**, 2007
 Tamil, **ta/tam**, 2001
 Tatar, **tt/tat**, 2020
 Telugu, **te/tel**, 2005
 Thai, **th/tha**, 2008
 Tibetan, **bo/bod**, 0215
 Tigrinya, **ti/tir**, 2009
 Tonga (Tonga Islands), **to/ton**, 2015
 Tsonga, **ts/tso**, 2019
 Tswana, **tn/tsn**, 2014
 Turkmen, **tk/tuk**, 2011
 Turkish, **tr/tur**, 2018
 Twi, **tw/twi**, 2023
 Ukrainian, **uk/ukr**, 2111
 Urdu, **ur/urd**, 2118
 Uzbek, **uz/uzb**, 2126
 Vietnamese, **vi/vie**, 2209
 Volapük, **vo/vol**, 2215
 Welsh, **cy/cym**, 0325
 Western Frisian, **fy/fry**, 0625
 Wolof, **wo/wol**, 2315
 Xhosa, **xh/xho**, 2408
 Yiddish, **ji/yid**, 1009
 Yoruba, **yo/yor**, 2515
 Zulu, **zu/zul**, 2621

❖ Country/Area Code Table

Country/Area name, Country/Area code, input code

Anguilla, **ai**, 0109
 Antigua and Barbuda, **ag**, 0107
 Argentina, **ar**, 0118
 Armenia, **am**, 0113
 Australia, **au**, 0121
 Austria, **at**, 0120
 Azerbaijan, **az**, 0126
 Bahamas, **bs**, 0219
 Barbados, **bb**, 0202
 Belarus, **by**, 0225
 Belgium, **be**, 0205
 Belize, **bz**, 0226
 Bermuda, **bm**, 0213
 Brazil, **br**, 0218
 Bulgaria, **bg**, 0207
 Canada, **ca**, 0301
 Cayman Islands, **ky**, 1125
 Chile, **cl**, 0312
 China, **cn**, 0314
 Colombia, **co**, 0315
 Croatia, **hr**, 0818
 Cyprus, **cy**, 0325
 Czech Republic, **cz**, 0326
 Denmark, **dk**, 0411
 Dominica, **dm**, 0413
 Dominican Republic, **do**, 0415
 Estonia, **ee**, 0505
 Finland, **fi**, 0609
 France, **fr**, 0618
 Georgia, **ge**, 0705
 Germany, **de**, 0405
 Greece, **gr**, 0718
 Greenland, **gl**, 0712
 Grenada, **gd**, 0704
 Guyana, **gy**, 0725
 Haiti, **ht**, 0820
 Hong Kong, **hk**, 0811
 Hungary, **hu**, 0821
 Iceland, **is**, 0919
 India, **in**, 0914
 Indonesia, **id**, 0904
 Ireland, **ie**, 0905
 Israel, **il**, 0912
 Italy, **it**, 0920
 Jamaica, **jm**, 1013
 Japan, **jp**, 1016
 Kazakhstan, **kz**, 1126
 Korea, Republic of, **kr**, 1118
 Kyrgyzstan, **kg**, 1107
 Latvia, **lv**, 1222
 Liechtenstein, **li**, 1209
 Lithuania, **lt**, 1220

Luxembourg, **lu**, 1221
 Macedonia, the Former Yugoslav Republic of, **mk**, 1311
 Malaysia, **my**, 1325
 Malta, **mt**, 1320
 Mexico, **mx**, 1324
 Moldova, Republic of, **md**, 1304
 Monaco, **mc**, 1303
 Montserrat, **ms**, 1319
 Netherlands, **nl**, 1412
 New Zealand, **nz**, 1426
 Norway, **no**, 1415
 Pakistan, **pk**, 1611
 Peru, **pe**, 1605
 Philippines, **ph**, 1608
 Poland, **pl**, 1612
 Portugal, **pt**, 1620
 Puerto Rico, **pr**, 1618
 Romania, **ro**, 1815
 Russian Federation, **ru**, 1821
 Saint Kitts and Nevis, **kn**, 1114
 Saint Lucia, **lc**, 1203
 Saint Vincent and the Grenadines, **vc**, 2203
 San Marino, **sm**, 1913
 Singapore, **sg**, 1907
 Slovakia, **sk**, 1911
 Slovenia, **si**, 1909
 Spain, **es**, 0519
 Suriname, **sr**, 1918
 Sweden, **se**, 1905
 Switzerland, **ch**, 0308
 Taiwan, Province of China, **tw**, 2023
 Tajikistan, **tj**, 2010
 Thailand, **th**, 2008
 Trinidad and Tobago, **tt**, 2020
 Tunisia, **tn**, 2014
 Turkey, **tr**, 2018
 Turkmenistan, **tm**, 2013
 Turks and Caicos Islands, **tc**, 2003
 Ukraine, **ua**, 2101
 United Kingdom, **gb**, 0702
 United States, **us**, 2119
 Uruguay, **uy**, 2125
 Uzbekistan, **uz**, 2126
 Venezuela, **ve**, 2205
 Virgin Islands, British, **vg**, 2207

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❖ libjpeg

The Independent JPEG Group's JPEG software

README for release 6b of 27-Mar-1998

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This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group. IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION ROADMAP

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.

LEGAL ISSUES Copyright, lack of warranty, terms of distribution.

REFERENCES Where to learn more about JPEG.

ARCHIVE LOCATIONS Where to find newer versions of this software.

RELATED SOFTWARE Other stuff you should get.

FILE FORMAT WARS Software "not" to get.

TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.doc How to configure and install the IJG software.

usage.doc Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.

*.1 Unix-style man pages for programs (same info as usage.doc).

wizard.doc Advanced usage instructions for JPEG wizards only.

change.log Version-to-version change highlights.

Programmer and internal documentation:

libjpeg.doc How to use the JPEG library in your own programs.

example.c Sample code for calling the JPEG library.

structure.doc Overview of the JPEG library's internal structure.

filelist.doc Road map of IJG files.

codersules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image compression and decompression. JPEG

(pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is

intended for compressing real-world scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not

exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However,

on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can

tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings

aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion

between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color

quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped

file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a

particular application. We have also included jpegtran, a utility for lossless transcoding between different JPEG

processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in

JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast

enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the

REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength

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It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce uncompressed GIFs. This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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REFERENCES

We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is

Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.

(Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <http://ftp.uu.net/graphics/jpeg/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in The Data Compression Book by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead: it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging \$95 for Part 1 and \$47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T.T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T.T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T.T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <http://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain

text version at <http://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <http://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <http://ftp.sgi.com/graphics/tiff/>.

ARCHIVE LOCATIONS

The "official" archive site for this software is ftp.uu.net (Internet address 192.48.96.9). The most recent released version can always be found there in directory `graphics/jpeg`. This particular version will be archived as [ftp://ftp.uu.net/graphics/jpeg/pegrsrc.v6b.tar.gz](http://ftp.uu.net/graphics/jpeg/pegrsrc.v6b.tar.gz). If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way. Numerous Internet sites maintain copies of the UUNET files. However, only ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (<http://ftp.simtel.net/pub/simtelnet/msdos/graphics/>), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 JPEG Tools. Again, these versions may sometimes lag behind the ftp.uu.net release. The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups `comp.graphics.misc`, `news.answers`, and other groups. It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other `news.answers` archive sites, including the official `news.answers` archive at rtfm.mit.edu:ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/. If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

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RELATED SOFTWARE

Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making `cjpeg/djpeg` considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably <http://warchive.wustl.edu/graphics/graphics/packages/NetPBM/>. Unfortunately PBMPPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from <http://havefun.stanford.edu/pub/jpeg/>. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS

Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At

this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions -- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

◆ libupnp

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Cautions on use

Moving the player

If you need to move this unit, first remove the disc if there's one loaded, and close the disc tray. Next, press **⏻ STANDBY/ON** to switch the power to standby, checking that the **POWER OFF** indication on the front panel display goes off. Wait at least 10 seconds. Lastly, disconnect the power cord.

Never lift or move the unit during playback — discs rotate at a high speed and may be damaged.

Place of installation

Select a stable place near the TV and AV system to which the unit is connected.

Do not place the player on top of a TV or color monitor. Keep it away from cassette decks or other components easily affected by magnetism.

Avoid the following types of places:

- Places exposed to direct sunlight
- Humid or poorly ventilated places
- Extremely hot or cold places
- Places subject to vibration
- Dusty places
- Places exposed to soot, steam or heat (in kitchens, etc.)

❖ Do not place objects on top

Do not place objects on top of the player.

❖ Do not obstruct the ventilation holes

Do not use the player on a shaggy rug, bed, or sofa, and do not cover the player with a cloth, etc. Doing so will prevent heat dissipation and could lead to damage.

❖ Keep away from heat

Do not place the player on top of an amplifier or other device generating heat. When installing in a rack, to avoid the heat generated by the amplifier and other devices, place it on a shelf below the amplifier whenever possible.

Turn the power off when not using the player

Depending on the conditions of the TV broadcast signals, striped patterns may appear on the screen when the TV is turned on while the player's power is turned on. This is not a malfunction with the player or TV. If this happens, turn the player's power off. In the same way, noise may be heard in the sound of a radio.

Condensation

If the player is moved suddenly from a cold place into a warm room (in winter, for example) or if the temperature in the room in which the player is installed rises suddenly due to a heater, etc., water droplets (condensation) may form inside (on operating parts and the lens). When condensation is present, the player will not operate properly and playback is not possible. Let the player stand at room temperature for 1 or 2 hours with the power turned on (the time depends on the extent of condensation). The water droplets will dissipate and playback will become possible.

Condensation can also occur in the summer if the player is exposed to the direct wind from an air-conditioner. If this happens, move the player to a different place.

Cleaning the player

Normally, wipe the player with a soft cloth. For tough dirt, apply some neutral detergent diluted in 5 to 6 parts water to a soft cloth, wring out thoroughly, wipe off the dirt, then wipe again with a dry cloth.

Note that getting alcohol, thinner, benzene or insecticide on the player could cause the print and coating to peel off. Also, avoid leaving rubber or vinyl products in contact with the player for long periods of time, as this could damage the cabinet.

When using chemical-impregnated wipes, etc., read the wipe's cautions carefully.

Unplug the power cord from the power outlet when cleaning the player.

Caution for when the unit is installed in a rack with a glass door

Do not press the **▲ OPEN/CLOSE** on the remote control to open the disc tray while the glass door is closed. The door will hamper the movement of the disc tray, and the unit could be damaged.

Cleaning the pickup lens

The player's lens should not become dirty in normal use, but if for some reason it should malfunction due to dust or dirt, consult your nearest Pioneer authorized service center. Although lens cleaners for players are commercially available, we advise against using them since some may damage the lens.

Handling discs

Do not use damaged (cracked or warped) discs.

Do not scratch the disc's signal surface or let it get dirty.

Do not load more than one disc into the player at a time.

Do not glue paper or put stickers onto the disc, or use a pencil, ball-point pen or other sharp-tipped writing instrument. These could all damage the disc.



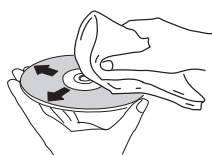
❖ Storing discs

Always store discs in their cases, and place the cases vertically, avoiding places exposed to high temperature or humidity, direct sunlight or extremely low temperatures.

Be sure to read the cautions included with the disc.

❖ Cleaning discs

It may not be possible to play the disc if there are fingerprints or dust on it. In this case, using a cleaning cloth, etc., to wipe the disc gently from the center toward the outer edge. Do not use a dirty cleaning cloth.



Do not use benzene, thinner or other volatile chemicals. Also do not use record spray or antistatic agents.

For tough dirt, apply some water to a soft cloth, wring out thoroughly, wipe off the dirt, then wipe off the moisture with a dry cloth.

❖ Specially shaped discs

Specially shaped discs (heart-shaped, hexagonal, etc.) cannot be used on this player. Never use such discs, as they will damage the player.



❖ Condensation on discs

If the disc is moved suddenly from a cold place into a warm room (in winter, for example), water droplets (condensation) may form on the disc surface. Discs will not play properly if there is condensation on them. Carefully wipe off the water droplets from the disc surface before using the disc.

Troubleshooting

Incorrect operation is often mistaken for trouble or malfunction. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Inspect the other components and electrical appliances being used. If the trouble cannot be rectified after checking the items below, please contact customer services. In the US, call Toll Free (800) 421-1404. (Telephone lines are open Monday through Friday 6:00 AM to 4:30 PM (Pacific Time).) In Canada, call Local (905) 479-4411, or Long distance +1(877) 283-5901. (Telephone lines are open Monday through Friday 9:00 AM to 5:30 PM (EST).)

Playback

Problem	Check	Remedy
<ul style="list-style-type: none"> • Disc does not play. • Disc tray opens automatically. 	Is the disc one that is playable on this player?	Check whether the disc is one that can be played on this player (page 8).
	Is the file one that is playable on this player?	<ul style="list-style-type: none"> • Check whether the file is one that can be played on this player (page 10). • Check whether or not the file is damaged.
	Is the disc scratched?	It may not be possible to play scratched discs.
	Is the disc dirty?	Clean the disc (above).
	Is there a piece of paper or sticker attached to the disc?	The disc may be warped and unplayable.
	Is the disc properly set in the disc tray?	<ul style="list-style-type: none"> • Set the disc with the printed side facing up. • Set the disc properly in the depression in the disc tray.
	Is the region number correct?	See <i>About region numbers</i> on page 10 for the region numbers of discs that can be played on this player.

Problem	Check	Remedy
No picture is displayed or the picture is not displayed properly.	Is the video cable properly connected?	<ul style="list-style-type: none"> • Connect the cable properly according to the connected devices (page 14). • Insert the cable firmly and all the way in.
	Is the video cable damaged?	If the cable is damaged, replace it with a new one.
	Is the input setting on the connected TV or AV receiver or amplifier right?	Read the operating instructions of the connected components and switch to the proper input.
	Are you viewing the picture from the video output terminal selected with VIDEO SELECT ?	Press VIDEO SELECT to switch the video output terminal to be viewed (page 22).
	Is the output video resolution properly set?	Use OUTPUT RESOLUTION to switch to a resolution at which the video and audio signals are output (page 22).
	<ul style="list-style-type: none"> • Is the player connected with an HDMI cable other than a High Speed HDMI™ cable (with a Standard HDMI™ cable)? • Are you using an HDMI cable with built-in equalizer? 	1080p or Deep Color video signals may not be output properly, depending on the HDMI cable being used or the player's settings. Press ■ while pressing ▶ on the player's front panel to restore the video outputs to the factory default settings. After this, if you wish to output the video signals with 1080p or Deep Color, connect the TV using a High Speed HDMI™ cable without built-in equalizer, then reset the player using the Setup Navigator (page 19).
	Is a DVI device connected?	The picture may not be displayed properly if a DVI device is connected.
	Is HDMI Color Space properly set?	Change the HDMI Color Space setting (page 39).
	Picture freezes and the front panel and remote control buttons stop working.	<ul style="list-style-type: none"> • Press ■ STOP to stop playback, then restart playback. • If the playback cannot be stopped, press ⏻ STANDBY/ON on the player's front panel to turn off the power, then turn the power back on. • If the power cannot be turned off, press and hold ⏻ STANDBY/ON on the player's front panel for over 5 seconds. The power will turn off.
Motion is unnatural or picture is not clear.		Change the Pure Cinema setting (page 34).
No picture is displayed or picture is not output in high definition when playing BDs.		With some discs, it may not be possible to output the video signals from the VIDEO output terminal or the COMPONENT VIDEO output terminals. In this case, connect using an HDMI cable (page 14).
<ul style="list-style-type: none"> • Picture is disturbed during playback. • Picture is dark. 		<ul style="list-style-type: none"> • This player supports Macrovision analog copy protection technology. With some TVs (such as with built-in video deck), the picture will not be displayed properly when the copy protected DVD title is played. This is not a malfunction. • If the player and TV are connected via a DVD recorder/video deck, etc., the picture will not be displayed properly due to analog copy protection. Connect the player and TV directly.
<ul style="list-style-type: none"> • Picture is stretched. • Picture is cropped. • Aspect ratio cannot be switched. 	Is the TV's aspect ratio properly set?	Read the TV's operating instructions and set the TV's aspect ratio properly.
	Is TV Aspect Ratio properly set?	Set TV Aspect Ratio properly (page 37).
	Is 4:3 Video Out properly set?	Set 4:3 Video Out properly (page 37).
	Is DVD 16:9 Video Out properly set?	Set DVD 16:9 Video Out properly (page 37).
		When video signals with a resolution of 1080/24p, 1080/60i, 1080/60p or 720/60p are being output from the HDMI OUT terminal or the COMPONENT VIDEO output terminals, they may be output with an aspect ratio of 16:9 even if TV Aspect Ratio is set to 4:3 (Standard) (page 37).
Picture is interrupted.		The picture may be interrupted when the resolution of the recorded video signal switches. Press OUTPUT RESOLUTION to select a setting other than Auto or Source Direct (page 22).
The subtitles cannot be switched.		The subtitles cannot be switched for discs recorded on a DVD or BD recorder.

Problem	Check	Remedy
Sound and picture are not synchronized. • No sound is output. • Sound is not output properly.	Is Output Terminal properly set?	Set Output Terminal properly (pages 19 and 46).
	Is Lip Sync properly set?	Adjust the amount of audio delay with the Lip Sync setting (page 36).
	Is the disc played back in slow motion?	No sound is output during slow motion play and forward and reverse scanning.
	Is the disc played back in fast forward or fast reverse?	
	Are the audio cables properly connected?	<ul style="list-style-type: none"> Connect the cable properly according to the connected devices (page 14). Insert the cable firmly and all the way in.
	Is the audio cable damaged?	If the cable is damaged, replace it with a new one.
	Are the connected components (AV receiver or amplifier, etc.) properly set?	Read the operating instructions of the connected components and check the volume, input, speaker settings, etc.
	Are you trying to listen to the sound of the HDMI OUT terminal while watching the picture from the COMPONENT VIDEO or VIDEO output terminals?	Audio signals are not output from the HDMI OUT terminal when video signals are being output from the COMPONENT VIDEO or VIDEO output terminals. When watching the picture of the COMPONENT VIDEO or VIDEO output terminals, connect an optical digital audio cable or regular audio cables to listen to the sound (page 16). Once connections are completed, use Setup Navigator to make the player's settings (page 19).
	Is HDMI Audio Out properly set?	Set HDMI Audio Out to Auto or PCM . (page 39).
	Is Output Terminal properly set?	When ANALOG AUDIO is selected at Output Terminal , no audio signals are output from the HDMI OUT or DIGITAL OUT terminal (page 46).
	Is the output video resolution properly set?	Use OUTPUT RESOLUTION to switch to the resolution at which the video and audio signals are output (page 22).
	Is the AV receiver or amplifier, etc., connected to the AUDIO OUT terminals?	To listen to 2-channel analog audio, connect to FRONT (L/R) of the AUDIO OUT terminals (page 13) and set Audio Output Mode to 2 Channel (page 38).
	Are the speakers properly set?	When the AV receiver or amplifier, etc., is connected to the AUDIO OUT terminals and Audio Output Mode is set to Multi-channel , set Speaker Setup properly (page 42).
	Is a DVI device connected?	The sound will not be output from the HDMI OUT terminal if a DVI device is connected. Connect the device to a DIGITAL OUT terminal or the AUDIO OUT terminals (page 16).
Multi-channel sound is not output.	Are you playing a DTS-CD?	To output the sound of DTS-CDs from the HDMI OUT terminal, set HDMI Audio Out to PCM (page 39).
		For some BDs, audio signals are only output from DIGITAL OUT terminal or the HDMI OUT terminal.
	Is Output Terminal properly set?	Linear PCM (2-channel) audio signals are output from output terminals other than the one set at Output Terminal under Audio Out . Set Output Terminal properly (page 46).
	Is the audio output of the connected AV receiver or amplifier, etc., properly set?	Read the operating instructions of the connected AV receiver or amplifier and check the audio output settings of AV receiver or amplifier.
	Is multi-channel sound selected?	Use the menu screen or AUDIO to switch the disc's sound to multi-channel.
	Is the AV receiver or amplifier, etc., connected to the AUDIO OUT terminals?	When the AV receiver or amplifier, etc., is connected to the AUDIO OUT terminals, set Audio Output Mode to Multi-channel (page 38). Also, set Speaker Setup properly (page 42).
Noise can be heard when outputting DTS Digital Surround signals from the DIGITAL OUT terminal.	Is the connected AV receiver or amplifier compatible with DTS Digital Surround?	If an AV receiver or amplifier that is not compatible with DTS Digital Surround is connected to the DIGITAL OUT terminal, set DTS Out to DTS → PCM (page 38).

Problem	Check	Remedy
192 kHz or 96 kHz digital audio signals cannot be output from the DIGITAL OUT terminal.		It is not possible to output 192 kHz or 96 kHz digital audio signals from this player's DIGITAL OUT terminal. The signals are automatically converted to 48 kHz or less for output.
Secondary audio or interactive audio is not output.	Is HDMI Audio Out properly set?	When listening to the sound from an HDMI OUT terminal, set HDMI Audio Out to PCM (page 39).
	Are Dolby Digital Out and DTS Out properly set?	When listening to the sound from an DIGITAL OUT terminal, set Dolby Digital Out to Dolby Digital 1 , DTS Out to DTS 1 (page 38).
Sound is fast or slow.	When an HDMI cable is connected, are audio signals being output from devices connected with cables other than HDMI cables?	When a Pioneer AV receiver or amplifier compatible with the PQLS function is connected directly to the player's HDMI OUT terminal using an HDMI cable, the PQLS function is activated when playing an audio CD (CD-DA). Because of this, the sound output from components other than the ones connected by HDMI cable may be fast or slow. If this happens, set PQLS to Off (page 39).
After a disc is inserted, Loading stays displayed and playback does not start.	Are there too many files recorded on the disc?	When a disc on which files are recorded is inserted, depending on the number of files recorded on the disc, loading may take several dozen minutes.
■ is displayed in file names, etc.		The characters that cannot be displayed on this player are displayed in ■.
A message indicating low memory appears while playing a BD-ROM disc.		<ul style="list-style-type: none"> • Perform Individual/Shared Data Erase or Storage Format (page 44). • Perform Application Data Erase (page 44).
The DVD layer of BD and DVD hybrid discs cannot be played.	Is Hybrid Disc Playback properly set?	Set Hybrid Disc Playback to DVD (page 41).
The CD layer of BD and CD hybrid discs cannot be played.	Is Hybrid Disc Playback properly set?	Set Hybrid Disc Playback to CD (page 41).
The BDMV format on BD-R/-RE discs cannot be played.		To play the BDMV format on BD-R/-RE discs containing both BDMV and BDAV formats, set BDMV/BD-RE Playback Priority to BDMV (page 41).

Problem	Check	Remedy
KURO LINK function does not work.	Is the HDMI cable properly connected?	To use the KURO LINK function, connect the Flat Panel TV and AV system (AV receiver or amplifier, etc.) to the HDMI OUT terminal (page 16).
	Is the HDMI cable you are using a High Speed HDMI™ cable?	Use a High Speed HDMI™ cable. The KURO LINK function may not work properly if HDMI cable other than a High Speed HDMI™ cable is used.
	Are you connected to the TV using an HDMI cable to watch the picture?	If video signals are being output from a terminal other than the HDMI OUT terminal, the KURO LINK function does not work. Connect to the TV using an HDMI cable and press VIDEO SELECT to switch to the HDMI OUT terminal (pages 16 and 22).
	Is KURO LINK set to On on the player?	Set KURO LINK to On on the player (page 39).
	Does the connected device support the KURO LINK function?	<ul style="list-style-type: none"> • The KURO LINK function will not work with devices of other brands that do not support the KURO LINK function, even when connected using an HDMI cable. • The KURO LINK function will not work if devices that do not support the KURO LINK function are connected between the KURO LINK-compatible device and the player. • See <i>About connections to components of other makes supporting the KURO LINK function</i> on page 16. • Even when connected to a Pioneer product compatible with the KURO LINK function, some of the functions may not work. <p>Also refer to the operating instructions of the connected device.</p>
	Is KURO LINK set to On on the connected device?	Set KURO LINK to On on the connected device. The KURO LINK function operates when KURO LINK is set to On for all devices connected to the HDMI OUT terminal. Once connections and settings of all the devices are finished, be sure to check that the player's picture is output to the Flat Panel TV. (Also check after changing the connected devices and connecting and/or disconnecting HDMI cables.) If the player's picture is not being output to the Flat Panel TV, the KURO LINK function may not work properly. For details, refer to the operating instructions of the connected device.
The input does not switch automatically on the Flat Panel TV and AV system (AV receiver or amplifier, etc.) when playback is started on the player or the Home Menu or Home Media Gallery is displayed.	Are multiple players connected?	The KURO LINK function may not work if three or more players, including this player, are connected by HDMI cable.
	Is Display Power On set to Off on the player?	Set Display Power On to On (page 39).

Network

Problem	Check	Remedy
<ul style="list-style-type: none"> • BD-LIVE function (connection to the Internet) cannot be used. • "Connection to the software updating server failed" is displayed when you try to update the software. 		Perform Connection Test (page 44). If "Network connection test completed successfully." is displayed, check the proxy server settings (page 43). Also there may be a problem with the Internet connection. Contact your Internet service provider.
"OK to grant network access to BD applications?" is displayed when a BD-LIVE compatible disc is read.		This is displayed if the BD-ROM does not have valid BD-LIVE network access approval. Select No if you do not want to authorize access to the network.

Problem	Check	Remedy
Software updating is slow.		Depending on the Internet connection and other conditions, some time may be required to update the software.
<ul style="list-style-type: none"> • "WRT NG ****" is displayed on the front panel display during software updating. (**** meaning any characters) • "WRT FAILED" is displayed on the front panel display during software updating. 		The message is displayed when software updating has failed. Check again whether it can be updated properly.
A message other than "Network connection test completed successfully" is displayed when Connection Test is performed.	<p>Is "LAN cable not connected" displayed?</p> <ul style="list-style-type: none"> • Is "IP address cannot be obtained." displayed? • Is "No response from the gateway." displayed? <p>Is "IP address is overlapped." displayed?</p> <p>Is the Ethernet hub (or router with hub functionality) operating properly?</p>	<p>Check that this player and Ethernet hub (or router with hub functionality) are properly connected.</p> <ul style="list-style-type: none"> • If the IP address is obtained using the DHCP server function, check the setting is correct at the Display Network Configuration (page 44). For details on the DHCP server function, see the operating instructions of the Ethernet hub (or router with hub functionality). • Set the IP address manually. • Check the operation and settings of the DHCP server function of the Ethernet hub (or router with hub functionality). For details on the DHCP server function, see the operating instructions of the Ethernet hub (or router with hub functionality). • If this player's has been set manually, reset the IP address of this player or other components. • Check the settings and operation the Ethernet hub (or router with hub functionality). For details, see the operating instructions of the Ethernet hub. • Reboot the Ethernet hub (or router with hub functionality).

Others

Problem	Check	Remedy
The player's power turns off automatically.	<p>Is Auto Power Off set to On?</p> <p>Is Display Power Off set to On?</p>	<p>If Auto Power Off is set to On, the player's power turns off automatically if no operation is performed for over 30 minutes (page 41).</p> <p>The player's power may turn off together with the power of the TV connected to the HDMI OUT terminal. If you do not want the player's power to turn off when the TV's power is turned off, set Display Power Off to Off (page 39).</p>
The player's power turns on automatically.	Is KURO LINK set to On ?	The player's power may turn on together with the power of the TV connected to the HDMI OUT terminal. If you do not want the player's power to turn on when the TV's power is turned on, set KURO LINK to Off (page 39).
Player cannot be operated with remote control.	<p>Is an AV receiver or amplifier connected to the CONTROL IN terminal on the player's rear panel?</p> <p>Are you operating the remote control from a point too far away from the player?</p> <p>Are the batteries dead?</p>	<p>Operate with the remote control of the device connected to the CONTROL IN terminal.</p> <p>Operate from within 23 feet (7 m) of the remote control sensor.</p> <p>Replace the batteries (page 7).</p>
Input of connected TV and AV system switches automatically.	Is KURO LINK set to On ?	The input of the TV and AV system (AV receiver or amplifier, etc.) connected to the HDMI OUT terminal may automatically switch to the player when playback starts on the player or the menu screen (Home Media Gallery, etc.) is displayed. If you do not want the inputs of the connected TV and AV system (AV receiver or amplifier, etc.) to switch automatically, set KURO LINK to Off (page 39).
"Processing failed." is displayed.		If the message appears repeatedly, please ask your nearest Pioneer authorized service center or your dealer to carry out repair work.

Problem	Check	Remedy
Settings you have made have been cleared.	<ul style="list-style-type: none"> Have you disconnected the power cord while the player's power was on? Has there been a power failure? 	Always press ⏻ STANDBY/ON on the player's front panel or ⏻ STANDBY/ON on the remote control and check that POWER OFF has turned off from the player's front panel display before disconnecting the power cord. Be particularly careful when the power cord is connected to the AC outlet on another device because the player turns off in conjunction with the device.
EXT does not light on the player's front panel display when a USB (external storage) device is connected.	Is the external storage device properly connected?	<ul style="list-style-type: none"> Turn the player's power off, then turn the power back on. Turn the player's power off, then reconnect the external storage device (page 17).
	Are you using a USB cable that is longer than 2 meters?	Use a USB cable with a length of 2 meters or less.
	Is the power of the external hard disk turned on?	Turn the player's power off, then turn the external hard disk's power on.
	Is the external storage device connected to the USB port via a memory card reader or USB hub?	External storage device may not work if connected to the USB port via a memory card reader or USB hub.
	Does the external storage device contain multiple partitions?	External storage devices may not be recognized if they contain multiple partitions.
		Some external storage devices may not operate.
EXT flashes on the player's front panel display when a USB (external storage) device is connected.	Is the external storage device write-protected?	Turn the player's power off, then disable the write-protection.
	Is the external storage device's file system FAT16 or FAT32?	Only external storage devices with a FAT16 or FAT32 file system can be used. They may be usable if they are formatted from the player (page 44).
		Turn the player's power off, then turn the power back on.

Glossary

❖ Angle (Multi angle)

Up to 9 camera angles can be recorded simultaneously on BD-ROM or DVD-Video discs, letting you view the same scene from different angles.

❖ AVCHD (Advanced Video Codec High Definition)

See *Playing DVDs* on page 10.

❖ BDAV

Of the BD format, the Audio Visual Format Specifications for HD digital broadcast recording is referred to as BDAV on this player and in this operating instructions.

❖ BD-J

See *Playing BDs* on page 9.

❖ BD-LIVE

See *Playing BDs* on page 9.

❖ BDMV

Of the BD format, the Audio Visual Format Specifications designed for pre-packaged high definition (HD) movie contents is referred to as BDMV on this player and in this operating instructions.

❖ BONUSVIEW

See *Playing BDs* on page 9.

❖ Component video output

This video output terminal provides clearer pictures when connected to a TV equipped with component inputs. Component video signals consist of three signals, Y, Pb and Pr.

❖ Deep Color

See *About HDMI* on page 14.

❖ Default Gateway

A default gateway is a communication device such as a router which passes data between networks. It is used to direct data to networks on which the destination gateway is not explicitly specified.

❖ DHCP (Dynamic Host Configuration Protocol)

This protocol provides configuration parameters (IP address, etc.) for computers and other devices connected to the network.

❖ DNS (Domain Name System)

This is a system for associating Internet host names with IP addresses.

❖ Dolby Digital

Dolby Digital is an audio format to record the sound in up to 5.1 channels with a fraction of the amount of data as compared to linear PCM audio signals.

❖ Dolby Digital Plus

Dolby Digital Plus is an audio format for high-definition media. Built on Dolby Digital, it combines the efficiency and flexibility to provide high quality multi-channel audio. With BD-ROMs, up to 7.1 channels of digital sound can be recorded.

❖ **Dolby TrueHD**

Dolby TrueHD is an audio format using lossless coding. With BD-ROMs, up to 8 channels can be recorded at 96 kHz/24 bits, or up to 6 channels at 192 kHz/24 bits.

❖ **DRM**

A technology for protecting copyrighted digital data. Digitized videos, images and audio retain the same quality even when they are copied or transferred repeatedly. DRM is a technology for restricting the distribution or playback of such digital data without the authorization of the copyright holder.

❖ **DTS Digital Surround**

DTS Digital Surround is an audio format to record 48 kHz/24 bits audio signals in 5.1 channels.

❖ **DTS-HD High Resolution Audio**

DTS-HD High Resolution Audio is an audio format using lossy coding. It can record 7.1 channels at 96 kHz/24 bits.

❖ **DTS-HD Master Audio**

DTS-HD Master Audio is an audio format using lossless coding. With BD-ROMs, 7.1 channels can be recorded at 96 kHz/24 bits, or 5.1 channels at 192 kHz/24 bits.

❖ **Ethernet**

A standard for local area networks (LANs) used to connect multiple computers, etc. in the same location. This player supports 100BASE-TX.

❖ **Frames and fields**

A frame is the unit for one of the still pictures which compose motion pictures. One frame consists of a picture of odd lines and a picture of even lines called fields in video signal with interlaced scan method (480i, 1080i, etc.).

❖ **HDMI (High-Definition Multimedia Interface)**

See *About HDMI* on page 14.

❖ **Interactive audio**

The audio signals recorded in the titles of BD-ROMs. They include for example the clicking sound made when the menu screen is operated.

❖ **Interlaced scan**

With this method, one picture is displayed by scanning it twice. The odd lines are displayed in the first pass, the even lines are displayed in the second, to form a single picture (frame). Interlaced scan is indicated in this player and operating instructions by an "i" after the resolution value (for example, 480i).

❖ **IP address**

An address that identifies a computer or other device connected to the Internet or local area network. It is represented a number in four sections.

❖ **Linear PCM**

This is referred as the audio signals that are not compressed.

❖ **MAC (Media Access Control) address**

A hardware identification number assigned specifically to the network device (LAN card, etc.).

❖ **MPEG (Moving Picture Experts Group)**

The name of a family of standards used to encode video and audio signals in a digital compressed format. The video encoding standards include MPEG-1 Video, MPEG-2 Video, MPEG-4 Visual, MPEG-4 AVC, etc. The audio encoding standards include MPEG-1 Audio, MPEG-2 Audio, MPEG-2 AAC, etc.

❖ **Parental Lock**

See *Changing the Parental Lock level for viewing DVDs* and *Changing the Age Restriction for viewing BD-ROMs* on page 45.

❖ **Picture-in-Picture (P-in-P)**

This is a function for superimposing a sub video on the main video. Some BD-ROMs include secondary video, which can be superimposed on the primary video.

❖ **Port number**

This is a sub-address provided below the IP address for simultaneously connecting to multiple parties during Internet communications.

❖ **Progressive scan**

With this method, one picture is consisted of a single picture, without dividing it in two pictures. Progressive scan provides clear pictures with no flicker, in particular for still pictures that contain much text, graphics, or horizontal lines. Progressive scan is indicated in this player and operating instructions by a "p" after the resolution value (for example, 480p).

❖ **Proxy server**

This is a relay server for ensuring fast access and safe communications when connecting to the Internet from an internal network.

❖ **Region number**

See *About region numbers* on page 10.

❖ **Secondary audio**

Some BD-ROMs include sub audio streams mixed with the main audio stream. These sub audio streams are called "secondary audio". On some discs this secondary audio is recorded as the audio for the secondary video.

❖ **Secondary video**

Some BD-ROMs include sub videos superimposed on the main videos using the Picture-in-Picture function. These sub videos are called "secondary video".

❖ **Subnet mask**

This is used to identify which part of the IP address corresponds to the subnet (a separately managed network). The subnet mask is expressed as '255.255.255.0'.

❖ **USB(Universal Serial Bus)**

USB is the industry standard for connecting peripherals to PCs.

❖ **VC-1**

A video codec developed by Microsoft and standardized by the Society of Motion Picture and Television Engineers (SMPTE). Some BDs include videos encoded in this codec.

❖ **x.v.Color**

See *About HDMI* on page 14.

Specifications

07

Model			BDP-320
Type			Blu-ray Disc PLAYER
Rated voltage			AC 120 V
Rated frequency			60 Hz
Power consumption			32 W
Power consumption (standby)			0.3 W
Weight			7 lb 12 oz (3.5 kg)
External dimensions (including projecting parts)			16 ⁹ / ₁₆ in. (W) x 3 in. (H) x 11 ⁵ / ₁₆ in. (D) (420 mm (W) x 75 mm (H) x 287 mm (D))
Tolerable operating temperature			+41 °F to +95 °F (+5 °C to +35 °C)
Tolerable operating humidity			5 % to 85 % (no condensation)
Output terminals	HDMI		1 set, 19-pin: 5 V, 250 mA
	Video outputs	Video	1 set, RCA jack: 1.0 Vp-p (75 Ω)
		Component video	1 set, RCA jacks: Y: 1.0 Vp-p (75 Ω) PB, PR: 0.7 Vp-p (75 Ω)
	Audio outputs	7.1-channel (multi-channel: front left/right, surround left/right, center, surround back left/right, subwoofer)	1 set, Number of channels: 8, RCA jacks
		Audio output level	200 mVrms (1 kHz, -20 dB)
		Frequency response	4 Hz to 88 kHz (192 kHz sampling)
	Digital audio outputs	Optical	1 set, Optical digital jack
	LAN		1 set, Ethernet jack (100BASE-TX)
Control	Input	1 set, Minijack (3.5 ø)	
USB			1 set, Type A



Note

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Should this product require service in the U.S.A. and you wish to locate the nearest Pioneer Authorized Independent Service Company, or if you wish to purchase replacement parts, operating instructions, service manuals, or accessories, please call the number shown below.

1-800-421-1404

Please do not ship your product to Pioneer without first calling the Customer Support at the above listed number for assistance.

Pioneer Electronics Service, Inc.
P.O. BOX 1760, Long Beach,
CA 90801-1760, U.S.A.

For warranty information please see the Limited Warranty sheet included with your product.

Should this product require service in Canada, please contact a Pioneer Canadian Authorized Dealer to locate the nearest Pioneer Authorized Service Company in Canada. Alternatively, please contact the Customer Satisfaction Department at the following address:

Pioneer Electronics of Canada, Inc.
Customer Satisfaction Department
300 Allstate Parkway, Markham, Ontario L3R 0P2
1-877-283-5901
905-479-4411

For warranty information please see the Limited Warranty sheet included with your product.

Si ce produit doit être réparé au Canada, veuillez vous adresser à un distributeur autorisé Pioneer du Canada pour obtenir le nom du Centre de Service Autorisé Pioneer le plus près de chez-vous. Vous pouvez aussi contacter le Service à la clientèle de Pioneer:

Pioneer Électroniques du Canada, Inc.
Service Clientèle
300, Allstate Parkway, Markham, Ontario L3R 0P2
1-877-283-5901
905-479-4411

Pour obtenir des renseignements sur la garantie, veuillez vous reporter au feuillet sur la garantie restreinte qui accompagne le produit.

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