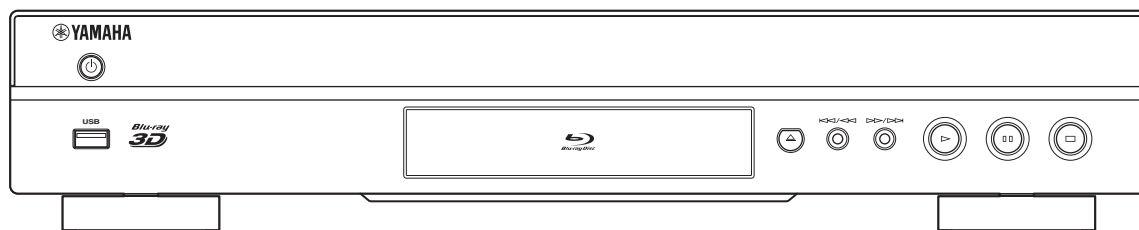




BLU-RAY DISC PLAYER


# BD-S671

*OWNER'S MANUAL*



# IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

- 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.

## WARNING:

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

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

## CAUTION!

**DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE.**

**ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.**

## CAUTION!

**THIS PRODUCT UTILIZES A LASER. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.**

## CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

The socket outlet shall be installed near the equipment and easily accessible. The mains plug of the power supply cord shall remain readily operable.

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



## CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



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



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



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

## FCC INFORMATION (for US customers)

### 1 **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2 **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3 **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., USA 6660 Orangethorpe Ave., Buena Park, CA 90620.

The above statements apply **ONLY** to those products distributed by Yamaha Corporation of America or its subsidiaries.

## COMPLIANCE INFORMATION STATEMENT (DECLARATION OF CONFORMITY PROCEDURE)

Responsible Party: Yamaha Electronics Corporation, USA  
Address: 6660 Orangethorpe Avenue  
Buena Park, CA 90620  
Telephone: 714-522-9105  
1-800-492-6242 (toll free)  
Fax: 714-228-3390  
Type of Equipment: Blu-ray Disc Player  
Model Name: BD-S671

- This device complies with Part 15 of the FCC Rules.
  - Operation is subject to the following conditions:
    - This device may not cause harmful interference.
    - This device must accept any interference received including interference that may cause undesired operation.
- See the "Troubleshooting" section at the end of this manual if interference to radio reception is suspected.

## We Want You Listening For A Lifetime



Yamaha 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.

Since hearing damage from loud sounds is often undetectable until it is too late, Yamaha and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.

### **IMPORTANT**

Please record the serial number of this unit in the space below.

MODEL:


Serial No.:


The serial number is located on the rear of the unit.

Retain this Owner's Manual in a safe place for future reference.

To obtain information about disposing unwanted, end-of-life products in USA, please visit <http://usa.yamaha.com/support/>

# CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

- 1 To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
- 2 Install this sound system in a well ventilated, cool, dry, clean place—away from direct sunlight, heat sources, vibration, dust, moisture, and/or cold. For proper ventilation, allow the following minimum clearances.  
Top : 10 cm (4 in)  
Rear: 10 cm (4 in)  
Side: 10 cm (4 in)
- 3 Locate this unit away from other electrical appliances, motors, or transformers to avoid humming sounds.
- 4 Do not expose this unit to sudden temperature changes from cold to hot, and do not locate this unit in an environment with high humidity (i.e. a room with a humidifier) to prevent condensation inside this unit, which may cause an electrical shock, fire, damage to this unit, and/or personal injury.
- 5 Avoid installing this unit where foreign object may fall onto this unit and/or this unit may be exposed to liquid dripping or splashing. On the top of this unit, do not place:
  - Other components, as they may cause damage and/or discoloration on the surface of this unit.
  - Burning objects (i.e. candles), as they may cause fire, damage to this unit, and/or personal injury.
  - Containers with liquid in them, as they may fall and liquid may cause electrical shock to the user and/or damage to this unit.
- 6 Do not cover this unit with a newspaper, tablecloth, curtain, etc. in order not to obstruct heat radiation. If the temperature inside this unit rises, it may cause fire, damage to this unit, and/or personal injury.
- 7 Do not plug in this unit to a wall outlet until all connections are complete.
- 8 Do not operate this unit upside-down. It may overheat, possibly causing damage.
- 9 Do not use force on switches, knobs and/or cords.
- 10 When disconnecting the power cable from the wall outlet, grasp the plug; do not pull the cable.
- 11 Do not clean this unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
- 12 Only voltage specified on this unit must be used. Using this unit with a higher voltage than specified is dangerous and may cause fire, damage to this unit, and/or personal injury. Yamaha will not be held responsible for any damage resulting from use of this unit with a voltage other than specified.
- 13 To prevent damage by lightning, keep the power cable disconnected from a wall outlet or this unit during a lightning storm.
- 14 Do not attempt to modify or fix this unit. Contact qualified Yamaha service personnel when any service is needed. The cabinet should never be opened for any reasons.
- 15 When not planning to use this unit for long periods of time (i.e. vacation), disconnect the AC power plug from the wall outlet.
- 16 Be sure to read the “TROUBLESHOOTING” section on common operating errors before concluding that this unit is faulty.
- 17 Before moving this unit, press  to set this unit to the standby mode, and disconnect the AC power plug from the wall outlet.
- 18 Condensation will form when the surrounding temperature changes suddenly. Disconnect the power cable from the outlet, then leave this unit alone.
- 19 When using this unit for a long time, this unit may become warm. Turn the power off, then leave this unit alone for cooling.
- 20 Install this unit near the AC outlet and where the AC power plug can be reached easily.
- 21 The batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off by . This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

**WARNING**  
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

**FOR CANADIAN CUSTOMERS**  
To prevent electric shock, match wide blade of plug to wide slot and fully insert.  
This Class B digital apparatus complies with Canadian ICES-003.

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## About this manual

- This manual describes how to operate this Player using a remote control except when it is not available. Some of these operations are also available using the front panel buttons.
- Notes contain important information about safety and operating instructions. Hint(s) indicates a tip for your operation.
- This manual is printed prior to production. Design and specifications are subject to change in part as a result of improvements, etc. In case of differences between the manual and the product, the product has priority.

## The icons used in this manual

Icons are used to indicate available buttons/functions for a particular format.

<b>BD</b>	: BD-Video
<b>DVD</b>	: DVD-Video, DVD-VR, DVD+VR
<b>CD</b>	: Audio CD
<b>VIDEO</b>	: AVCHD, WMV, DivX
<b>MUSIC</b>	: MP3, WMA, WAV
<b>PHOTO</b>	: JPEG

English

# WHAT YOU CAN DO WITH THIS PLAYER

## Easy setting for language, resolution, screen aspect ratio → p. 18

You can perform language and TV settings.

## Play back commercially-released Blu-ray™/DVD/CD discs\* → p. 26

In addition to Blu-ray Discs™ (BD discs), this Player also supports playback of a variety of other discs.

## Play back BONUSVIEW™, BD-Live™, etc.\* → p. 29

You can enjoy additional movies on the latest BD discs.

## Play back Video, Music, Photo files on a disc\* → p. 19

This Player can play back discs you recorded.

## Play back Video, Music, Photo files on a disc/USB memory device\* → p. 19

Files recorded on discs/USB memory devices can be played back with this Player.

## Play back Video, Music, Photo files on a Home Network Server\* \*\* → p. 21

PC contents can be played back with TV or AV receiver by connecting this Player to a network server.

## Operation with the remote control of TV, AV receiver, etc. → p. 33

Connecting devices with an HDMI cable, you can control devices with a single remote control using the HDMI Control function.

## Streaming Playback contents on the Network Services\*\* → p. 22

You can instantly enjoy movies and TV programs over the internet with this Player.

\* For details on playable disc and format, see page 3.

\*\* Network setting is needed to use this function.

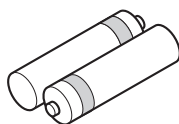
# SUPPLIED PARTS

Make sure the following accessories are provided with the product.

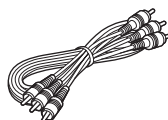
Remote control



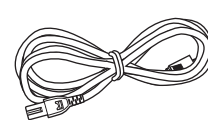
Batteries (x2)  
(AAA, R03, UM-4)



Audio/Video cable









Power cable











## Types of discs/files that can be used with this player

- 12 cm (5") and 8 cm (3") discs can be played back in this Player. Do not use an 8 cm (3") to 12 cm (5") adapter.
- Use discs that conform to compatible standards as indicated by the presence of official logos on the disc label. Playback of discs not complying with these standards is not guaranteed. In addition, the image quality or sound quality is not guaranteed even if the discs can be played back.

Disc Type	Recording Format	Data Format
BD-ROM/BD-R/ BD-RE	BD-Video	--
DVD-ROM	DVD-Video	--
DVD-R/DVD-R DL/ DVD-RW	DVD-Video/DVD-VR/AVCHD/Data Disc	DivX/WMV/MP3/WAV/WMA/JPEG
DVD+R/DVD+R DL/DVD+RW	DVD-Video/DVD+VR/AVCHD/Data Disc	DivX/WMV/MP3/WAV/WMA/JPEG
CD-ROM	CDDA/HDCD	--
CD-R/CD-RW	CDDA/Data Disc	DivX/WMV/MP3/WAV/WMA/JPEG
USB	--	DivX/WMV/MP3/WAV/WMA/JPEG
Network	--	WMV/MP3/WMA/WAV/JPEG

Region management information		
Destination	BD-Video	DVD-Video
Australia	Region code "B" or "ALL" 	Region number "4" or "ALL" 
Russia	Region code "C" or "ALL" 	Region number "5" or "ALL" 
China	Region code "C" or "ALL" 	Region number "6" or "ALL" 

- BD/DVD video players and discs have region codes, which dictate the regions in which a disc can be played.
- BD/DVD Video operations and functions may be different from the explanations in this manual and some operations may be prohibited due to disc manufacturer's settings.
- If a menu screen or operating instructions are displayed during playback of a disc, follow the operating procedure displayed.

Region management information		
Destination	BD-Video	DVD-Video
U.S.A. and Canada	Region code "A" or "ALL" 	Region number "1" or "ALL" 
Asia	Region code "A" or "ALL" 	Region number "3" or "ALL" 
Central and South America	Region code "A" or "ALL" 	Region number "4" or "ALL" 
Europe	Region code "B" or "ALL" 	Region number "2" or "ALL" 

### Notes

- Playback for some of the discs in the left side column tables may not be possible depending on the disc.
- Finalize all recording media that is played back in this player.
- "Finalize" refers to a recorder processing a recorded disc so that it will play in other players/recorders as well as this Player. Only finalized discs will play back in this Player. (This Player does not have a function to finalize discs.)
- Playback of all files on the disc, USB memory device and network is not guaranteed.
- A copyright protected file cannot be played back via USB memory device and network.

### MP3/WMA audio file requirement

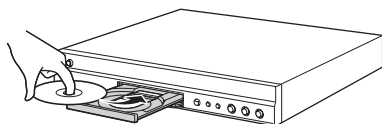
- Sampling frequency: within 32 - 48 kHz (MP3/WMA), LPCM 44.1 kHz/16 bit/Stereo (WAV)
- Bitrate: within 8 - 320 kbps (MP3), 32 - 192 kbps (WMA)

### WMV file requirement

- WMV9, maximum resolution is 1,920 × 1,080.

## ■ Loading a disc

- Insert the disc with the label face up.
- In case of the disc recorded on both sides, face down the side to play back.



### Notes

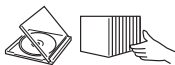



- Playback may begin automatically, depending on the disc and setting of this Player.
- The menu may be displayed first, depending on the disc.
- The disc load time may vary depending on the disc.

## ■ Disc precautions

### Be careful of scratches and dust

- BD, DVD and CD discs are sensitive to dust, fingerprints and especially scratches. A scratched disc may not be able to be played back. Handle discs with care and store them in a safe place.

### Proper disc storage

Place the disc in the center of the disc case and store the case and disc upright.	
Avoid storing discs in locations subject to direct sunlight, close to heating appliances or in locations of high humidity.	
Do not drop discs or subject them to strong vibrations or impacts.	
Avoid storing discs in locations where there are large amounts of dust or moisture.	

## Handling precautions



- If the surface is soiled, wipe gently with a soft, damp (water only) cloth. When wiping discs, always move the cloth from the center hole toward the outer edge.
- Do not use record cleaning sprays, benzene, thinner, static electricity prevention liquids or any other solvent.
- Do not touch the surface.
- Do not stick paper or adhesive labels to the disc.
- If the playing surface of a disc is soiled or scratched, the Player may decide that the disc is incompatible and eject the disc tray, or it may fail to play the disc correctly. Wipe any dirt off the playing surface with a soft cloth.

## Cleaning the pick up lens

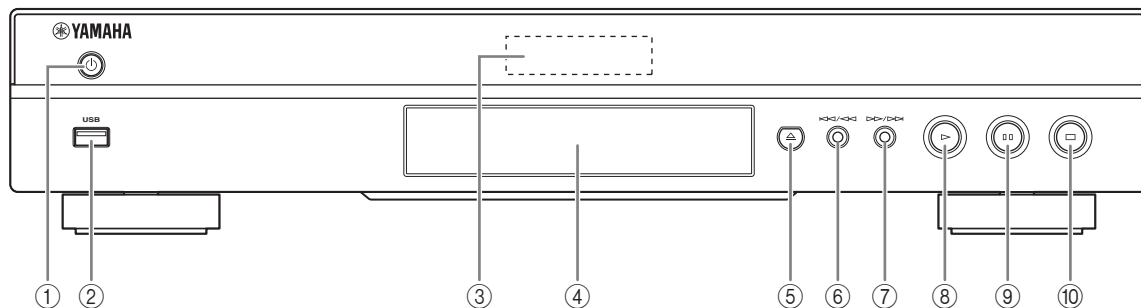
- Never use commercially available cleaning discs. The use of these discs can damage the lens.
- Request the nearest service center approved by Yamaha to clean the lens.

## ■ Notice for watching 3D video images

- Some people may experience discomfort (such as eye strain, fatigue, or nausea) while watching 3D video images. We recommend that all viewers take regular breaks while watching 3D video images.
- If you experience any discomfort, stop watching the 3D video images until the discomfort subsides. Consult a doctor if you experience severe discomfort.
- Read the owner's manuals (Blu-ray disc and TV) and/or the caution messages that appear on the TV carefully.
- The vision of young children (especially those under six years old) is still under development. Consult your doctor (such as a pediatrician or eye doctor) before allowing young children to watch 3D video images.
- Adults should supervise young children to ensure they follow the recommendations described above.




## ■ Front panel

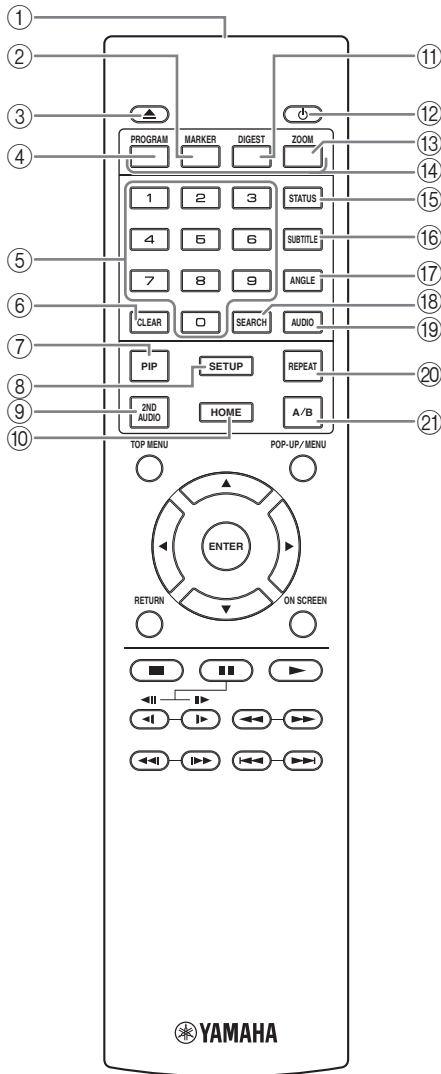




- ① (On/Standby)
- ② **USB port** (p. 16)
- ③ **Front panel display**
- ④ **Disc tray** (p. 4)
- ⑤ **(Eject)** (p. 4)
- ⑥ **(Search backward/Skip backward):**  
Press to skip backward, and press and hold to search backward.
- ⑦ **(Search forward/Skip forward):**  
Press to skip forward, and press and hold to search forward.
- ⑧ **(Play)**
- ⑨ **(Pause)**
- ⑩ **(Stop)**


## Remote control

### Note

-  will appear on the top left corner of the screen when the pressed button is not available.



- ① **Infrared signal transmitter:** Outputs infrared signal. Aim this window to the remote control sensor (p. 9).
  - ② **MARKER DVD VIDEO:** Sets Bookmark (p. 28) at a specified point of a movie. After Bookmark is set, to select the set point you want to jump to, press **DIGEST**. You can set up to 12 Bookmarks.
  - ③ **▲:** Opens/closes the disc tray.
  - ④ **PROGRAM DVD CD:** Sets the order of playback (p. 28). You can set up to 15 tracks (for an audio disc) or titles/chapters (DVD-Video).
  - ⑤ **Number buttons:** Enters numbers, or during playback, jumps to the track/chapter corresponding to the number you input. These buttons may not be available depending on the disc type and playback condition.
  - ⑥ **CLEAR:** Clears entered number/set item.
  - ⑦ **PIP BD:** Turns on/off the Picture in Picture (p. 29). PIP Mark () is displayed on the screen when this function is available. You can also select this item from On Screen menu (p. 26).
- Note**
- PIP Mark is displayed only when the PIP Mark is set to on (p. 34).
- ⑧ **SETUP:** Displays SETUP menu screen (p. 30).
  - ⑨ **2ND AUDIO BD:** Selects the secondary audio of the Picture in Picture (p. 29) or audio commentaries. The Secondary Audio Mark () is displayed on the screen when this function is available (p. 37). You can also select this item from On Screen menu (p. 26).
- Note**
- Secondary Audio Mark is displayed only when Secondary Audio Mark is set to on (p. 34).
- ⑩ **HOME:** Displays the HOME menu screen (p. 19).
  - ⑪ **DIGEST PHOTO:** Shows 12 photo thumbnails. When thumbnails are displayed, you can proceed to the next/previous page with **◀◀/▶▶**.
  - DVD VIDEO:** Displays Bookmark select bar (p. 28).
  - ⑫ **⏻:** Turns this Player on or sets it to the standby mode.
  - ⑬ **ZOOM DVD VIDEO PHOTO:** Zooms in/out. The size of the screen will change each time you press the button (zoom in/out: 3 steps each).
  - ⑭ **Color buttons BD:** Use these buttons according to on-screen instructions.
  - ⑮ **STATUS:** Displays the playback information (p. 27).


- ⑩ **SUBTITLE** **BD** **DVD** **VIDEO** : Changes subtitle languages (p. 45) if available . You can also select this item from On Screen menu (p. 26).
- ⑪ **ANGLE** **BD** **DVD** : Changes the camera angle if video is recorded with multiple angles. The Angle Mark () is displayed on the screen when this function is available. You can also select this item from On Screen menu (p. 26).


**Note**


– Angle Mark is displayed only when the Angle Mark is set to on (p. 34).


- ⑫ **SEARCH** **BD** **DVD** **CD** **VIDEO** **MUSIC** : Jumps to a specified point during playback. For details on this function, refer to “Using search” (p. 28). You can also select this item from status menu (p. 27).
- ⑬ **AUDIO** **BD** **DVD** : Changes the audio language or format. You can also select this item from On Screen menu (p. 26).

- ⑭ **REPEAT** **BD** **DVD** **CD** **VIDEO** **MUSIC** **PHOTO** : Changes repeat mode. Repeat mode shown below will change each time you press the button.

: Repeats the title being played back.

: Repeats the chapter being played back.

: Repeats the folder being played back.

: Repeats all tracks/files on the disc.

: Repeats the track/file being played back.

**Shuffle All:** Plays back all the tracks/files on the disc randomly.

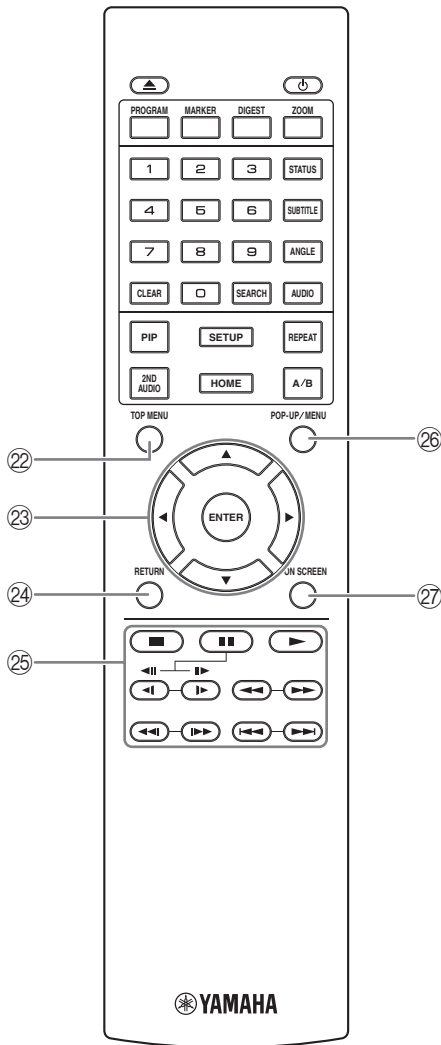
- ⑮ **A/B** **BD** **DVD** **CD** **VIDEO** **MUSIC** : Plays back a specific part you want to repeat.

- 1 Press **A/B** at the scene where you want to set the start point. “A-” is displayed on the screen.
- 2 Press **A/B** again at the scene where you want to set the end point. “A-B” is displayed on the screen. Repeat playback starts.
- 3 To cancel the repeat playback, press **A/B**. “A-B” disappears and the repeat playback is finished.

**Note**

– This function cannot be performed depending on the specifications of the disc.

**Continued to the next page. →**



- 22 **TOP MENU** [BD] [DVD]: Displays the top menu screen (p. 45) if the disc contains a menu. Select the desired item using ▲/▼/◀/▶ and **ENTER**.

**Note**

- Specific operations may be different depending on the disc. Follow the instructions of each menu screen.

- 23 **Cursor buttons** (▲/▼/◀/▶): Moves the focus in the menu screen.

**ENTER**: Selects the focused menu/item.

- 24 **RETURN**: Returns to the previous menu or screen, etc.

25 **Control buttons**

[BD] [DVD] [CD] [VIDEO] [MUSIC] [PHOTO]

■: Stops playback. To stop playback completely, press this button twice.

■: Pauses playback.

▶: Plays back contents.

◀ (◀||) / ▶ (||▶)

[BD] [DVD]: Performs slow backward/forward. Slow playback speed will change each time you press the button (slow backward/forward: 4 steps each).

These buttons also perform frame advance/reverse playback during pause.

Press ▶ to resume normal playback.

◀◀/▶▶

[BD] [DVD] [CD] [VIDEO] [MUSIC]:

Searches backward/forward. The search speed will change each time you press the button (search backward/forward: 5 steps each). Press ▶ to resume normal playback.

[PHOTO]: Changes the speed of a slide show (slower/faster: 3 steps).

◀◀|/▶▶ [BD] [DVD] [CD] [VIDEO] [MUSIC]:

Press for instant search/replay. Instant search skips the content 30 seconds. Instant replay replays the content from 10 seconds before.

◀◀/▶▶: Skips backward/forward.

**Notes**

- Some BD/DVD discs are not compatible with frame advance/reverse playback.
- Depending on the disc, this Player resumes playback from the point that where the Player was previously stopped. To play back from the beginning, press ■ twice and then ▶.

- ②⑥ **POP-UP/MENU** [BD] [DVD]: Displays pop-up menu. The menu contents displayed vary depending on the disc. For details on how to see and operate the pop-up menu, refer to the manual for the disc. The top menu screen may be displayed by pressing **POP-UP/MENU** depending on the DVD.
- ②⑦ **ON SCREEN:** Displays On Screen menu (p. 26).

## ID function

You can change the remote control ID to prevent unwanted operation of the other Yamaha player such as DVD player. If you have changed the remote control ID, make sure that you select the same ID for the main unit. The default setting is ID1.

### 1 Remote control setting

To change the ID from ID1 to ID2, press and hold the red color button and **2** of number button simultaneously for 7 seconds. To change the ID from ID2 to ID1, press and hold the red color button and **1** of number button simultaneously for 7 seconds.

### 2 Main unit setting

Press and hold **◀◀/◀◀** and **▶▶/▶▶** on the front panel simultaneously for 2 seconds to display current ID when:

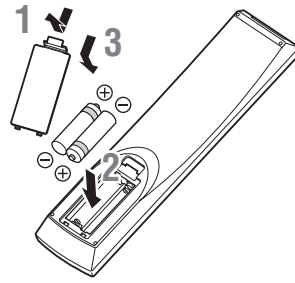
- No disc is inserted in this Player.
- The disc tray is closed.
- Playback is stopped.
- “NO DISC” is displayed on the front panel display.

Keep pressing and holding the keys for another 2 seconds to change the ID between ID1 and ID2.

### Note

- If the remote control is without batteries for a few minutes or if exhausted batteries remain in the remote control, the remote control ID is automatically set to ID1. If you want to use the remote control in ID2 setting, install new batteries and set the remote control ID again.

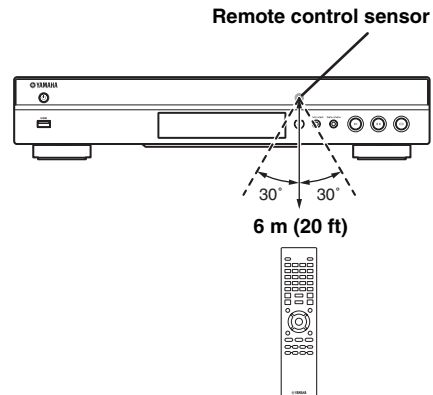
## Loading the batteries in the remote control



### Notes

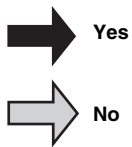
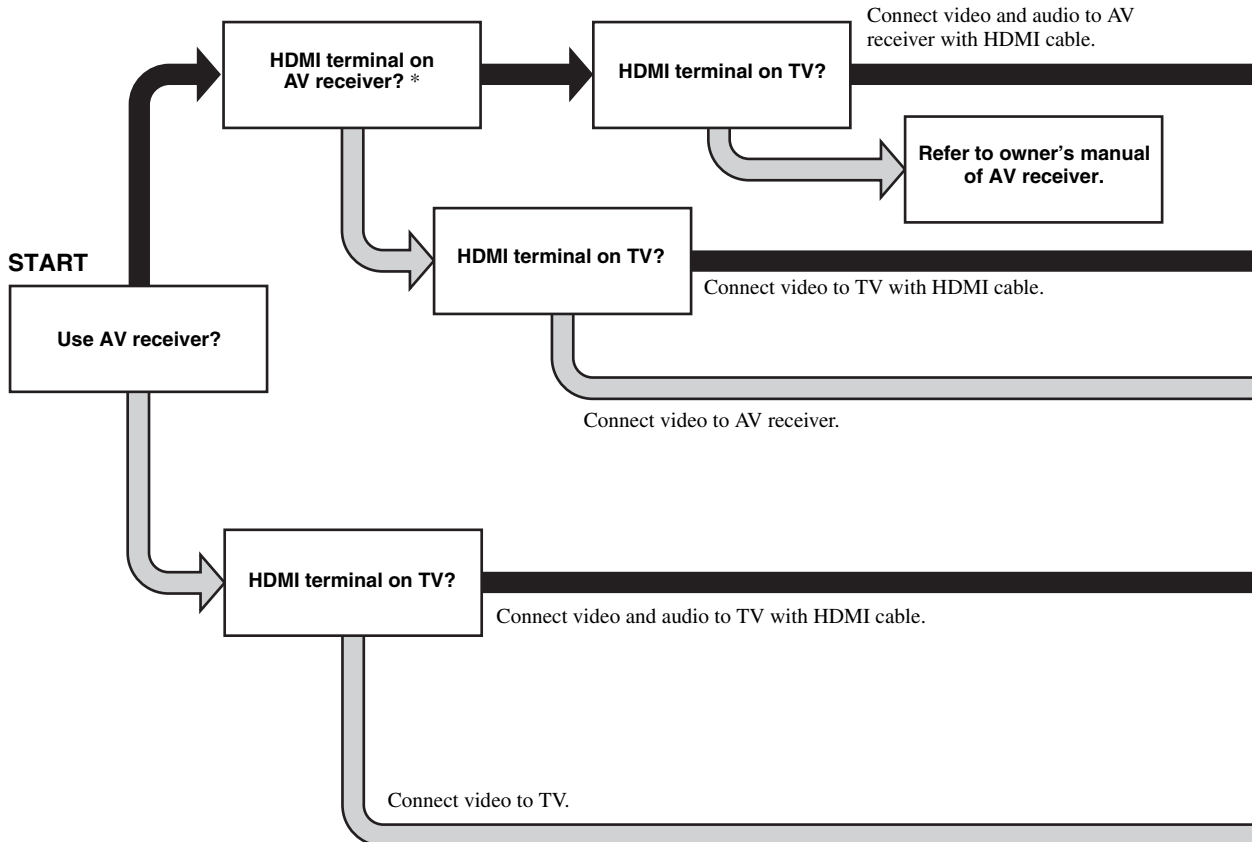
- Do not subject the remote control unit to shock, water or excessive humidity.
- The remote control unit may not function if the Player's remote sensor is in direct sunlight or any other strong light.
- Incorrect use of batteries may cause them to leak or burst. Read the battery warnings and use the batteries properly.
- Do not mix old and new batteries, or mix different brands.
- Remove the batteries if you will not use the remote control unit for an extended period of time.
- Dispose of batteries according to your regional regulations.

## Approximate operating range of remote control



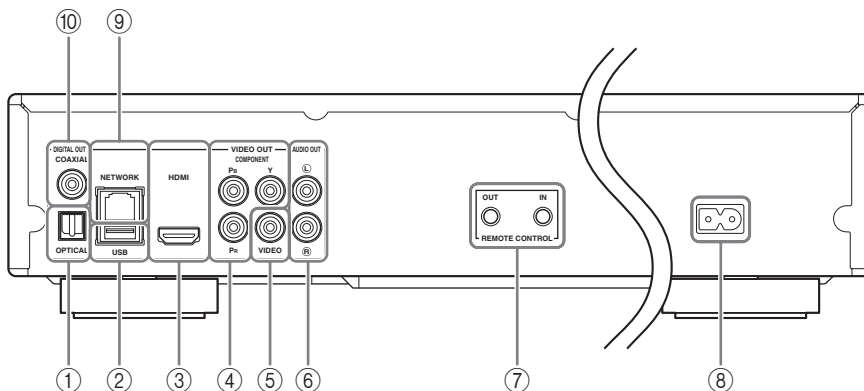
# INTRODUCTION TO CONNECTIONS

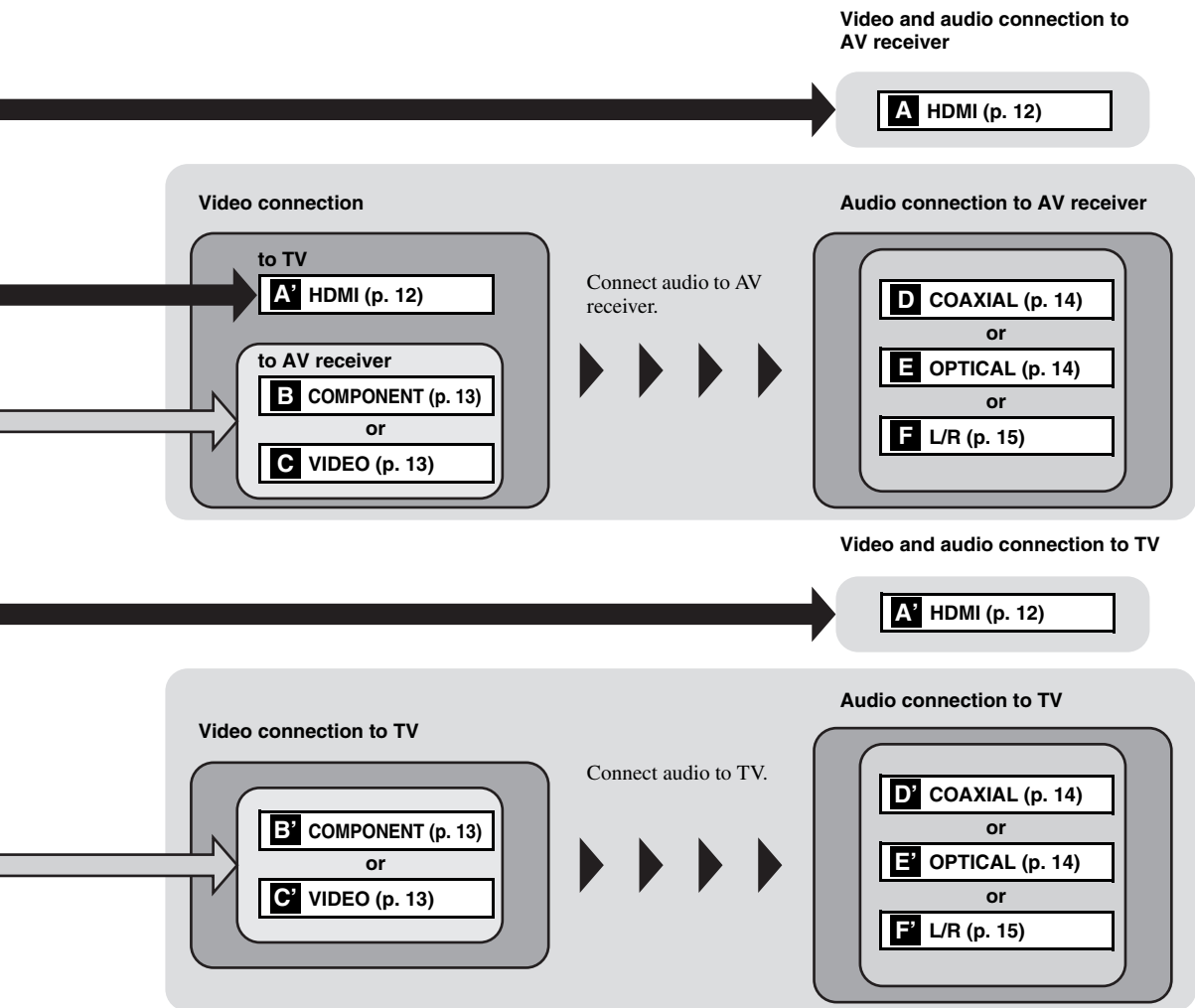
Find the corresponding connection method on your video/audio equipment. We recommend that you use the HDMI terminal which provides high quality digital audio and video on a single connection. If you use the other terminals/jacks, connect the video first. Then connect the audio.



\* When you connect to an AV receiver that cannot output the sound, input via its HDMI terminal, refer to the owner's manual of your AV receiver.

## ■ Rear panel





- ① OPTICAL (p. 14)
- ② USB (p. 16)
- ③ HDMI (p. 12)
- ④ COMPONENT (p. 13)
- ⑤ VIDEO (p. 13)

- ⑥ AUDIO OUT (L/R) (p. 15)
- ⑦ REMOTE CONTROL (OUT/IN) (p. 17)
- ⑧ AC IN (p. 17)
- ⑨ NETWORK (p. 16)
- ⑩ COAXIAL (p. 14)

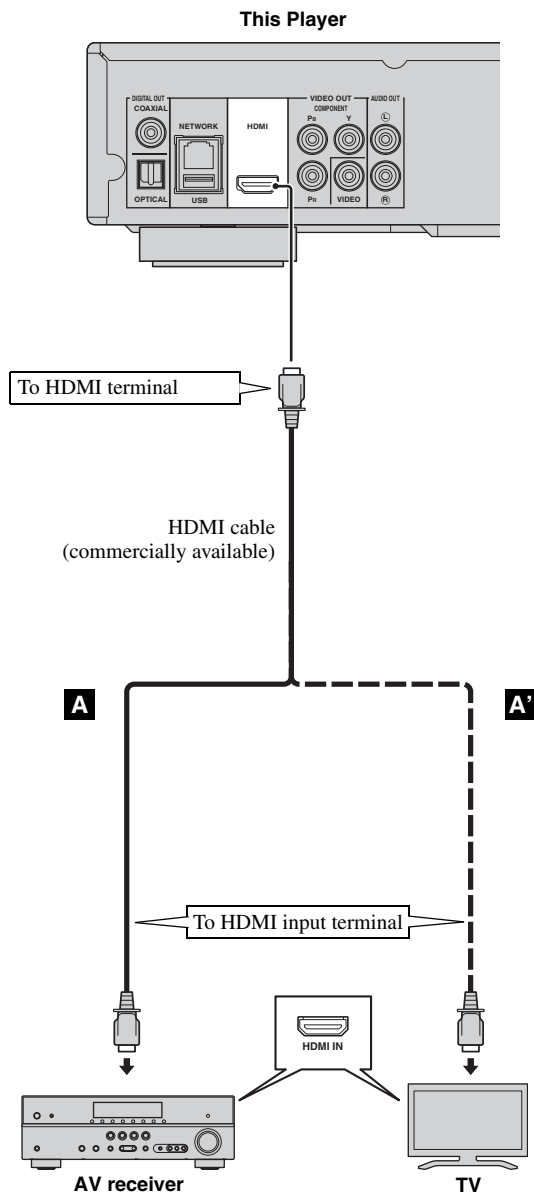
# HDMI CONNECTION

## ■ Connecting to the HDMI terminal

- You can enjoy high quality digital picture and sound through the HDMI terminal.
- Firmly connect an HDMI cable (commercially available) to the HDMI terminals.
- See page 38 for information on the audio/video output formats.
- Use HIGH SPEED HDMI cables that have the HDMI logo (as shown on the back cover).

### Caution!

**Do not connect the power cable of this Player until all connections are completed.**



### Hints

- When you use the HDMI Control function, refer to the "HDMI Control" (p. 33).
- For information on the output mode of HDMI terminal, refer to the "HDMI" (p. 37).
- When no picture is displayed, refer to "TROUBLESHOOTING" (p. 42).

## ■ Connection for the playback of Blu-ray 3D discs

To enjoy Blu-ray 3D discs on this Player, you need the following equipments and connections:

- You need a TV and an AV Receiver (if you need) that have 3D functionality.
- All the components must be connected with HDMI cables.
- Blu-ray disc should contain 3D images.



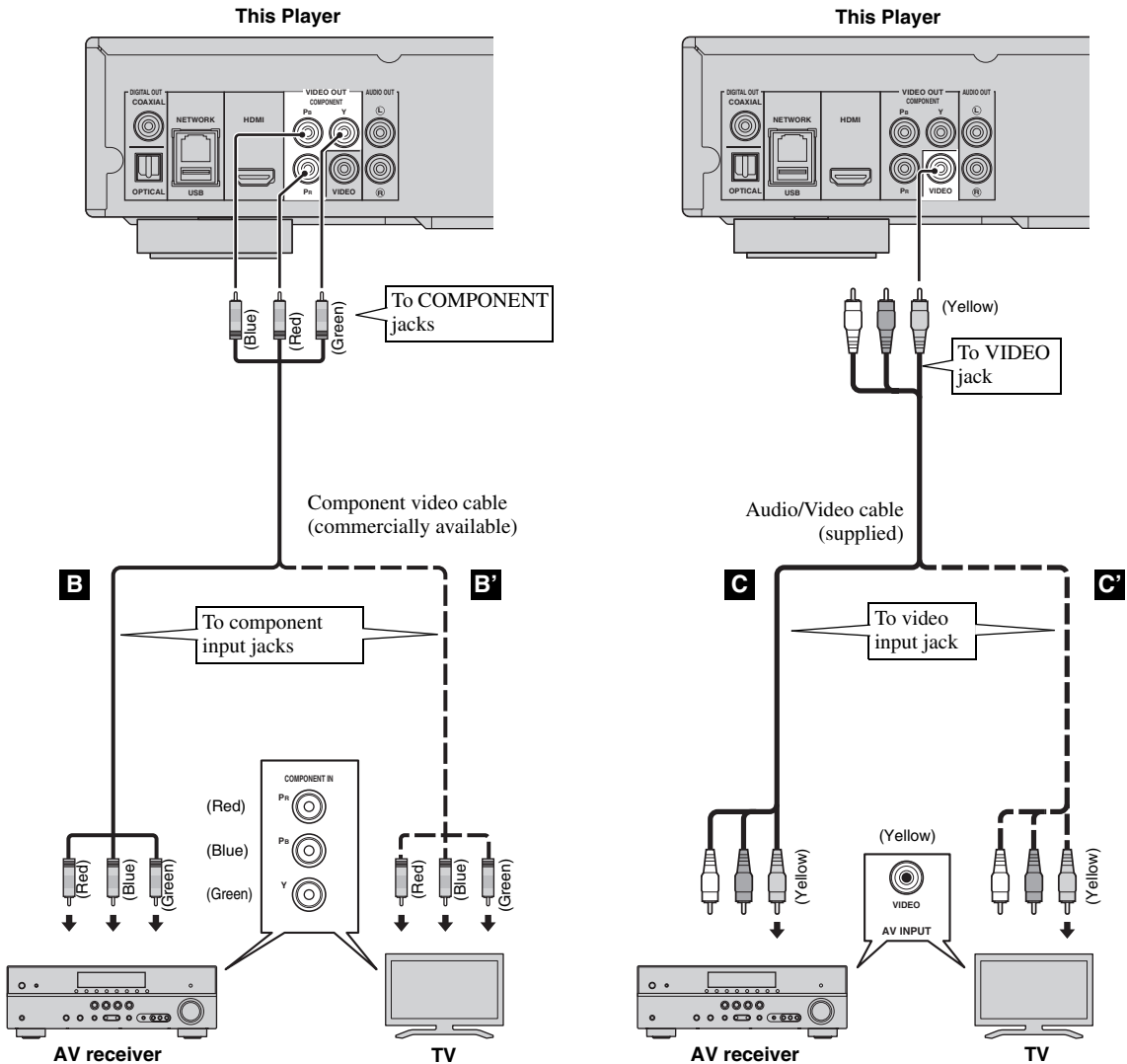
# VIDEO CONNECTIONS

## ■ Connecting to the component/video jack

- You can enjoy accurate color reproduction and high quality images through the component jacks.
- Firmly connect a component video cable (commercially available) or a video pin cable to the COMPONENT jacks/ VIDEO jack.
- See page 39 for information on the video output formats.

### Caution!

**Do not connect the power cable of this Player until all connections are completed.**



### Notes

- If you play back the image via VCR, the image may deteriorate due to the copy guard function.
- To enjoy BD-3D discs on this Player, you need to connect an AV receiver, a TV, and this Player using HDMI cables. Refer to the previous page.

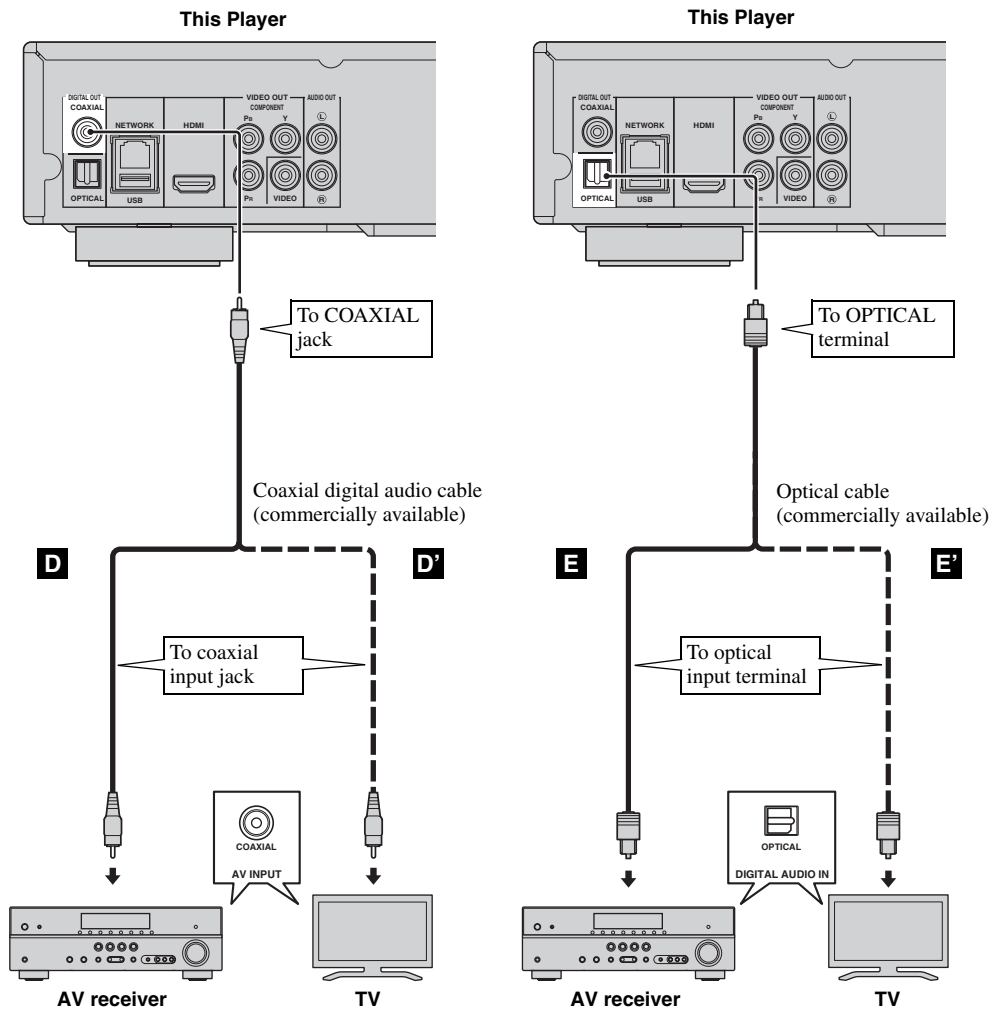
# AUDIO CONNECTIONS

## ■ Connecting to the digital audio jack/terminal

- You can connect audio equipment or the TV to the COAXIAL jack/OPTICAL terminal.
- Firmly connect a Coaxial digital audio cable (commercially available) or optical cable (commercially available) to the coaxial digital audio jack or optical digital audio terminal.
- See page 38 for information on the audio output formats.

### Caution!

**Do not connect the power cable of this Player until all connections are completed.**



### Hint

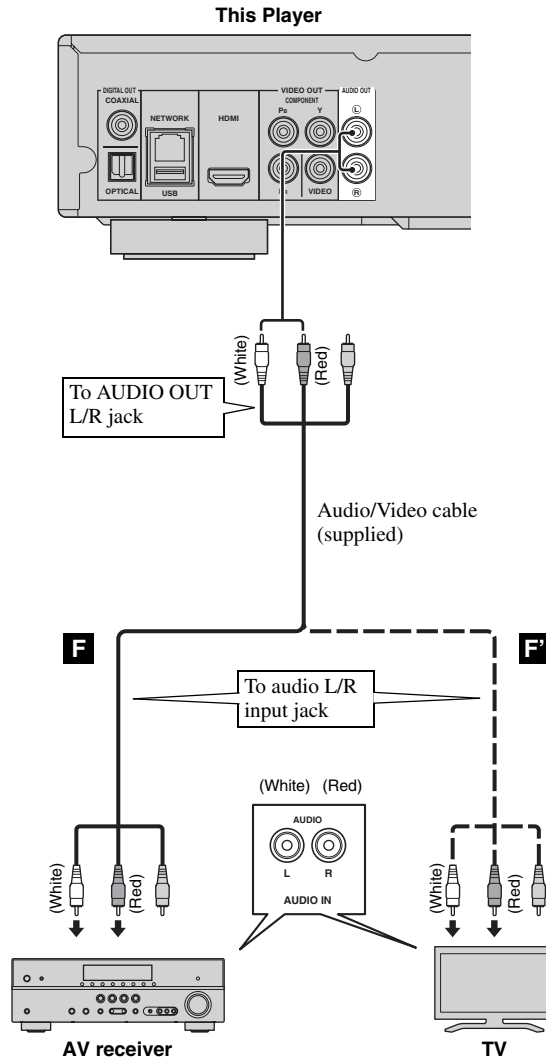
- For information on the output mode of COAXIAL jack/OPTICAL terminal, refer to the "Coaxial/Optical" (p. 37).

## ■ Connecting to the audio jacks

- You can connect audio equipment or the TV to the AUDIO OUT L/R jacks.
- Firmly connect an Audio/Video cable (supplied) to the AUDIO OUT L/R jack.
- See page 38 for information on the audio output formats.

### Caution!

**Do not connect the power cable of this Player until all connections are completed.**



# NETWORK AND USB CONNECTION

## ■ Connecting to the NETWORK terminal and USB port

- PC contents can be played back by connecting this Player to the network.
- You can enjoy a variety of contents with interactive functions by connecting to the internet when playing BD-Live compatible discs. Refer to page 29 regarding further information on BD-Live functions.
- You can connect a USB memory device (2 GB or greater and formatted with FAT 32/16) for BD Local Storage to the USB port on the rear panel (or front panel) of the player to save the BD-Live data or to upgrade the software of this Player.
- Firmly connect a network cable (commercially available) and a USB memory device (commercially available) to the NETWORK terminal and USB port.
- Use only an STP (shielded twisted pair) network cable.
- When using the internet, a broadband internet connection as shown below is required.
- Connect the other connector of the network cable to the hub/broadband router.

## Before using the USB memory device

### CAUTION:

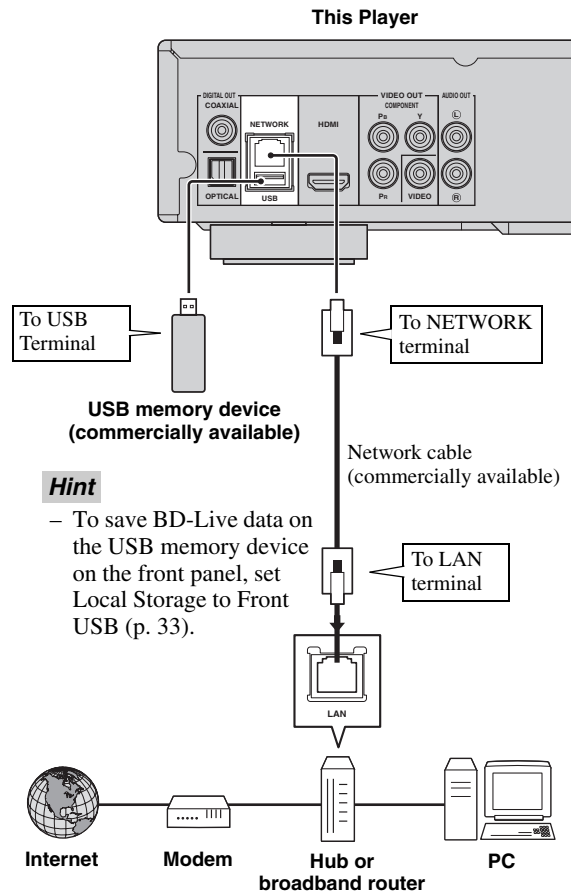
- Do not remove the USB memory device or unplug the power cable while the operations for BD-Live (p. 29) or software upgrade are being performed.
- Do not use a USB extension cable when connecting a USB memory device to the USB port of the Player. Using a USB extension cable may prevent the Player from performing correctly.

### Note

- Yamaha cannot guarantee that all brands' USB memory devices will operate with this Player.

### Notes

- When using a broadband internet connection, a contract with an internet service provider is required. For more details, contact your nearest internet service provider.
- Refer to the operation manual of the equipment you have as the connected equipment and connection method may differ depending on your internet environment.
- Use a network cable/router supporting 10BASE-T/100BASE-TX.



## After connecting

- When you set the Network setting manually, refer to “Network” (p. 35).
- To play back the PC contents on your network, refer to “Using network content” (p. 21).

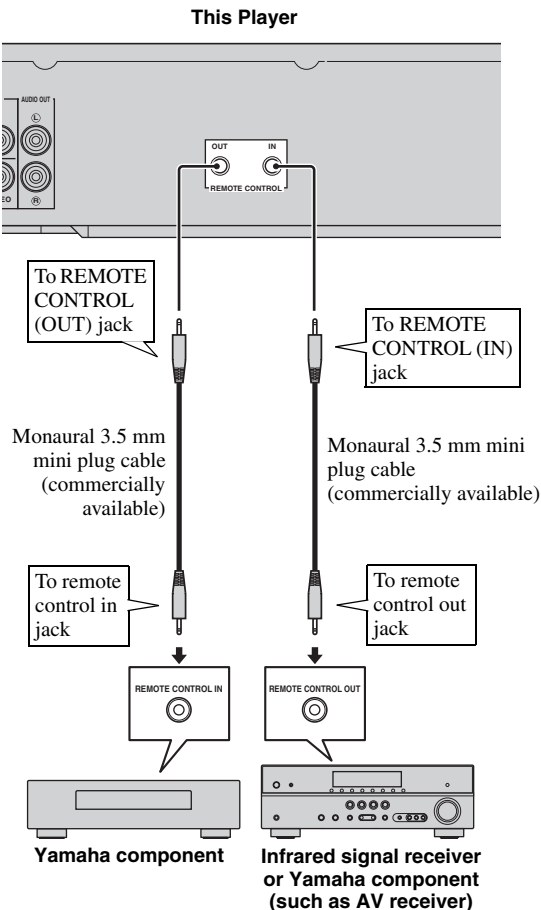
# OTHER CONNECTIONS

## ■ Connecting to the REMOTE CONTROL jacks

- You can transmit and receive the remote control signals by connecting to the REMOTE CONTROL (OUT/IN) jacks.
- Firmly connect monaural 3.5 mm mini plug cables (commercially available) to the REMOTE CONTROL (OUT/IN) jacks.
- If your AV receiver is a Yamaha product and has the capability to transmit SCENE control signals, you can control the Player with the SCENE function.

### Caution!

**Do not connect the power cable of this Player until all connections are completed.**

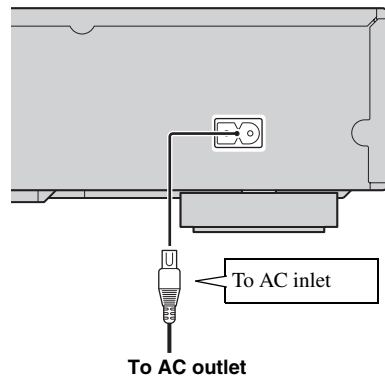


### Hints

- For details about the SCENE function, refer to the owner's manual supplied with your Yamaha AV receiver.
- You can connect a Yamaha component (such as CD player) supports the SCENE function to the REMOTE CONTROL (OUT) jack of this Player.

## ■ Connecting the power cable

- After all connections are completed, plug the supplied power cable into the AC IN on the rear of the Player. Then plug into AC outlet.



### Note

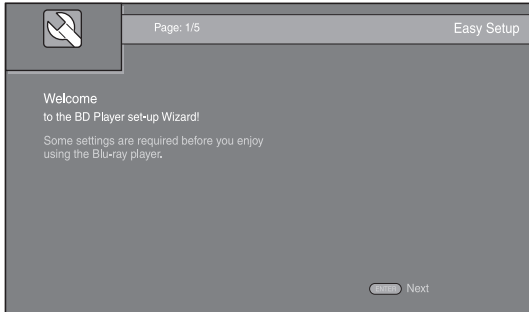
- TO PREVENT RISK OF ELECTRIC SHOCK, DO NOT TOUCH THE UN-INSULATED PARTS OF ANY CABLES WHILE THE POWER CABLE IS CONNECTED.

# INITIAL WIZARD/EASY SETUP

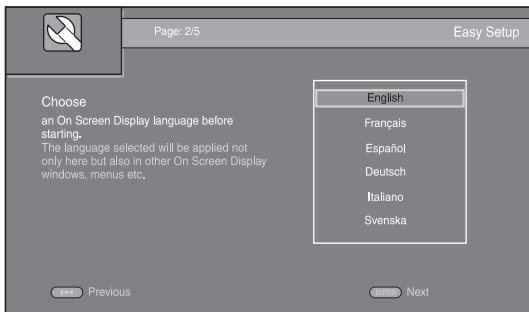
## ■ Setting with the Initial Wizard/ Easy Setup

Initial Wizard/Easy Setup allows you to set language, resolution, and screen aspect ratio easily. Initial Wizard screen is displayed when you turn this Player on for the first time after purchase or upgrade. Same setting can be performed from SETUP menu → System → Easy Setup.

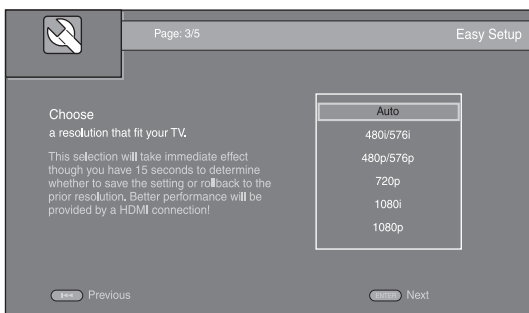
- 1 When Easy Setup screen is displayed, Press **ENTER** to start Easy Setup.



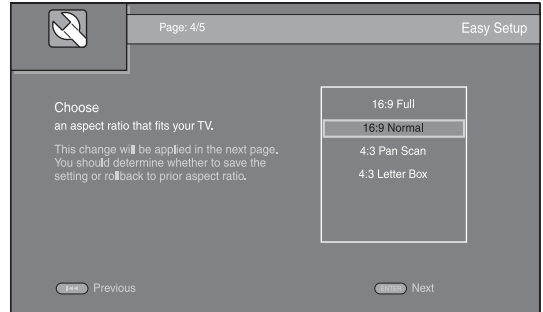
- 2 Press **▲/▼** to select the language you want to display on the screen, then press **ENTER**.



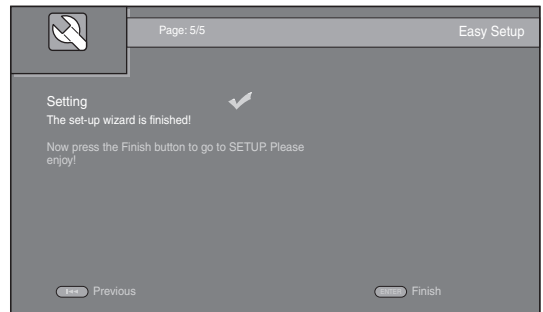
- 3 Press **▲/▼** to select the resolution, then press **ENTER**. For details on setting items, see “Resolution” (p. 36).



- 4 Press **▲/▼** to select the screen aspect ratio, then press **ENTER**. For details on setting items, see “TV Screen” (p. 35). Easy Setup is completed.



- 5 Press **ENTER** to exit Easy Setup.



### Notes

- When no picture is displayed after Initial Wizard/ Easy Setup is completed, refer to “TROUBLESHOOTING” (p. 42).
- A warning message concerning 3D video playback appears when this Player is turned on. Press **ENTER** to dismiss the message or **CLEAR** to disable it (p. 33).

# HOME/MEDIA MENU

HOME and MEDIA menus allow you to browse and play multi-media files on data discs, USB memory devices and your network.

## Note

- For details on playable disc and format, see page 3.

## ■ Playing back photo/music/video

### Basic operation

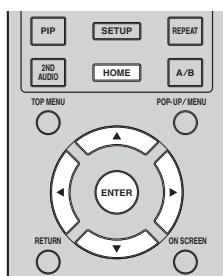
▲/▼: Moves the focus.

◀: Returns to the parent folder.

▶: Checks/unchecks single folder/file.

HOME: Moves to/exits HOME menu screen.

ENTER: Confirms the folder/file.



### Icons on the top of MEDIA menu

🎯: Plays back the disc on the tray, or displays contents in the data disc.

🗑️: Displays contents in the USB memory device connected to the USB port.

🔍: Searches for a DLNA (p. 21) server on the network.

🖥️: Displays contents on the connected DLNA server.

### Common operations for playing back files in a selected folder

**Example:** Selecting a movie file on a USB memory device

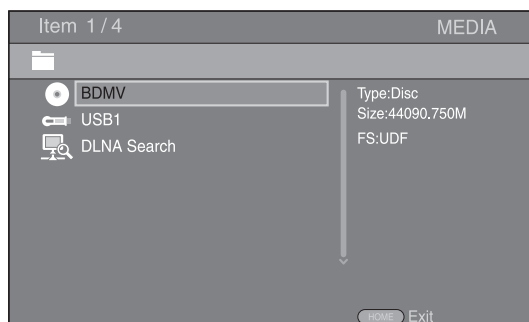
## Note

- Stop the playback of the video before you move to MEDIA menu screen.

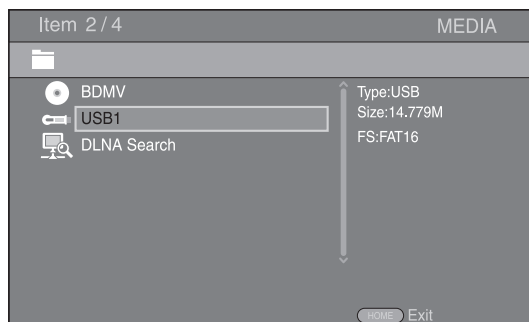
- 1 Press **HOME** to move to HOME menu screen. Press **◀▶** to select MEDIA, then press **ENTER**.



- 2 MEDIA screen appears.

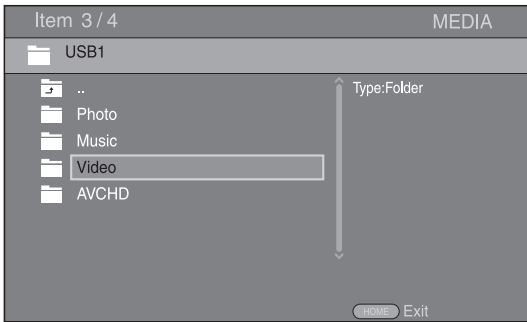


- 3 Select the item which contains the file you want to play back, then press **ENTER**.



- 4 Select the Photo, Music, Video or AVCHD folder you want to play back, then press **ENTER**.

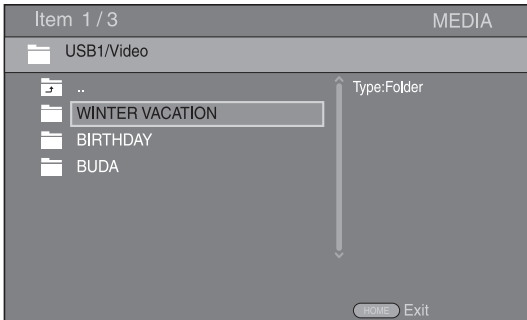
To return to the parent folder, press **◀** or select **⬆**.



#### Note

- Note that the only the file type selected on this step will be displayed in the following step. For example, if you selected Photo folder in this step, only photo files are displayed after this step. When you play back other than photo, return to this hierarchy and select file type again.

- 5 Select the folder(s) containing the file you want to play back.

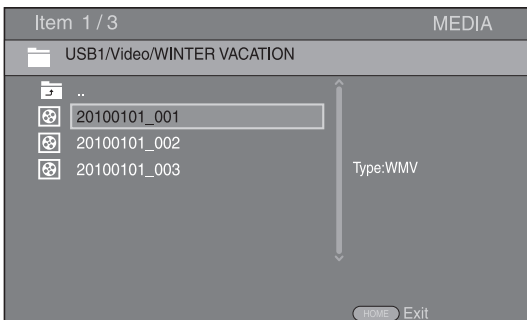


- 6 Select the file you want to play back, then press **ENTER**.

When a video file is selected, playback starts.

When a music file is selected, status screen is displayed and playback starts.

When a photo file is selected, slide show starts.



#### Hint

- To enjoy slide show with music, press **HOME** to return to the HOME menu screen while music is played back, and select photo file.

#### Note

- The displayed file may not be played back depending on the content.

### Operations for viewing photos

While viewing photos, the buttons on the remote control work as shown below.

- : Stops slide show and returns to the file browser.
- : Pauses a slide show.
- ▶: Plays a slide show.
- ▶▶: Moves to a next photo.
- ◀◀: Moves to a previous photo.
- ▶▶▶: Makes a slide show faster in 3 steps.
- ◀◀◀: Makes a slide show slower in 3 steps.
- ▲: Inverts a photo.
- ▼: Reflects a photo.
- ◀: Rotates a photo counterclockwise.
- ▶: Rotates a photo clockwise.
- ▶▶▶: Zooms in/out a photo (zoom in/out: 3 steps each).
- ▲/▼/◀/▶: Pan in zoom mode when a photo is larger than the screen.
- DIGEST:** Switches to thumbnail mode (p. 6). When thumbnails are displayed, you can proceed to the next/previous page with ◀◀◀/▶▶▶.



## ■ Using network content

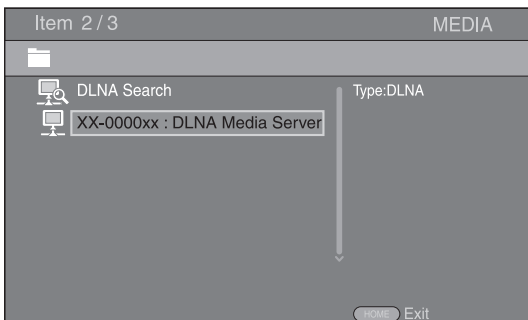
This Player is a DLNA certified digital media player. You can manage photo, music and video contents stored on DLNA servers on your home network.

### About DLNA

DLNA (Digital Living Network Alliance) provides easy sharing of digital media through network in the home, and you can enjoy digital contents stored on your DLNA-server-software-installed PC or other DLNA compatible device with your TV via this Player. To connect this Player to your DLNA servers, some settings for the DLNA server or device are required. For details, refer to your DLNA server software or DLNA device.

### Playing back shared contents

- 1 To play back files on your PC, install a DLNA server software, such as Windows Media Player 12, and share files you want to play back.
- 2 Turn on the PC with DLNA server software installed or the DLNA device connected to your home network.
- 3 Press **HOME** to display HOME menu screen. Then select **MEDIA** to move to MEDIA menu. The DLNA servers connected to the network are listed on the screen.



#### Notes

- If your DLNA server is not listed, select DLNA Search to find it.
  - Depending on the DLNA server, this Player may need to be permitted from the server.
  - To play the file on the DLNA server, this Player and the server must be connected to the same access point.
  - The file requirements may not always be compatible. There may be some restrictions depending on file features and DLNA sever capability.
- 4 Select the file you want to play back.

#### Notes

- The playback and operating quality may be affected by your home network condition.
- The files from removable media such as USB memory devices or DVD-drive on your media server, may not be shared properly.

## USING NETWORK SERVICES

You can instantly watch the videos that the following network services provide.

- YouTube
- Netflix (p. 23)
- Blockbuster (p. 24)
- Film Fresh (p. 25)

### Notes

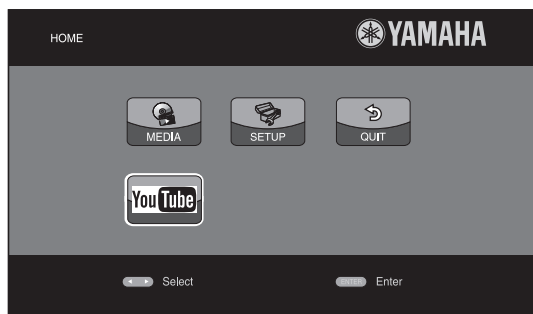
- Access to content provided by third parties requires a high speed internet connection and may also require account registration and a paid subscription.
- Third party content services may be changed, suspended, interrupted, or discontinued at any time without notice, and Yamaha disclaims any liability in connection with such occurrences.
- Some content may only be available for specific countries and may be presented in specific languages.
- Yamaha does not represent or warrant that content services will continue to be provided or available for a particular period of time, and any such warranty, express or implied, is disclaimed.

## PLAYING VIDEOS FROM YouTube™

You can watch movies from YouTube over the internet using this Player.

The services may be changed without notice.

- 1 Press **HOME** to display HOME menu screen.



### Hint

- The HOME menu screen may differ depending on the model.

- 2 Press **▲/▼/◀/▶** to select YouTube, then press **ENTER**.

### Hint

- To return to the HOME menu screen, press **RETURN**.

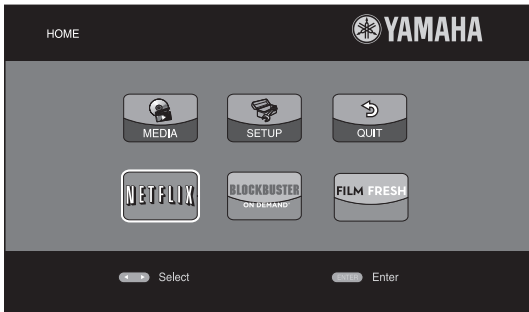
# PLAYING VIDEOS FROM NETFLIX

You can instantly watch movies and TV episodes from Netflix over the internet using this Player. To become a Netflix member, visit <http://www.netflix.com>.

## ■ Checking the activation code

Before you watch videos from Netflix, you need to get an activation code displayed on your TV.

- 1 Press **HOME** to display HOME menu screen.  
Press ◀▶ to select NETFLIX, then press **ENTER**.



- 2 Follow the instructions on the screen to get an activation code.

### Hint

- To return to the HOME menu screen, press **RETURN**.

### Notes

- When a software upgrade is required, an update notice appears when you select Netflix. In this case, perform the software upgrade.
- For details on Netflix, refer to the Netflix website on <http://www.netflix.com>.
- To deactivate Netflix, refer to “Netflix Information” (p. 34).

## ■ Preparing for watching video on your computer

You need to complete the activation of this Player through the internet with your computer. After that procedure, you can instantly watch movies and TV episodes from Netflix. Enter the activation code displayed on your TV to complete activation of Netflix function in this Player.

For details, refer to the Netflix website on <http://www.netflix.com>.

## ■ Playing a video

- 1 Press **HOME** to display HOME menu screen.  
Press ◀▶ to select Netflix, then press **ENTER**.
- 2 According to the instructions on the screen, select the video, then start playback.

# PLAYING VIDEOS FROM BLOCKBUSTER

You can instantly watch movies from BLOCKBUSTER over the internet using this Player. For details about this feature, visit <http://www.blockbuster.com>.

## ■ Creating your account

Before using this feature, create your BLOCKBUSTER account and get the activation code for this unit with your computer.

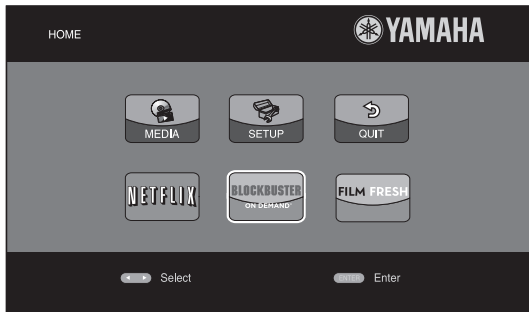
- 1 Visit the following website.  
<http://www.blockbuster.com/yamaha>
- 2 Click “Activate” on the website.
- 3 Sign in or create a free “blockbuster.com” account according to the instruction on the screen.
- 4 According to the instructions on the screen, get a 5-digit activation code to activate this Player.

### Hint

- We recommend that you write the activation code down to bring it to this Player.

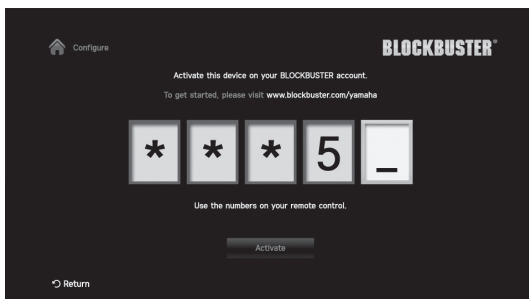
## ■ Activation of the account

- 1 Press **HOME** to display HOME menu screen.



### Hint

- To return to the HOME menu screen, press **RETURN**.
- 2 Press **▲/▼/◀/▶** to select BLOCKBUSTER then press **ENTER**.
  - 3 Press **◀/▶** to select “Configure”, then press **ENTER**.



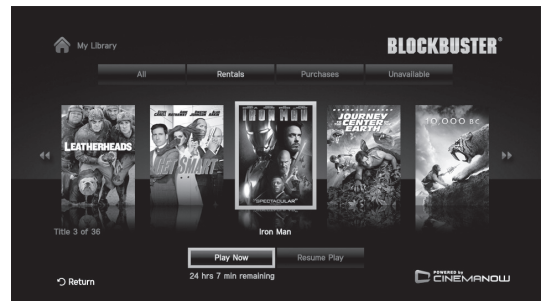
- 4 Enter the 5-digit activation code with the number buttons, then press **ENTER**.

## ■ Playing the video

- 1 Press **HOME** to display HOME menu screen.
- 2 Press **◀/▶** to select BLOCKBUSTER, then press **ENTER**.
- 3 Select “Browse”.
- 4 According to the instructions on the screen, select the desired titles, then rent or purchase them.
- 5 Select “Play Now” or “Continue Browsing”.

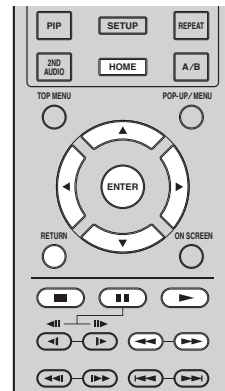
### Hint

- The titles you have rented or purchased will appear in “My Library”. Press **◀/▶** to select a title, then select “Play Now” or “Resume Play”.



## ■ Operations for watching videos

- ▶ : Plays back the video.
- ⏸ : Pauses playback.
- ⏹ : Stops video and displays “My Library”.
- ENTER**: Pauses playback and performs frame advance/reverse playback.
- ◀/▶ : Pauses playback and performs frame advance/reverse playback.
- ◀◀/▶▶ : Pauses playback and performs search backward/forward. To play back from the desired point, press **ENTER/▶▶**.
- RETURN**: Returns to “My Library” menu.



# PLAYING VIDEOS FROM FILM FRESH

You can instantly watch movies from Film Fresh over the internet using this Player. For details about this feature, visit <http://filmfresh.roxionow.com>.

## ■ Creating your account

Before using this feature, create your Film Fresh account and get an activation code for this unit with your computer.

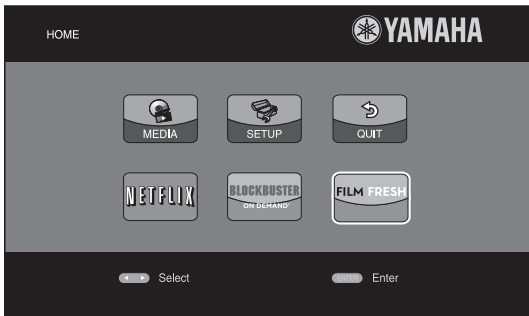
- 1 Visit the following website:  
<http://filmfresh.roxionow.com>
- 2 Click “My Account” on the website.
- 3 Sign in or create a free “Film Fresh” account according to the instruction on the screen.
- 4 Follow the instructions on the screen to get a 5-digit activation code to activate this Player.

### Hint

- We recommend that you write the activation code down to bring it to this Player.

## ■ Activation of the account

- 1 Press **HOME** to display HOME menu screen.



### Hint

- To return to the HOME menu screen, press **RETURN**.
- 2 Press **▲/▼/◀/▶** to select FILM FRESH then press **ENTER**.
  - 3 Press **◀/▶** to select “Configure”, then press **ENTER**.



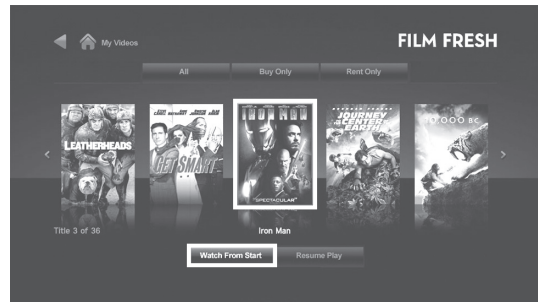
- 4 Enter the 5-digit activation code with the number buttons, then press **ENTER**.

## ■ Playing the video

- 1 Press **HOME** to display HOME menu screen.
- 2 Press **◀/▶** to select FILM FRESH, then press **ENTER**.
- 3 Select “Movies” or “TV Shows”.
- 4 According to the instructions on the screen, select the desired titles, then rent or purchase them.
- 5 Select “Watch Now” or “Continue Browsing”.

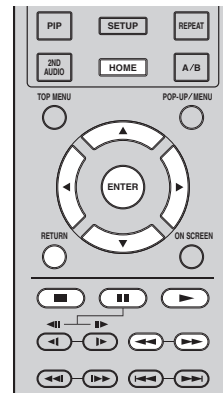
### Hint

- The titles you have rented or purchased will appear in “My Videos”. Press **◀/▶** to select a title, then select “Watch From Start” or “Resume Play”.



## ■ Operations for watching videos

- ▶: Plays back the video.
- : Pauses playback.
- : Stops video and displays “My Videos”.
- ◀◀/▶▶: Pauses playback and performs search backward/forward. To play back from the desired point, press **ENTER/▶▶**.
- RETURN**: Returns to “My Videos” menu.



# ADVANCED PLAYBACK OPERATION

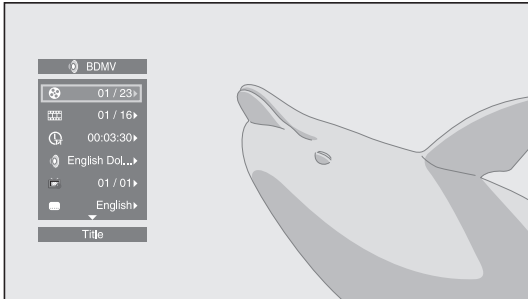
This chapter explains playback of commercially available BD and DVD discs, CDs, and recorded DVD-RW/R discs.

## Note

- For the basic playback operation, see page 6.

## ■ On Screen menu

To display On Screen menu, press **ON SCREEN**. After that, press **▲/▼/◀/▶** to select an item, then press **ENTER** to operate the desired function.



On Screen menu contains following items.

**Title** **BD** **DVD** **VIDEO**: Shows the title number being played back. You can skip to the desired title by selecting it from this item.

**Chapter** **BD** **DVD** **VIDEO**: Shows the chapter number being played back. You can skip to the desired chapter by selecting it from this item.

**Track/File** **CD** **VIDEO** **MUSIC** **PHOTO**: Shows track/file number being played back. You can skip to the desired track/file by selecting it from this item.

**Time** **BD** **DVD** **CD** **VIDEO** **MUSIC**: Shows the playback time. Select display type from the following:

- Elapsed playback time of the title, chapter, disc, track or file
- Remaining playback time of the title, chapter, disc, track or file

## Mode/Play Mode

**DVD** **CD** **VIDEO** **MUSIC** **PHOTO**: Shows current playback mode. You can select playback mode from the following:

### CD

- Normal: Normal playback.
- Shuffle: Random playback without repetition.
- Random: Random playback with repetition.

### DVD

- Normal
- Shuffle CH (chapter)
- Shuffle TT (title)
- Shuffle All
- Random CH (chapter)
- Random TT (title)
- Random All

### VIDEO MUSIC PHOTO

- Normal
- Shuffle F (folder)
- Shuffle All
- Random F (folder)
- Random All

**Audio** **BD** **DVD** **VIDEO**: Shows audio language/signal of BD/DVD disc currently selected. You can select the desired type of audio.

**Angle** **BD** **DVD**: Shows the currently-selected angle number. If the video is recorded with multiple angles, you can change the angle.

**Subtitle** **BD** **DVD** **VIDEO**: Shows the currently-selected subtitle language when the subtitle is provided.

**Subtitle Style** **BD**: Shows the currently-selected subtitle style. This function is available only for Video-file external subtitle. You can select the desired text style of subtitle.

**Bitrate** **BD** **DVD** **CD** **VIDEO** **MUSIC**: Shows bitrate of the audio/video signal.

**Second Video** **BD**: Turns the PIP on/off (p. 6).

**Second Audio** **BD**: Turns the secondary audio on/off (p. 6).

## Ins Search

**BD** **DVD** **CD** **VIDEO** **MUSIC**: Skips 30 seconds.

## Ins Replay

**BD** **DVD** **CD** **VIDEO** **MUSIC**: Replays the content from 10 seconds before.

## Slide Show **PHOTO**:

Shows slide show speed. You can select the slide show speed from Slow/Medium/Fast.

**Transition** **PHOTO**: Shows how photo appears on the screen. You can select the transition type.

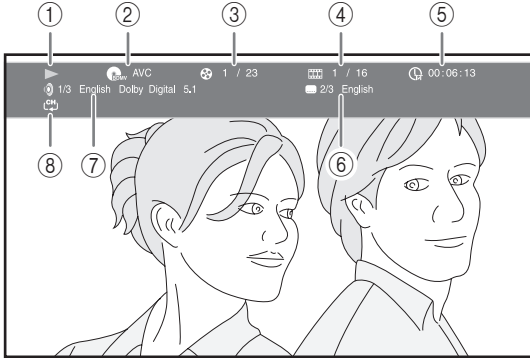
**Code Page** **VIDEO**: Selects character code of subtitle you added to DivX video (p. 44).

## ■ Status menu

This shows various settings, such as subtitles, angle settings and the title/chapter/track number currently played back. To display status menu, press **STATUS**. Status menu contains following menus.

**BD DVD VIDEO**

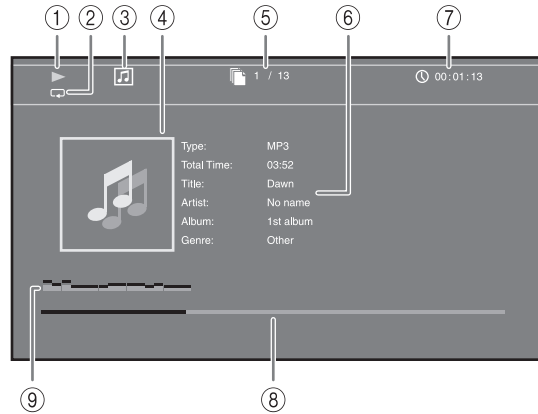
**Example:** Icons when playing BD



- ① **▶ (Playback status)**
- ② **BDMV (Disc type/video file icon)**
- ③ **⊗ (Title number being played):** You can jump to specified title with **SEARCH** button (p. 7).
- ④ **⊞ (Chapter number being played):** You can jump to specified chapter with **SEARCH** button (p. 7).
- ⑤ **⌚ (Elapsed playback time):** You can jump to specified point with **SEARCH** button (p. 7).
- ⑥ **⋮ (Subtitle currently selected):** You can change the subtitle language with **SUBTITLE** button.
- ⑦ **🔊 (Audio currently selected):** You can change the audio language or format with **AUDIO** button.
- ⑧ **↺ (Repeat mode):** Shows current repeat mode (p. 7).

**CD MUSIC**

**Example:** Icons when playing music file



- ① **▶ (Playback status)**
- ② **↺ (Repeat mode):** Shows current repeat mode (p. 7).
- ③ **🎵 (Disc type/music file icon)**
- ④ **(Artwork) MUSIC:** Displays artwork if the file contains it.
- ⑤ **📄 (Track/file number being played):** You can jump to specified track with **SEARCH** button (p. 7).
- ⑥ **(Information) MUSIC:** Displays music information if the file contains them.
- ⑦ **⌚ (Elapsed playback time):** You can jump to specified point with **SEARCH** button (p. 7).
- ⑧ **(Progress bar) MUSIC:** Shows progress status of current song.
- ⑨ **(Audio level meter):** displays current volume level.

**PHOTO**



- ① **▶ (Playback status)**
- ② **🖼️ (Photo file icon)**
- ③ **📄 (File number being displayed)**
- ④ **↺ (Repeat mode):** Shows current repeat mode (p. 7).
- ⑤ **(Slide show speed)**

## ■ Using Bookmark DVD VIDEO

This allows you to set Bookmark at the specified point of the video. After Bookmark is set, you can move to the point you set using this function. You can set up to 12 Bookmarks.

- 1 Press **MARKER** during playing back the movie to set Bookmark. Bookmark number, and the status are displayed.



- 2 After Bookmark is set, press **DIGEST** to display Bookmark select bar.



- 3 Press **◀/▶** to select the Bookmark you want to play back, then press **ENTER**. Press **CLEAR** to delete the selected Bookmark.

### Note

- When playback is finished (e.g., ejecting the disc, pressing **■** twice), Bookmarks are automatically deleted.

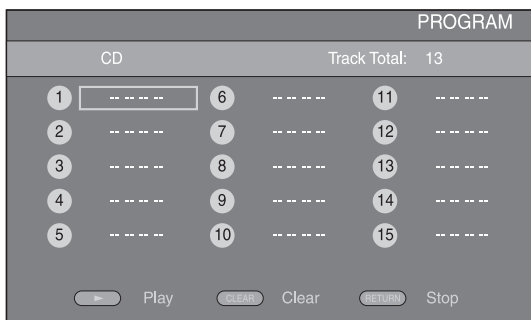
## ■ Program play DVD CD

This allows you to program playback order of audio disc tracks or DVD chapters.

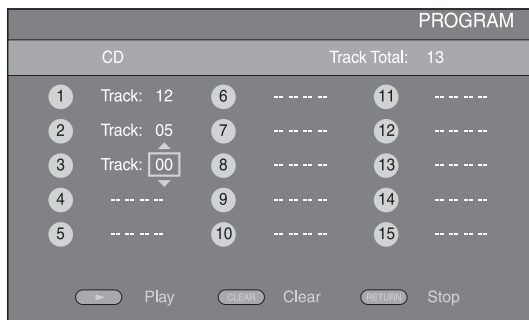
Press **PROGRAM** during playback to display the PROGRAM window to program playback order. You can program up to 15 tracks/chapters.

**Example:** Programming the playback order of CD tracks

- 1 Press **PROGRAM** during playback.



- 2 Press **ENTER** to program playback order. For audio disc, press **▲/▼** to select a desired track then press **ENTER**. For DVD-Video disc, select a desired title (shown as TT) and chapter (shown as CH) instead of a track. To clear a set track, select the track you want to clear, then press **CLEAR**. Press **RETURN** to cancel the Program play.



- 3 After programming is finished, press **▶** to set and start program playback.
- 4 To cancel program play, stop playback completely by pressing **■** twice.





## ■ Using search

BD DVD CD VIDEO MUSIC




This allows you to jump to the specified point during playback.

- 1 Press **SEARCH** during playback. Status bar appears.
- 2 Press **▲/▼/◀/▶** to select one of the item below, then press **ENTER**.



BD DVD :

- Title number (shown as )
- Chapter number (shown as )
- Elapsed title time (shown as )
- Elapsed chapter time (shown as )

CD :

- Track number (shown as )
- Elapsed track time (shown as )
- Elapsed disc time (shown as )

VIDEO MUSIC :

- File number (shown as )
- Elapsed file time (shown as )

- 3 Press **▲/▼** or number buttons to set/adjust the value of the focused item, and press **ENTER** to jump to the specified point.
- 4 To close the status bar, press **STATUS**.



## ■ Enjoying BONUSVIEW™ and BD-Live™

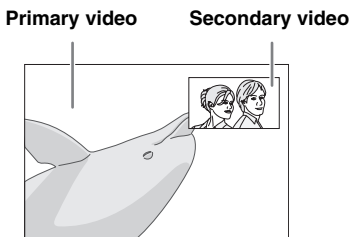
This player supports BONUSVIEW (p. 44) (BD-ROM Profile 1 Version 1.1) and BD-Live (p. 44) (BD-ROM Profile 2) playback functions.

### Note

- Functions and playback method vary depending on the disc. See the guidance on the disc or the supplied user's manual.

## ■ Using Picture in Picture function (secondary audio/video playback)

BD-Video that includes secondary audio and video compatible with Picture in Picture can be played back with secondary audio and video simultaneously as a small video in the corner.



**While PIP Mark (PIP) or Secondary Audio Mark (SA) is displayed, press PIP to turn the Picture in Picture function on/off.**

### Notes

- To listen to secondary audio, make sure that the Audio Output setting (Coaxial/Optical or HDMI) is set to PCM or Reencode (p. 37).
- Depending on the disc, to listen to secondary audio, you may need to set secondary audio to on on the top menu of the disc (p. 8).
- The secondary audio and video for Picture in Picture may automatically play back and be removed depending on the content. Also, playable areas may be restricted.

## ■ Using the feature of BD-Live™

### 1. Set the Network setting (p. 35).

### 2. Connect the USB memory device to this Player (p. 16).

BD-Live data is saved in a USB memory device connected to this Player. To enjoy these functions, connect a USB memory device (2 GB or greater and formatted with FAT 32/16) supporting USB 2.0 High Speed (480 Mbit/s) to the USB port that you select on Local Storage (p. 33). The default setting is the USB port on the rear panel.

- BUDA folder is created automatically in the USB memory device when necessary.
- If there is insufficient storage space, the data will not be copied/downloaded. Delete unneeded data or use a new USB memory device.
- Some time may be required for the data to load (read/write).

### Notes

- Yamaha cannot guarantee that all brands' USB memory devices will operate with this Player.
- Do not use a USB extension cable when connecting a USB memory device to the USB port of the player. Using a USB extension cable may prevent the player from performing correctly.

### 3. Play back the disc.


### 4. Run BD-Live according to the instructions on the disc.




### Notes

- Regarding playback method of BD-Live contents, etc., perform the operations in accordance with the instructions in the BD disc manual.
- To enjoy BD-Live functions, perform the network connection (p. 16) and Network settings (p. 35).
- Refer to “BD-Live Connection” (p. 35) regarding the setup to restrict access to BD-Live contents.
- The time required to download the provided programs into the USB memory device connected to this Player varies depending on the internet connection speeds and the data volume of the programs.
- BD-Live programs provided through the internet may not be able to display the connection depending on the status (upgrading) of the provider. In such cases, take out the disc and try again.
- If the BD-Live screen does not appear for a while after you select the BD-Live function in the BD disc menu, the USB memory device may not have enough free space. In such cases, eject the disc from the player, and then erase the data in the USB memory device using the “Format” menu in the “Local Storage” (p. 33).

# SETUP MENU

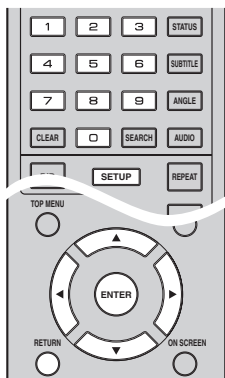
The SETUP menu enables various audio/visual settings and adjustments for functions using the remote control unit.

Menu/Submenu	Item	Function	Page
 <b>General Setting</b>	<b>System</b>		
	Screen Saver	Sets screen saver on/off.	33
	Disc Auto Playback	Sets this Player to start disc playback automatically.	33
	HDMI Control	Sets this Player to receive control signal from the remote control of your TV/AV receiver.	33
	Network Control	Sets the control via Ethernet to on/off.	33
	Load Default	Resets all settings to the default setting except Security setting.	33
	Upgrade	Performs upgrade of this Player.	33
	Easy Setup	Sets language, resolution, screen aspect ratio.	33
	Local Storage	Displays status of Local Storage (p. 33), formats Local Storage and selects the front/rear USB port for Local Storage.	33
	3D Playback Message	Displays a warning message concerning 3D video playback when this Player is turned on.	33
	<b>Language</b>		
	OSD	Selects the language for On Screen Display.	34
	Menu	Prioritizes the language for disc menu.	34
	Audio	Prioritizes the language for audio.	34
	Subtitle	Prioritizes the language for subtitle.	34
	<b>Playback</b>		
	Closed Caption	Sets the closed caption to on/off.	34
	Angle Mark	Sets to display the Angle Mark when BD/DVD with multiple angles is played back.	34
	PIP Mark	Sets to display the PIP Mark when BD/DVD with Picture in Picture is played back.	34
	Secondary Audio Mark	Sets to display the Secondary Audio Mark when BD/DVD with secondary audio is played back.	34
	Last Memory	Sets this Player to remember the last playback position of a disc when it is set to the standby mode or the disc tray is opened.	34
	DivX(R) VOD DRM	Displays registration code for DivX(R) video.	34
	Netflix Information	Deactivates this Player from Netflix and displays ESN (Electronic Serial Number).	34
	<b>Security</b>		
	Change Password	Changes password for Parental Control and Country Code.	34
	Parental Control	Sets the Parental Control depending on the disc content.	34
	Country Code	Sets your Country Code.	34
	<b>Network</b>		
	Internet Connection	Sets the internet connection to Enable/Disable.	35
	Information	Displays network information screen.	35
	Connection Test	Performs the network connection test.	35
	IP Setting	Sets the IP setting to Auto/Manual.	35
	BD-Live Connection	Sets the BD-Live connection to Permitted/Partial Permitted/Prohibited.	35
DLNA	Sets the DLNA to Enable/Disable.	35	
Proxy Setting	Sets the proxy setting.	35	

Menu/Submenu	Item	Function	Page	
 <b>Display Setting</b>	<b>TV</b>	3D Output	Selects 3D or 2D videos.	35
		TV Screen	Sets the screen aspect ratio of the connected TV, and adjust the video output.	35
		Resolution	Selects the resolution of output video.	36
		TV System	Selects the TV System from NTSC/PAL/Multi.	36
		Color Space	Selects Color Space from YCbCr 4:4:4/YCbCr 4:2:2/ Full RGB/RGB.	36
		HDMI Deep Color	Selects HDMI Deep Color from 30 bits/36 bits/Off.	36
		HDMI 1080p 24Hz	Sets HDMI 1080p 24Hz to auto/off.	36
		Lip Sync	Adjusts the lag between video and audio, such as when the mouth movement is out of sync with the voice.	36
	<b>Video Process</b>	Video Mode	Adjusts the visual image.	36
		Color Adjust	Adjusts Brightness/Saturation/Hue for each color.	36
		Auto Contrast	Adjusts contrast to optimize the played back image.	36
		Noise Reduction	Sets the level of Noise Reduction.	36
		De-interlacing Mode	Sets how to detect the video signal.	36
	 <b>Audio Setting</b>	<b>Audio Output</b>	Coaxial/Optical	Selects the output mode of COAXIAL jack/OPTICAL terminal from Bitstream/PCM/Reencode/Off.
HDMI			Selects the output mode of HDMI terminal from Bitstream/PCM/Reencode/Off.	37
Downsampling			Selects the digital audio signal down sampling frequency from 48k/96k/192k.	37
DRC			Sets the DRC (Dynamic Range Compression).	37
<b>Speaker Setting</b>		2ch Downmix	Sets the audio output from AUDIO OUT L/R jack.	37
<b>Post Process</b>		Up Mix	Multi-channelizes the 2-channel audio signal.	37
 <b>System Information</b>		Displays software version and MAC address (p. 45).	37	

## ■ Example of SETUP menu operation

You need to call up the SETUP menu screen to perform settings for this Player. The following is the explanation for basic operations of the SETUP menu.



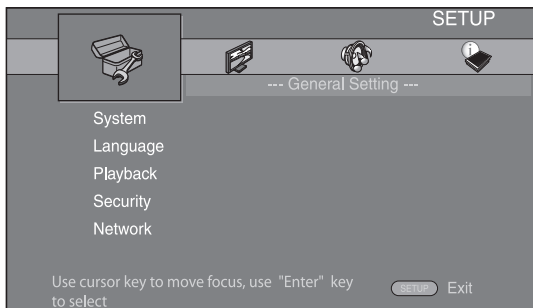
**Example:** Setting Parental Control

**Note**

- Some items cannot be set during playback. In this case, press **■** twice to stop playback completely before setting.

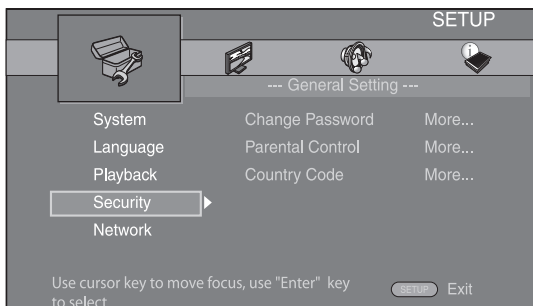
### 1. Display the SETUP menu screen.

Press **SETUP** to display the SETUP menu screen. Press **◀/▶** to select General Setting, then press **ENTER** or **▼**.



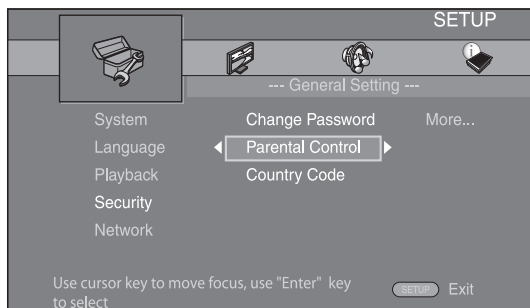
### 2. Select a Submenu.

Press **▲/▼** to select Security, then press **ENTER** or cursor **▶**.



### 3. Select a menu item.

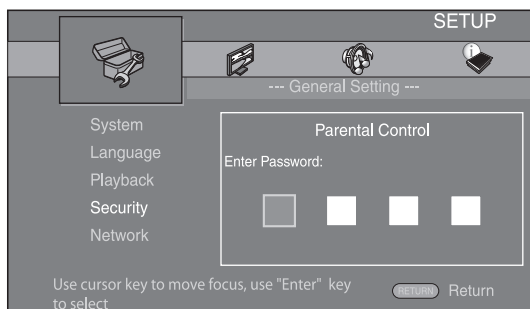
Press **▲/▼** to select Parental Control, then press **ENTER** or cursor **▶**.



### 4. Enter password.

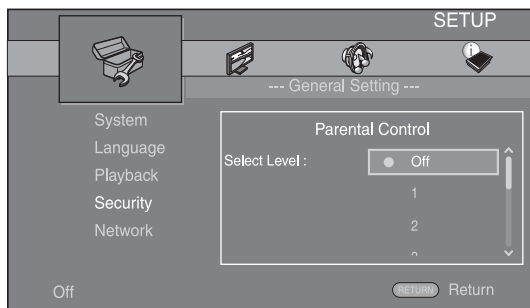
Enter your password with number buttons.

- The default password is 0000.
- You cannot move to the next setting screen until you have input the correct password.
- To change the password, refer to “Change Password” (p. 34).



### 5. Select a next item.

Press **▲/▼** to select the Parental Control Level for BD/DVD, then press **ENTER**.



### 6. Exit the menu screen.

Press **◀** to return to the previous menu.

## ■ General Setting

The default settings are marked with “\*”.

### System

#### Screen Saver

You can set the screen saver to on/off.

When set to on, this Player will switch to screen saver mode if there is no operation for 5 minutes. After that, this Player will turn to standby mode when there is no operation for 20 minutes.

On\*, Off

#### Disc Auto Playback

You can set Disc Auto Playback to on/off. When set to on, a disc will play back automatically after loading.

On\*, Off

#### HDMI Control

You can set the Player to receive control signal from a TV/AV receiver compatible with the HDMI Control function via an HDMI cable (p. 12).

On, Off\*

#### Using HDMI Control function

Using the HDMI Control function, you can interactively operate this Player with your TV (HDMI Control function supported).

When you connect this Player to the TV compatible with the HDMI Control function using an HDMI cable and set HDMI Control in the SETUP menu to on (p. 33), you can perform the function listed below.

- Automatic input select function  
When you start playback of this Player, the input selector of the TV (and an AV receiver if this Player is connected to the TV via the AV receiver) is switched to this Player automatically. TV Power is turned on automatically depending on the TV.
- Automatic power off function  
When you turn off the TV while this Player is in stop mode and the SETUP menu screen is not displayed, the power of this Player is also turned off automatically.

#### Notes

- HDMI Control function may not work properly depending on the TV.
- Functions other than ones shown above may work depending on the TV or AV receiver.
- In order to make the HDMI Control function available, set up settings for the HDMI Control function on ALL components (this Player, TV, and AV receiver). Certain operation may also be required.
- Each function may be set independently to activate/deactivate depending on the TV.
- Refer to the operation manuals supplied with the TV and/or AV receiver for details regarding setup.
- When set to on, power consumption during standby mode increases due to HDMI control function.

## Network Control

You can set control via Ethernet to on/off. This player employs Yamaha Network Control protocol (YNC).

On, Off\*

#### Notes

- When set to on, power consumption during standby mode increases due to network control function.
- When set to on, the system startup time is decreased.

#### Load Default

You can reset all settings of this Player to default setting except Security setting (p. 34). For details on default settings, see pages 30-37.

#### Upgrade

You can upgrade the software manually from Disc, USB Storage or Network. For details on software upgrade, refer to “SOFTWARE UPGRADE” (p. 40).

#### Easy Setup

You can perform Easy Setup (p. 18).

#### Local Storage

You can display Local Storage information, format Local Storage, and select Front USB/Rear USB to save the BD-Live data.

To format (empty) the “BUDA” folder in the USB memory device, select Information and press **ENTER** when “Format” is focused on the screen.

#### Front USB, Rear USB\*

#### Hint

- Local Storage is used as an auxiliary memory when Blu-ray Disc is played back.

#### 3D Playback Message

You can turn on or off a warning message concerning 3D video playback that appears on the TV when this Player is turned on.

On\*, Off

## Language

### OSD

You can select the language for On Screen Display which is the messages or menu displayed on the screen such as SETUP menu.

English\*, Français, Español, Deutsch, Italiano, Svenska, Nederlandse, Русский, 中文

### Menu

You can prioritize the language for disc menu.

English\*, Français, 中文, Español, Deutsch, Italiano, Nederlandse, Portuguese, Danish, Svenska, Finnish, Norwegian, Русский, Korean, Japanese, More

### Audio

You can prioritize the audio language for BD/DVD playback. For details on setting items, see “Menu” (p. 34).

### Subtitle

You can prioritize the language for Subtitle.

English, Français, 中文, Español, Deutsch, Italiano, Nederlandse, Portuguese, Danish, Svenska, Finnish, Norwegian, Русский, Korean, Japanese, More, Off\*


## Playback

### Closed Caption

You can set to display the closed caption (p. 44) when BD/DVD with closed caption is played back.

On\*, Off

### Angle Mark

You can set to display the Angle Mark () when BD/DVD with multiple angles is played back.


On\*, Off

### PIP Mark

You can set to display the PIP Mark () when BD with picture in picture (p. 29) is played back.

On\*, Off

### Secondary Audio Mark

You can set to display the Secondary Audio Mark () when BD with secondary audio is played back.

On\*, Off

### Last Memory

You can set whether this Player remembers the last playback position of a disc when it is set to the standby mode or the disc tray is opened.

On\*, Off

#### Note

- Some discs are not compatible with this function.

### DivX(R) VOD DRM

You can display registration code for DivX(R) video.

## Netflix Information

You can deactivate this Player from Netflix and display ESN (Electronic Serial Number).

To activate this Player again, refer to “PLAYING VIDEOS FROM NETFLIX” (p. 23).

ESN (Electronic Serial Number) is a unique number that allows you to use Netflix streaming.

## Security

### Change Password

You can set the password for changing the Parental Control Level and Country Code. Refer to “Parental Control” (p. 34) and “Country Code” (p. 34).

#### Notes

- The default password is 0000.
- If you forget the password, refer to “TROUBLESHOOTING” (p. 41) and set all the Security settings to their default settings.

### Parental Control

In some BD/DVD discs, a control level for disc viewing is set depending on the age of the viewer. You can set the Parental Control shown on the screen depending on the disc content.

The password (see “Change Password” on p. 34) needs to be entered before the Parental Control Levels is set.

After you set the Parental Control, when you play back a disc with level higher than current Parental Control Level, or you want to change the Parental Control Level, a dialog box will pop up to ask you to enter the password.

Off\*, 1 to 8

### Country Code

You can set the Country Code you live in. The password (see “Change Password” on p. 34) needs to be entered before the Country Code is set. This setting may be used for rating of Parental Control and disc playback.

## Network

### Internet Connection

Set this item to Enable when you use BD-Live (p. 29), DLNA (p. 21) and software upgrade from the network (p. 40).

**Enable\*, Disable**

### Information

You can display network information screen. On this screen, you can view the information of Interface (Ethernet), Address Type, IP Address, Subnet Mask, Default Gateway, and DNS.

### Connection Test

You can perform an internet connection test. If the test is failed, please check "IP Setting" (p. 35) and perform the test again.

### IP Setting

You can configure the network settings.

- Auto\*** Select to automatically configure the network settings of this Player with the DHCP server.
- Manual** Select to configure the network settings (IP Address, Subnet Mask, Default Gateway, and DNS) manually.

#### Hints

- **Numeric keys** Enters characters.
- **◀/▶** Moves the highlight.
- **CLEAR** Deletes a character.
- **ENTER** Saves the settings and exits from the menu.

### BD-Live Connection

You can set access restriction to BD-Live contents.

- Permitted** Allows all BD-Live discs to connect the network.
- Partial Permitted\*** Allows only discs with owner certification.
- Prohibited** Prohibits all BD-Live discs to connect the network.

### DLNA

You can set the DLNA (p. 21) to Enable/Disable. When you do not use the DLNA function, set to Disable.

**Enable\*, Disable**

### Proxy Setting

You can set Proxy Setting. Set to Disable for normal use. Set to Enable to set the proxy setting.

- Enable** Enables proxy host and proxy port setting.
- Disable\*** Sets proxy server to disable. Select this item when proxy server is not used.
- Proxy Host** Sets proxy host.
- Proxy Port** Sets proxy port.

## Display Setting

The default settings are marked with "\*".

### TV

#### 3D Output

You can select 3D or 2D video output from this Player.

- Auto\*** This Player automatically selects 3D or 2D videos.
- Off** This Player always selects 2D videos.

#### Note


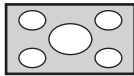
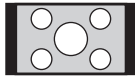
- Even if you set "3D Output" to "Auto" and play back a Blu-ray 3D disc, this Player selects 2D images depending on the connection and the setting of TV, etc (p. 12).

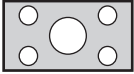


### TV Screen

You can set the screen aspect ratio of the connected TV, and adjust the video output.

If you switch your TV (i.e. because you have bought a new one) and the screen aspect ratio of the connected TV changes, you will have to change the TV Screen setting.

- 16:9 Full** Select this when this Player is connected to a TV with a 16:9 screen. When a 4:3 aspect ratio video is played back, the video is displayed as shown below.
- 16:9 Normal\*** Select this when this Player is connected to a TV with a 16:9 screen. When a 4:3 aspect ratio video is played back, the video is displayed as shown below.
- 4:3 Pan Scan** Select this when this Player is connected to a TV with a 4:3 screen. When a 16:9 aspect ratio video is played back, the video is displayed as shown below.
- 4:3 Letterbox** Select this when this Player is connected to a TV with a 4:3 screen. When a 16:9 aspect ratio video is played back, the video is displayed as shown below.

Original image size	On 16:9 (wide screen) TV	
	16:9 Full	16:9 Normal
 4:3		

Original image size	On 4:3 TV	
	4:3 Pan Scan	4:3 Letterbox
 16:9		

## Resolution

You can select the video output resolution from Auto, 480i/576i, 480p/576p, 720p, 1080i, and 1080p. When set to Auto, resolution is set to the maximum resolution according to the connected TV. For more details on output formats, refer to “About the video output formats” (p. 39).

**Auto\***, **480i/576i**, **480p/576p**, **720p**, **1080i**, **1080p**

### Note

- To output HD audio (such as Dolby TrueHD or DTS-HD Master Audio) from HDMI terminal, set Resolution to Auto or more than 720p.

## TV System

You can select TV System from PAL, NTSC and Multi. Set the same TV System as your TV set. For more details on output formats, refer to “About the video output formats” (p. 39).

**NTSC, PAL\***, **Multi** (Australia, Asia, China, U.K., Europe and Russia models)

**NTSC\***, **PAL**, **Multi** (U.S.A., Canada, Central and South America models)

## Color Space

You can select the Color Space (p. 44) output from HDMI. This function is available when this Player is connected with an HDMI cable.

**YCbCr 4:4:4\*** Sets Color Space to YCbCr 4:4:4.

**YCbCr 4:2:2** Sets Color Space to YCbCr 4:2:2.

**Full RGB** When RGB is set and white and black on the screen are too faint, select this item. This setting is effective when a connected component supports RGB 0-255 range.

**RGB** Outputs video signal at normal signal range.

### Note

- This function is only available on TVs that support this function.

## HDMI Deep Color

When your TV and/or AV receiver is compatible with Deep Color (p. 44), set this item according to your TV/AV receiver. This function is available when this Player is connected with an HDMI cable.

**30 bits**, **36 bits**, **Off\***

## HDMI 1080p 24Hz

This outputs the BD-Video encoded in 24Hz frame rate in HDMI 1080p 24Hz. Smoother video playback may be available with this function. This function is available when your TV/AV receiver support this function, and this Player is connected with an HDMI cable. For more details on output formats, refer to “About the video output formats” (p. 39).

**Auto\***, **Off**

### Note

- This setting is disabled when output resolution is other than 1080p.

## Lip Sync

You can set/adjust the Lip Sync (p. 45) function.

**Auto\*** This Player adjusts the Lip Sync function automatically.

**Manual** You can adjust the Lip Sync function manually. You can set the delay of the audio for 2D and 3D contents independently.

**2D**

**3D**

**Off** This Player does not adjust the Lip Sync function.

## Video Process

### Video Mode

You can select Video Mode below.

**Standard\*** The image is most natural and well-balanced. This mode suits for normal use.

**Vivid** The image is more vivid and sharp.

**Cinema** The image suits for watching movie in dark room.

**Custom** You can adjust the visual image manually. Press ▲/▼ to select the parameter, then press ◀/▶ to adjust the figure.

### Brightness

Adjusts the overall brightness of the image.

### Saturation

Adjusts the richness of the color in the projected image.

### Hue

Adjusts the tint of the projected image.

### Contrast

Adjusts the bright areas (white levels) in the image.

### Sharpness

Adjusts the sharpness of objects in the video.

### CTI

Smooths out the edges of color images. Color images are rendered more distinct.

**The default settings are 0.**

## Color Adjust

You can adjust Brightness/Saturation/Hue for each color (Red/Green/Blue/Yellow/Cyan/Magenta). To use this function, set Video Mode to Custom. For details on the setting items, see “Video Mode” (p. 36).

**The default settings are 0.**

## Auto Contrast

Adjusts contrast to optimize the played back image. To use this function, set Video Mode to Custom.

**Off\***, **On**

## Noise Reduction

You can set the Noise Reduction to a level of 0 to 3. 0 is off, and 3 is the maximum level.

**0\***, **1**, **2**, **3**

## De-interlacing Mode

You can select how to detect the video signal. Set to Auto for normal use. When horizontal stripping noise appears on the screen, set this to Film/Video to remove the noise.

**Auto\***, **Film**, **Video**



## ■ Audio Setting

The default settings are marked with “\*”.

### Audio Output

#### Coaxial/Optical

You can select the output mode of COAXIAL jack and OPTICAL terminal. For more details on output formats, refer to “About the audio output formats” (p. 38).

<b>Bitstream</b>	Outputs digital signal without any processing. Secondary Audio is not output.
<b>PCM</b>	Outputs 2-channel PCM.
<b>Reencode*</b>	Outputs Bitstream with Secondary Audio.
<b>Off</b>	Mutes sound.

#### HDMI

You can select the output mode of HDMI terminal. For details on setting items, see “Coaxial/Optical” (p. 37). For more details on output formats, refer to “About the audio output formats” (p. 38).

**Bitstream\*, PCM, Reencode, Off**

#### Note

- To output HD audio (such as Dolby TrueHD or DTS-HD Master Audio) from HDMI terminal, set Resolution to Auto or more than 720p (p. 36).

### Downsampling

You can select digital audio signal down-sample frequency. This function is effective for the audio signal output from the COAXIAL jack/OPTICAL terminal.

<b>48k*</b>	The highest sampling rate of digital PCM output is 48 kHz.
<b>96k</b>	The highest sampling rate of digital PCM output is 96 kHz.
<b>192k</b>	The highest sampling rate of digital PCM output is 192 kHz.

### DRC

You can set the DRC (Dynamic Range Compression) (p. 44) to on/off/Auto. When set to Auto, DRC is automatically turned on for a source with DRC information in Dolby TrueHD format. DRC makes the strong sound such as plosive sound lower, and conversations more audible. It is useful when you watch movies in the night.

**Off, On, Auto\***

## Speaker Setting

### 2ch Downmix

You can select down mix method to analog 2-ch from Stereo or Lt/Rt.

<b>Lt/Rt</b>	Select this item if this unit is connected to a Dolby Pro Logic decoder. Sound from rear speakers is mixed to the 2-ch stereo sound.
<b>Stereo*</b>	Changes channel output to stereo, which only delivers sound from the two front speakers.

## Post Process

### Up Mix

You can multi-channelize the 2-channel audio signal. To multi-channelize, select NEO6, then select Cinema or Music mode.

**Off\*, NEO6**

## ■ System Information

Software version and MAC address (p. 45) are displayed.

## ■ About the audio output formats

Source format		HDMI			COAXIAL/OPTICAL			MIXED 2CH
		Bitstream	PCM	Reencode	Bitstream	PCM	Reencode	
PCM 2ch		PCM 2ch			PCM 2ch			2ch
PCM 5.1ch		PCM 5.1ch			PCM 2ch			2ch
PCM 7.1ch		PCM 7.1ch			PCM 2ch			2ch
Dolby Digital		Dolby Digital	PCM up to 5.1ch	Dolby Digital	Dolby Digital	PCM 2ch	Dolby Digital	2ch
	with SA* or BCS**							
Dolby Digital Plus		Dolby Digital Plus	PCM up to 7.1ch	Dolby Digital Plus	Dolby Digital	PCM 2ch	Dolby Digital	2ch
	with SA* or BCS**			Dolby Digital				
Dolby TrueHD		Dolby TrueHD	PCM up to 7.1ch	Dolby TrueHD	Dolby Digital	PCM 2ch	Dolby Digital	
	with SA* or BCS**			Dolby Digital				
DTS		DTS	PCM up to 5.1ch	DTS	DTS	PCM 2ch	DTS	2ch
	with SA* or BCS**							
DTS HD High Resolution		DTS HD High Resolution	PCM up to 7.1ch	DTS HD High Resolution	DTS	PCM 2ch	DTS	2ch
	with SA* or BCS**			DTS				
DTS-HD Master Audio		DTS-HD Master Audio	PCM up to 7.1ch	DTS-HD Master Audio	DTS	PCM 2ch	DTS	
	with SA* or BCS**			DTS				

\* “SA” is a Secondary Audio.

\*\* “BCS” is a button click sound, the sound effect for pop-up menus, etc.

### Notes

- When Coaxial/Optical or HDMI is set to Bitstream, secondary audio is not output. (p. 37)
- To output HD audio (such as Dolby TrueHD or DTS-HD Master Audio) from HDMI terminal, set Resolution to Auto or more than 720p (p. 36).

## ■ About the video output formats

### When TV System is set to NTSC

	Resolution	Auto	480i/576i	480p/576p	720p	1080i	1080p	
							24Hz	Others
HDMI	Playback BD	Max	Max	Max	720p 60 Hz	1080i 60 Hz	1080p 24 Hz	1080p 60 Hz
	others						1080p 60 Hz	
COMPONENT	Playback commercially-released DVD	480i	480i	480p	480p	480p	480p	
	Playback BD			480i	480i	480i	off	480i
	others			480p	720p 60 Hz *	1080i 60 Hz *	1080i 60 Hz *	
VIDEO	Playback BD	480i	480i	480i	480i	480i	off	480i
	others						480i	

\* Depending on the disc or contents, this Player outputs 480p video signal.

### When TV System is set to PAL

	Resolution	Auto	480i/576i	480p/576p	720p	1080i	1080p	
							24Hz	Others
HDMI	Playback BD	Max	Max	Max	720p 50 Hz	1080i 50 Hz	1080p 24 Hz	1080p 50 Hz
	others						1080p 50 Hz	
COMPONENT	Playback commercially-released DVD	576i	576i	576p	576p	576p	576p	
	Playback BD			576i	576i	576i	off	576i
	others			576p	720p 50 Hz *	1080i 50 Hz *	1080i 50 Hz *	
VIDEO	Playback BD	576i	576i	576i	576i	576i	off	576i
	others						576i	

\* Depending on the disc or contents, this Player outputs 576p video signal.

### When TV System is set to Multi

When TV System is set to Multi, video signal is output at the same frequency as the source. Refer to the tables above for details on the frequency setting of the TV and resolution of the output video signal.

While a menu screen such as SETUP menu is displayed, video signal is output at the same frequency as the source.

#### Notes

- "Max" in the table means that resolution is set to the maximum resolution supported by the connected TV.
- HDMI 1080p 24Hz setting is disabled when output resolution is other than 1080p.
- When this Player outputs the 1080p 24 Hz video signal from HDMI, no signals are output from the COMPONENT and VIDEO jacks.
- When commercially-released DVD is played back with component output, maximum resolution is 480p/576p.
- When TV System is set to NTSC and video source is not 60 Hz, the video output signal is converted to 60 Hz.
- When TV System is set to PAL and video source is not 50 Hz, the video output signal is converted to 50 Hz.

# SOFTWARE UPGRADE

Some of the newly released BD discs cannot be played back unless you upgrade this Player software to the latest version. We recommend upgrading the software of this Player with software upgrade so that this Player is operated based on the latest software.

To check for the availability of a software upgrade, visit

<http://download.yamaha.com/downloads/service/top/?site=europe.yamaha.com&language=en>

## Hint

- Software upgrade is automatically started after loading the disc which contains upgrade file package.

## Note

- Do not remove the disc/USB memory device, set this Player to standby mode or unplug the power cable/ LAN cable while the software upgrade is being performed.

## ■ Upgrading the software

### 1. Prepare for the software upgrade.

When you upgrade the software from Disc/USB Storage:

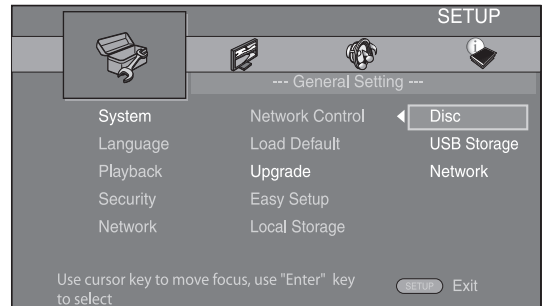
- ① Save the upgrade file package to the appropriate folder on the disc/USB memory device. For more details, refer to the procedure document attached with the upgrade file package.
- ② Load the disc or connect the USB memory device.  
When the disc is loaded, software upgrade is started automatically. Skip step 2.

When you upgrade the software from Network:  
Confirm that this Player is connected to the network.

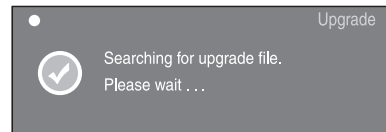
### 2. Select the upgrade method and start upgrade from SETUP menu.

- ① Press **SETUP** to display SETUP menu screen.
- ② Select General Setting → System → Upgrade.

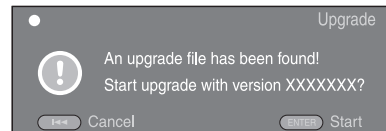
- ③ Select the item which contains the upgrade file package from Disc/USB Storage/Network.



### 3. The system will search for upgrade file package.



### 4. Press ENTER to start upgrade.




### 5. Upgrade is completed. The system will restart.





# TROUBLESHOOTING

Refer to the table below when this Player does not function properly. If the problem you are experiencing is not listed below or if the instruction below does not help, turn off this Player, disconnect the power cable, and contact the nearest authorized Yamaha dealer or service center.

## ■ Power

Problem	Possible causes and solutions
No power.	<ul style="list-style-type: none"> <li>– Connect the AC power cable properly.</li> <li>– Press  on the front panel to turn on the power.</li> </ul>
The Player power is turned off.	<ul style="list-style-type: none"> <li>– The power will be automatically turned off after 25 continuous minutes of inactivity (no playback).</li> </ul>

## ■ Basic operation

Problem	Possible causes and solutions
The remote control does not work.	<ul style="list-style-type: none"> <li>– Use the remote control within its operating range. (p. 9)</li> <li>– Replace the batteries. (p. 9)</li> <li>– Check the ID settings for the main unit and the remote control. (p. 9)</li> </ul>
Buttons do not work.	<ul style="list-style-type: none"> <li>– Press and hold  on the front panel for around 5 seconds to restart this Player.</li> <li>– To completely reset this Player, unplug the power cable from the AC outlet for 10 seconds or more, plug the power cable to the AC outlet again, and then turn on this Player.</li> </ul>
Password is forgotten.	<ul style="list-style-type: none"> <li>– Press and hold  and  on the front panel simultaneously when no disc is inserted and playback is stopped to set all the Security settings (p. 34) of this Player to their default settings. After the power is turned off automatically, press  to turn on the power again.</li> </ul>

## ■ Disc playback

Problem	Possible causes and solutions
The Player cannot play a disc.	<ul style="list-style-type: none"> <li>– Take out the disc and clean it. (p. 4)</li> <li>– Make sure that the disc is loaded properly (aligned in disc tray and label-side up). (p. 4)</li> <li>– Use a disc supported by the Player. (p. 3)</li> <li>– Remove the disc and then check whether the Player supports the disc or not. (p. 3)</li> <li>– Check the region code. (p. 3)</li> <li>– Check whether the disc is defective by trying another disc.</li> <li>– The CD-R/RW, DVD+R/RW/R DL, and DVD-R/RW/R DL must be finalized. (p. 3)</li> </ul>
Video stops.	<ul style="list-style-type: none"> <li>– The Player will stop if it senses shock or vibration.</li> </ul>
The Player makes a snapping sound when starting playback or loading a disc.	<ul style="list-style-type: none"> <li>– These sounds are not malfunctions of the Player but are normal operating conditions.</li> </ul>

## ■ Picture

Problem	Possible causes and solutions
<b>No picture.</b>	<ul style="list-style-type: none"> <li>– Make sure that the cables are connected correctly. (p. 10)</li> <li>– Make sure that the connected TV or the AV receiver is set to the correct input. (p. 10)</li> <li>– Connect this Player to the TV with VIDEO jack (p. 13) using the supplied video pin cable.               <ul style="list-style-type: none"> <li>– If picture is still not displayed with the unit connected to the VIDEO jack, press and hold <b>■</b> on the front panel for around 5 seconds when no disc is inserted and playback is stopped to switch NTSC/PAL and then set Resolution properly. (p. 36).</li> </ul> </li> <li>– TV System is set to the incorrect setting. Press and hold <b>▶</b> and <b>■</b> on the front panel simultaneously when no disc is inserted and playback is stopped to reset the TV System and Resolution settings to their default settings.</li> </ul>
<b>Screen freezes and operation buttons do not work.</b>	<ul style="list-style-type: none"> <li>– Press <b>■</b>, then restart playback.</li> <li>– Turn off the power and turn on the power again.</li> <li>– Press and hold <b>⏻</b> on the front panel for around 5 seconds to restart this Player.</li> </ul>
<b>Video is not output with the desired resolution.</b>	<ul style="list-style-type: none"> <li>– Set to the desired resolution. (p. 36)</li> </ul>
<b>Widescreen video appears vertically stretched, or black bands appear at the top and bottom of the screen. Or 4:3 video appears horizontally stretched.</b>	<ul style="list-style-type: none"> <li>– Change the aspect ratio of your TV. (p. 35)</li> </ul>
<b>Square noise (mosaic) appears on the screen.</b>	<ul style="list-style-type: none"> <li>– Blocks in images may be visible in scenes with rapid movement due to the characteristics of digital image compression technology.</li> </ul>
<b>The playback screen will be disturbed if DVD video is recorded to a VCR, or played back through a VCR.</b>	<ul style="list-style-type: none"> <li>– This Player complies with analog copy protection. Some discs contain a copy prohibiting signal. If you try to play back such discs through a VCR, or record to a VCR and play back the signal, the copy protection will prevent normal playback.</li> </ul>
<b>Audio is not output, or images are not played back properly.</b>	<ul style="list-style-type: none"> <li>– The audio may not be output or the images may not be played back properly for some discs in which copyright-protected contents are recorded.</li> </ul>

## ■ Sound

Problem	Possible causes and solutions
<b>No sound, or sound is distorted.</b>	<ul style="list-style-type: none"> <li>– Check that the audio cable is connected correctly. (p. 10)</li> <li>– Turn the volume of TV or AV receiver up.</li> <li>– There is no sound during still mode, slow motion playback, fast forward and fast reverse. (p. 8)</li> <li>– Audio may not be output depending on the audio recording status, such as when audio other than an audio signal or non-standard audio is recorded for the audio content. (p. 3)</li> </ul>
<b>Left and right channels of audio are reversed, or sound comes out of only one side.</b>	<ul style="list-style-type: none"> <li>– Check the audio connection. (p. 10)</li> </ul>
<b>Audio is not output, or images are not played back properly.</b>	<ul style="list-style-type: none"> <li>– The audio may not be output or the images may not be played back properly for some discs in which copyright-protected contents are recorded.</li> </ul>
<b>Cannot hear the desired audio type and/ or number of channels.</b>	<ul style="list-style-type: none"> <li>– Refer to Audio Output setting and “About the audio output formats”. (p. 37, 38)</li> </ul>
<b>Cannot hear the sound of PIP (secondary audio).</b>	<ul style="list-style-type: none"> <li>– Set Coaxial/Optical or HDMI to PCM/Reencode. (p. 37)</li> <li>– To hear secondary audio, press <b>2ND AUDIO</b>. (p. 6)</li> <li>– Depending on the disc, you may need to set secondary audio on the top menu of the disc. (p. 8)</li> </ul>

## ■ Network

Problem	Possible causes and solutions
<b>Cannot connect to the Internet.</b>	<ul style="list-style-type: none"> <li>– Connect the Network cable properly.</li> <li>– Turn on the connected equipment, such as broadband router or modem.</li> <li>– Connect the broadband router and/or modem properly.</li> <li>– Set the proper value(s) in the network setting. Check “Network”. (p. 35)</li> </ul>
<b>Cannot download BD-Live contents.</b>	<ul style="list-style-type: none"> <li>– Connect the Network cable properly. (p. 16)</li> <li>– Connect USB memory device properly. Check that the USB memory device is connected to the USB port of this Player. (p. 16)</li> <li>– Check if the BD disc supports BD-Live.</li> <li>– Check the setting for “Internet Connection”. (p. 35)</li> <li>– Connect the USB memory device formatted in FAT16 or FAT32.</li> <li>– It is recommended to connect the USB memory device with at least 2 GB of free space. If there is not enough free space, format the USB memory device. (p. 33)</li> <li>– Refer to the supplied user’s manual of the disc or consult the disc manufacturer.</li> </ul>
<b>Cannot detect the DLNA server.</b>	<ul style="list-style-type: none"> <li>– Connect the network cable properly.</li> <li>– Turn on the connected equipment, such as broadband router or the server.</li> <li>– Confirm the Player and the server are connected to the same access point.</li> <li>– Set the proper value(s) in the network setting. Check “Network”. (p. 35)</li> <li>– Depending on the DLNA server, the Player may need to be permitted from the server.</li> </ul>
<b>Cannot a play the file on the home network server.</b>	<ul style="list-style-type: none"> <li>– Make sure the file is playable. (p. 3)</li> <li>– Check your DLNA server’s setting.</li> <li>– The playback and operating quality may be affected by your home network condition.</li> </ul>

## ■ Messages on the screen

- The following messages appear on the TV screen in case the disc you tried to play back is not appropriate or the operation is not correct.

Error message	Possible causes and solutions
<b>Not Support This File!</b>	– The file is not supported with this Player. See “Types of discs/files that can be used with this player” (p. 3).
<b>Wrong region code!</b>	– The disc is an incompatible region code. See “Region management information” (p. 3).
<b>Network has FAILED.</b>	– This Player cannot be connected to the network. Check connection (p. 16) and Network setting (p. 35).
<b>Network is OK, proxy has FAILED.</b>	– This Player cannot be connected to the proxy server. See “Proxy Setting” (p. 35).
<b>The Setting is prohibited, please setup again.</b>	– BD-Live connection is prohibited. See “BD-Live Connection” (p. 35).
<b>No valid upgrade file is found!</b>	– Check if the upgrade file is in the appropriate folder.
<b>Upgrade has failed for some reason!</b>	– Upgrade is failed. Check if the upgrade file is corrupted or unreadable.

# GLOSSARY

## **AVCHD**

AVCHD is a new format (standard) for high definition video cameras that can be used to record and play high-resolution HD images.

## **BD-Live™**

BD-Live is a BD standard that utilizes a network connection, enabling this Player to go online to download promotional videos and other data.

## **BDMV**

BDMV (Blu-ray Disc Movie, BD-MV) refers to one of the application formats used for BD-ROM which is one of the Blu-ray Disc specifications. BDMV is a recording format equivalent to DVD-Video of the DVD specification.

## **Blu-ray 3D™**

Blu-ray 3D enables you to view full high definition 3D images.

## **BONUSVIEW™**

BONUSVIEW compatible discs let you simultaneously enjoy video sub-channel for two screens, audio sub-channel and sub-titles. A small screen appears within the main screen during playback (Picture in Picture).

## **Closed caption**

Closed captions are kind of subtitle, and the difference between subtitles and captions is that subtitles are intended for hearing persons and captions are for the hearing impaired. Subtitles rarely show all of the audio. For example, captions show sound effects (e.g., “phone ringing” and “footsteps”), while subtitles do not. Before you select this setting, please ensure that the disc contains closed caption information.

## **Color Space**

Color Space is a color range that can be represented. RGB is a color space based on the RGB color model (red, green and blue) and is typically used for PC monitors. YCbCr is a color space based on a luminance signal (Y) and two color difference signals (Cb and Cr).

## **Deep Color**

Deep Color refers to the use of various color depths in displays, up from the 24-bit depths in previous versions of the HDMI specification. This extra bit depth allows HDTVs and other displays go from millions of colors to billions of colors and eliminate on-screen color banding for smooth tonal transitions and subtle gradations between colors. The increased contrast ratio can represent many times more shades of gray between black and white. Also Deep Color increases the number of available colors within the boundaries defined by the RGB or YCbCr color space.

## **DivX®**

DivX® is a popular media technology created by DivX, Inc. DivX® media files contain highly compressed video with high visual quality that maintains a relatively small file size. DivX® files can also include advanced media features like menus, subtitles, and alternate audio tracks. Many DivX® media files are available for download online, and you can create your own using your personal content and easy-to-use tools from DivX.com.

## **Dolby Digital**

A sound system developed by Dolby Laboratories Inc. that gives movie theater ambience to audio output when the product is connected to a Dolby Digital processor or amplifier.

## **Dolby Digital Plus**

A sound system developed as an extension to Dolby Digital. This audio coding technology supports 7.1 multi-channel surround sound.

## **Dolby TrueHD**

Dolby TrueHD is a lossless coding technology that supports up to 8 channels of multi-channel surround sound for the next generation optical discs. The reproduced sound is true to the original source bit-for-bit.

## **DRC (Dynamic Range Control)**

DRC lets you adjust the range between the loudest and softest sounds (dynamic range) for playback at average volume. Use this when it is hard to hear dialog, or during times when playback may disturb neighbors.

## **DTS**

This is a digital sound system developed by DTS, Inc. for use in cinemas.

## **DTS-HD High Resolution Audio**

DTS-HD High Resolution Audio is a new technology developed for the next generation high definition optical disc format.

## **DTS-HD Master Audio**

DTS-HD Master Audio is a lossless audio compression technology developed for the next generation high definition optical disc format.

## **HDMI**

HDMI (High-Definition Multimedia Interface) is an interface that supports both video and audio on a single digital connection. The HDMI connection carries standard to high definition video signals and multi-channel audio signals to AV components such as HDMI equipped TVs, in digital form without degradation.

## **Letterbox (LB 4:3)**

A screen size with black bars on the top and bottom of the image to allow viewing of wide-screen (16:9) material on a connected 4:3 TV.



**Linear PCM Sound**

Linear PCM is a signal recording format used for Audio CDs and on some DVD and Blu-ray discs. The sound on Audio CDs is recorded at 44.1 kHz with 16 bits. (Sound is recorded between 48 kHz with 16 bits and 96 kHz with 24 bits on DVD discs and between 48 kHz with 16 bits and 192 kHz with 24 bits on BD discs.)

**Lip Sync**

Lip Sync, an abbreviation for lip synchronization, is a technical term that involves both a problem and a capability of maintaining audio and video signals synchronized during post-production and transmission. Whereas the audio and video latency requires complex end-user adjustments, HDMI version 1.3 incorporates an automatic audio and video syncing capability that allows devices to perform this synchronization automatically and accurately without user interaction.

**Mac address**

The Mac address is a unique value assigned to a network device for identification purposes.

**Pan Scan (PS 4:3)**

A screen size that cuts off the sides of the image to allow viewing of wide-screen (16:9) material on a connected 4:3 TV.

**Subtitles**

These are the lines of text appearing at the bottom of the screen which translate or transcribe the dialog. They are recorded on many DVD and BD discs.

**Top menu**

In a BD-Video/DVD-Video, this is the menu for selecting things like the chapter to be played back and the subtitle language. In some DVD-Videos, the top menu may be called the "Title Menu".

**x.v.Color**

x.v.Color reproduces a greater range of color than before, showing almost all of the colors that the human eye can detect.

## SPECIFICATIONS

### ■ General

Power supply	
[U.S.A. and Canada models].....	AC 110-240 V, 60 Hz
[Central and South America model] .....	AC 110-240 V, 50/60 Hz
[Australia model] .....	AC 110-240 V, 50 Hz
[U.K., Europe and Russia model] .....	AC 110-240 V, 50 Hz
[China model].....	AC 110-240 V, 50 Hz
[Asia model].....	AC 110-240 V, 50/60 Hz
Power consumption (Normal) .....	23 W
Power consumption (Standby) .....	0.5 W or less
Dimensions (W × H × D) .....	435 × 86 × 257 mm
	(17-1/8 × 3-3/8 × 10-1/8 in)
Weight .....	3.0 kg (6.6 lbs.)

### ■ Input/output

HDMI output .....	Type A connector × 1
	480i/576i/480p/576p/720p/1080i/1080p/1080p@24Hz,
	Deep Color, x.v. Color support
Component video output .....	Y: 1 Vp-p (75 ohms)
	Pb, Pr: 0.7 Vp-p (75 ohms)
Video output .....	1 Vp-p (75 ohms)
Digital output.....	Optical × 1, Coaxial × 1
Analog audio output .....	Mixed 2 ch × 1
	2 ± 0.3 V (1 kHz, 0 dB)
USB .....	Type A connector × 2
Other equipments .....	Remote IN/OUT × 1
	Ethernet × 1

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## ■ About glibc, libmtp, libusb, libusb-compat, DirectFB

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## ■ About Fusion

DirectFB Fusion kernel module: introduction and API  
by Niels Roest

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The Independent JPEG Group's JPEG software

README for release 7 of 27-Jun-2009

This distribution contains the seventh public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

This software is the work of Tom Lane, Guido Vollbeding, Philip Gladstone, Bill Allombert, Jim Boucher, Lee Crocker, Bob Friesenhahn, Ben Jackson, Julian Minguiillon, Luis Ortiz, George Phillips, Davide Rossi, 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.
ACKNOWLEDGMENTS	Special thanks.
FILE FORMAT WARS	Software *not* to get.
TO DO	Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.txt	How to configure and install the IJG software.
usage.txt	Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1	Unix-style man pages for programs (same info as usage.txt).
wizard.txt	Advanced usage instructions for JPEG wizards only.
change.log	Version-to-version change highlights.

Programmer and internal documentation:

libjpeg.txt	How to use the JPEG library in your own programs.
example.c	Sample code for calling the JPEG library.
structure.txt	Overview of the JPEG library's internal structure.
filelist.txt	Road map of IJG files.
coderrules.txt	Coding style rules --- please read if you contribute code.

Please read at least the files install.txt and usage.txt. Some 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 encoding, decoding, and transcoding. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.

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. 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 code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

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The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltmain.sh). Another support script, install-sh, is copyright by X Consortium but is also freely distributable.

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 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",



(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://www.ijg.org/files/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 currently available 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).

Although this is by far the most detailed and comprehensive exposition of JPEG publicly available, we point out that it is still missing an explanation of the most essential properties and algorithms of the underlying DCT technology. If you think that you know about DCT-based JPEG after reading this book, then you are in delusion. The real fundamentals and corresponding potential of DCT-based JPEG are not publicly known so far, and that is the reason for all the mistaken developments taking place in the image coding domain.

The original JPEG 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. 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 at <http://www.ijg.org/files/jfif.ps.gz>. There is also a plain text version at <http://www.ijg.org/files/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://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 <http://www.ijg.org/files/>. 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.

#### ARCHIVE LOCATIONS

The "official" archive site for this software is [www.ijg.org](http://www.ijg.org). The most recent released version can always be found there in directory "files". This particular version will be archived as <http://www.ijg.org/files/jpegsr.v7.tar.gz>, and in Windows-compatible "zip" archive format as <http://www.ijg.org/files/jpegsr7.zip>. The JPEG FAQ (Frequently Asked Questions) article is a source of some general information about JPEG. 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](mailto: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](mailto:mail-server@rtfm.mit.edu) with body

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#### ACKNOWLEDGMENTS

Thank to Juergen Bruder of the Georg-Cantor-Organization at the Martin-Luther-University Halle for providing me with a copy of the common DCT algorithm article, only to find out that I had come to the same result in a more direct and comprehensible way with a more generative approach.

Thank to Istvan Sebestyen and Joan L. Mitchell for inviting me to the ITU JPEG (Study Group 16) meeting in Geneva, Switzerland.

Thank to Thomas Wiegand and Gary Sullivan for inviting me to the Joint Video Team (MPEG & ITU) meeting in Geneva, Switzerland.

Thank to John Korejwa and Massimo Ballerini for inviting me to fruitful consultations in Boston, MA and Milan, Italy.

Thank to Hendrik Elstner, Roland Fassauer, and Simone Zuck for corresponding business development.

Thank to Nico Zschach and Dirk Stelling of the technical support team at the Digital Images company in Halle for providing me with extra equipment for configuration tests.

Thank to Richard F. Lyon (then of Foveon Inc.) for fruitful communication about JPEG configuration in Sigma Photo Pro software.

Last but not least special thank to Thomas G. Lane for the original design and development of this singular software package.

#### FILE FORMAT WARS

The ISO JPEG standards committee actually promotes different formats like JPEG-2000 or JPEG-XR which are incompatible with original DCT-based JPEG and which are based on faulty technologies. IJG therefore does not and will not support such momentary mistakes (see REFERENCES). We have little or no sympathy for the promotion of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, interoperable format standards for JPEG files. Don't use an incompatible file format! (In any case, our decoder will remain capable of reading existing JPEG image files indefinitely.)

#### TO DO

v7 is basically just a necessary interim release, paving the way for a major breakthrough in image coding technology with the next v8 package which is scheduled for release in the year 2010.

Please send bug reports, offers of help, etc. to [jpeg-info@jpegclub.org](mailto:jpeg-info@jpegclub.org).

#### ■ About International Components for Unicode

ICU License - ICU 1.8.1 and later

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```
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```

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Glenn Randers-Pehrson

glennrp at users.sourceforge.net

February 14, 2009

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Wave length: 790 nm (CDs)/658 nm (DVDs)/405 nm (BDs)

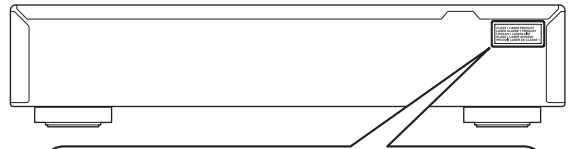
Laser output: max. 1 mW

**LASER SAFETY**

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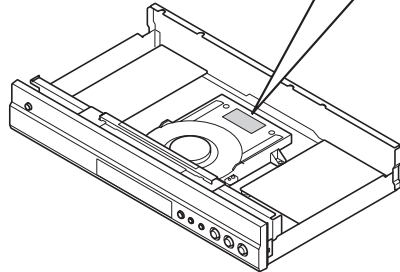
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