

harman/kardon®
Power for the Digital Revolution.®

DVD 22

DVD VIDEO PLAYER
OWNER'S MANUAL



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Typographical Conventions

In order to help you use this manual with the remote control, front-panel controls and rear-panel connections, certain conventions have been used.

EXAMPLE – (bold type) indicates a specific remote control or front-panel button or indicator, or rear-panel connection jack

EXAMPLE – (OCR type) indicates a message that is visible on the front-panel information display

1 – (number in a square) indicates a specific front-panel control

1 – (number in an oval) indicates a button or indicator on the remote control

1 – (number in a circle) indicates a rear-panel connection

A – (letter in a square) indicates an indicator in the front-panel information display

A – (letter in a circle) indicates a section of an on-screen display

Thank you for choosing the Harman Kardon®

DVD 22. The DVD 22 is a state-of-the-art DVD player that combines the best of music, movies and still image reproduction in one, compact, slim-line product. Along with playback of conventional DVD and CD-Audio discs, the DVD 22 lets you enjoy files recorded on a computer's optical drive in the MP3 or Windows Media® formats, CD-R/RW discs, DVD-R/RW and DVD+R/RW discs and VCD programs, as well as still images recorded in the JPEG format.

Regardless of a disc's format, the DVD 22's video and audio playback is of the highest quality, thanks to pixel-by-pixel video processing, true 3/2 pull-down reconstruction of film-based programming, and precision video output DACs with simultaneous playback as a Y/Pr/Pb progressive scan component signal and composite and S-Video. Thus, no matter what type of video display used, you will see images that are the closest thing to the original film or performance this side of your local theater. To further fine-tune the video output, a built-in test pattern may be used in conjunction with either the controls on your display, or the video output adjustments on the DVD 22.

In keeping with its 50-year tradition as a leader in audio technology, Harman Kardon has loaded the DVD 22 with cutting-edge features. In addition to both optical and coaxial digital outputs for Dolby® Digital, DTS® or PCM recordings, the analog outputs for down-mixed stereo or DVD-Audio playback use audiophile-grade digital-to-analog converters for crystal-clear outputs.

The DVD 22's exclusive graphical interface makes it easy to get started, simplifying setup and configuration adjustments. During playback, the on-screen menus not only allow a wide range of program options, they even permit simultaneous playback of JPEG digital still images with MP3 or Windows Media files recorded on the same disc. By programming the images to change with the music, you can easily create your own personal shows and presentations. Additional menu options provide a full range of parental control features to control which discs may be viewed by younger members of the household, as well as a complete status screen which provides the technical details on the disc being played.

DVD players are the fastest growing consumer electronics products ever brought to market, so this may be the first DVD player you own, or a replacement for an early-generation machine. In either case, while some of the DVD 22's features and options resemble those of a CD player or your first DVD player, there are likely to be a number of functions that you are unfamiliar with. To ensure that you are able to take advantage of all the power and flexibility the DVD 22 has to offer, we encourage you to take a few minutes to review this manual before

installing the DVD 22. That small investment of time will pay major dividends in the enjoyment you will receive by being able to use all the capabilities of your new DVD player.

If you have additional questions about this product, its installation or its operation that are not answered in this manual, please contact your dealer or installer, as he/she is your best source of local information. Support is also available through our Web site located at www.harmankardon.com.

- Plays a wide range of formats, including DVD Video discs, CD Audio discs, CD-R/RW, DVD+R/RW, DVD-R/RW, MP3, Windows Media® Audio, JPEG still images and VCD discs
- High-quality video reproduction with pixel-by-pixel processing, progressive scan output and 3/2 pull-down reconstruction
- Simultaneous component and composite video outputs
- Dolby® Digital and DTS® data signal output through both optical and coaxial digital audio connections
- Audiophile-grade output DACs for the finest audio reproduction
- Easy-to-use on-screen navigation system
- Playback of MP3 and Windows Media Audio discs with text display
- Extensive programming capability
- Parental lock controls prevent unauthorized viewing of restricted movies
- Multiple options for language, soundtrack and subtitle selection
- Multiple-angle capabilities with specially encoded DVD discs
- Backlit, ergonomically designed remote control

NOTE: This player is designed and manufactured for compatibility with Region Management Information that is encoded on most DVD discs. This player is designed only for playback of discs with Region Code 1, or for discs that do not contain Region Code information. If there is any other Region Code on a disc, that disc will not play on the DVD 22.



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION: To prevent electric shock, do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

 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.

SAFETY INFORMATION

Verify Line Voltage Before Use

Your DVD 22 has been designed for use with 110–230-volt AC current and the plug is specifically designed for 120-volt applications. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard and may damage the unit.

If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

Do Not Use Extension Cords

We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately by an authorized service center with cords meeting factory specifications.

Handle the AC Power Cord Gently

When disconnecting the power cord from an AC outlet, always pull the plug; never pull the cord. If you do not intend to use the unit for any considerable length of time, disconnect the plug from the AC outlet.

Do Not Open the Cabinet

There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water or any metal object such as a paper clip, wire or staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service center.

Installation Location

- To ensure proper operation, and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product.
- Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet.
- Do not place the unit directly on a carpeted surface.
- Avoid moist or humid locations.
- Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.
- Do not obstruct the ventilation slots on the top of the unit, or place objects directly over them.

Cleaning

When the unit gets dirty, wipe it with a clean, soft, dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water. Wipe immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

Unpacking

The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair.

To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom, and collapsing the carton down to a more two-dimensional appearance. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center.

Remove Front-Panel Protective Film

In order to protect the lens covering the front panel of your new DVD 22, it is shipped from the factory covered by a protective plastic film. Before using the unit, remove this film by grabbing one corner and gently peeling back the plastic sheet. Note that the film must be removed for proper operation of the remote control.

Moving the Unit

Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet.

IMPORTANT NOTE: To avoid damage to the DVD 22 that may not be covered by the warranty, be certain that the disc is removed from the unit before it is moved. Once the DVD 22 is installed, a disc may be left in the unit when it is turned off, but the unit should NEVER be moved with a disc left in the disc tray.

Important Information for the User

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept interference received, including interference that may cause undesired operation.

NOTE: Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.

CAUTION: The DVD 22 uses a laser system. To prevent direct exposure to the laser beam, do not open the cabinet enclosure or defeat any of the safety mechanisms provided for your protection. DO NOT STARE INTO THE LASER BEAM. To ensure proper use of this product, please read this Owner's Manual carefully and retain it for future use. Should the unit require maintenance or repair, please contact your local Harman Kardon service center. Refer servicing to qualified personnel only.

Disc Formats Supported by This Player

The DVD 22 can play the following types of pre-recorded discs:



DVD	CD
3" (8cm) disc	3" (8cm) disc
5" (12cm) disc	5" (12cm) disc

The DVD 22 will also play most recordable discs, but we cannot guarantee complete playback compatibility of CD- or DVD-recordable discs due to the wide variation in recorders and blank discs.



CD-RW	CD-R	VCD
5" (12cm) disc	3" (8cm) disc	5" (12cm) disc
	5" (12cm) disc	5" (12cm) disc

- The DVD 22 is compatible with most discs recorded with files encoded using MP3 or Windows Media 9, as well as JPEG still images. However, note that variations in the encoder or codec used and the bit rate of the encoding may affect the capability of the DVD 22 to play back a specific disc. As a result, we cannot guarantee complete compatibility with all encoders and versions of the codecs.
- Although the DVD 22 is not compatible with DVD-Audio discs, most DVD-A discs also contain a copy of the program material recorded in the standard Dolby Digital format. The DVD will play back those portions of the disc, regardless of the format of the rest of the disc.

NOTE: Playback of CD-R or CD-RW discs created on a computer requires proper formatting and finalization of the disc for audio playback. Some computers and/or software programs may not be capable of creating compatible discs.

The DVD 22 will NOT play the following:

- DVD discs with a Region Code other than 1
- DVD discs with PAL format video
- DVD-ROM data discs
- DVD-RAM discs
- SACD discs
- CD-I discs
- CD-G discs
- SVCD discs
- Photo CD discs
- Discs intended for use in video game consoles

NOTE: Due to differences in the formatting of certain discs, it is possible that some discs may include features that are not compatible with the DVD 22. Similarly, although the DVD 22 is capable of a wide range of features, not all discs include every capability of the DVD system. For example, although the DVD 22 is compatible with multi-angle discs, that feature is only possible when the disc is specially encoded for multiple-angle play. In addition, the DVD 22 is capable of playing back both Dolby Digital and DTS soundtracks, but the number and types of tracks available will vary from disc to disc. To make certain that a specific feature or soundtrack option is available, please check the options noted on the disc jacket.

- Playback of DTS audio discs requires connection to a processor or receiver with a DTS decoder.
- Playback capability for CD- or DVD-recordable discs may vary due to variations in the quality of the disc and the recorder used to create the disc.

Since the DVD players share some of the characteristics and technology of CD players, many of the terms and operational concepts used in a DVD player are similar to what you may be familiar with from CD players and changers, or older video disc formats such as Laser Disc. However, if this is your first DVD player, some of the terms used to describe the features of a DVD player may be unfamiliar. The following explanations should solve some of the mysteries of DVD, and help you to enjoy all the power and flexibility of the DVD format and the DVD 22.

Aspect Ratio: This is a description of the width of a video image in relation to its height. A conventional video screen is four units wide for every three units of height, making it almost square. Newer wide-aspect-ratio video displays are 16 units wide for every nine units of height, making them more like the screen in a movie theater. The program material on a DVD may be recorded in either format and, in addition, you may configure the DVD 22 to play back in either format, depending on the features recorded on a disc.

Chapter: DVD programs are divided into chapters and titles. Chapters are the subsections programmed into a single title on a disc. Chapters may be compared to the individual tracks on an audio CD. Press the **Menu Button 12** to see a listing of the chapters on a disc.

Component Video: This form of video signal eliminates many of the artifacts of traditional composite video signals by splitting the signal into a separate luminance channel (the "Y" signal channel) and two color-difference signals (the Pr and Pb signal channels). With a component video connection, you will see greater picture resolution and eliminate many picture imperfections such as the moiré patterns often seen on check-patterned cloth. However, in order to benefit from component video, you must have a video display with Y/Pr/Pb component video inputs. Do not connect the component video outputs of the DVD 22 to the standard composite or S-Video inputs of a TV or recorder.

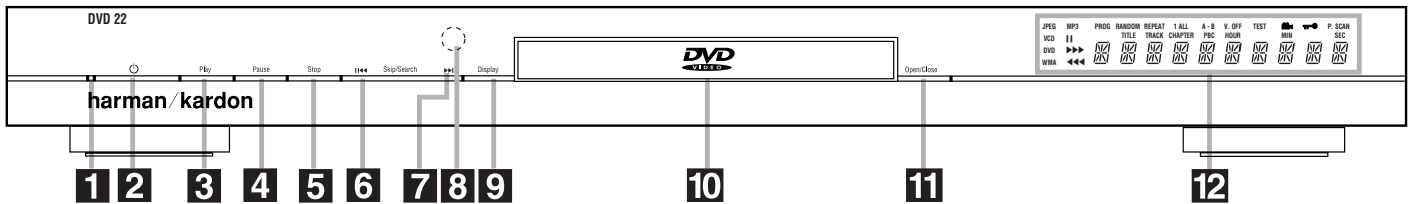
Progressive Scan: Progressive scan playback takes the original video signal on the disc and formats it as a high-scan-rate output with twice the scan lines of conventional video images. Progressive scan outputs must be connected to "digital-ready" or high-definition video displays, regardless of the technology of the specific display (e.g., conventional direct-view television, front or rear projector, plasma display panel or LCD). In some cases, the displays may have special inputs for use with high-scan-rate inputs, and in others you may need to make adjustments to the display's setup menus to make certain that the inputs used are configured for an "HD" signal. Although the progressive scan output uses the component video jacks, it is not compatible with older conventional analog video displays, even when they have component inputs.

Title: For a DVD, a title is defined as an entire movie or program. There may be as many chapters within a title as the producers decide to include. Most discs include only one title, but some may have more than one, to give you a "Double Feature" presentation or to include other special features. Press the **Title Button 4** to see a listing of the titles on a disc. When a disc has only one title, pressing the **Title Button 4** may show a list of the chapters.

Multiple Angle: DVDs have the capability to show up to four different views of the same scene in a program. When a disc is encoded with multiple-angle information, pressing the **Angle Button 5** will enable you to switch between these different views. Note that, at present, few discs take advantage of this capability and, when they do, the multiple-angle technology may only be present for short periods of time within the disc. Producers will usually insert some sort of icon or graphic in the picture to alert you to the availability of multiple-angle scenes.

Reading: This is a message that you will see when you first press the **Play Button 4 17**. It refers to the fact that the player must first examine the contents of the disc to see whether it is a CD or DVD, and then extract the information about the type of material on the disc, such as languages, aspect ratios, subtitles, number of titles and more. The slight delay while the contents of the disc are read is normal.

Resume: The operation of the **Stop Button 6 19** on the DVD 22 works differently from what you are used to on CD players. On a traditional CD player, when you press the Stop button, the unit does just that – it stops playback. On a CD player, when you press the Start button again, the disc starts from the beginning. With the DVD 22, however, you have two options when playing DVD discs. Pressing the **Stop Button 6 19** once will stop the playback, but it actually puts the unit in the Resume mode. This means that you can turn the machine off and, when you press the **Play Button 4 17** the next time, the disc will resume or continue from the point on the disc where the **Stop Button 6 19** was pressed. This is helpful if you are watching a movie and must interrupt your viewing session but wish to pick up where you left off. Pressing the **Stop Button 6 19** twice will stop the machine in a traditional manner and, when the disc is played again, it will start from the beginning.



NOTE: To make it easier to follow the instructions that refer to the controls and connectors in this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

- 1** Power Indicator
- 2** Power On/Off (Standby)
- 3** Play
- 4** Pause

- 5** Stop
- 6** Skip/Search Reverse
- 7** Skip/Search Forward
- 8** Remote Sensor

- 9** Display Dimmer
- 10** Disc Drawer
- 11** Open/Close
- 12** Information Display

1 Power Indicator: This indicator lights amber when the unit is connected to an AC power source, but is not turned on. When the unit is on, the indicator lights blue.

2 Power On/Off (Standby): Press the button once to turn the DVD 22 on. Press it again to put the unit in the Standby mode. Note that in order for this switch to operate, the **Main Power Switch 1** must be pressed in so that it is in the ON position.

3 Play: Press to initiate playback or to resume playback after the **Pause Button 5** **13** has been pressed.

4 Pause: Press this button to momentarily pause playback. To resume playback, press the button again. If a DVD is playing, action will freeze and a still picture will be displayed when the button is pressed.

5 Stop: Press this button once to place the disc in the Resume mode, which means that playback will stop, but as long as the tray is not opened or the disc changed, DVD playback will continue from the same point on the disc when the **Play Button 3** **17** is pressed again. Resume will also work if the unit was turned off. To stop a disc and have play start from the beginning, press the button twice.

6 Skip/Search Reverse: Press this button once to return to the start of the current chapter for a DVD or track for a CD. Subsequent individual presses will skip backwards through the available chapters or tracks. Press and hold the button to play the disc in the fast reverse mode at the speed indicated in the on-screen display and by the **Playback Mode Indicators K**.

7 Skip/Search Forward: Press this button once to move to the start of the next chapter for a DVD or track for a CD. Subsequent presses will skip forward through the available chapters or tracks. Press and hold the button to play the disc in the Fast Play mode at the speed indicated in the on-screen display and by the **Playback Mode Indicators K**.

8 Remote Sensor: The sensor that receives commands from the remote control is behind the front panel in this area. To ensure proper operation of the player with the remote, it is important that this area not be covered. In the event that the player is enclosed in a cabinet or if the remote sensor is covered, you may extend the remote sensor by connecting an optional, external remote sensor to the **Remote Control Input 8** on the rear panel (see page 11). When optional, external IR "blasters" are used for system control, they should be positioned so that they point at this area.

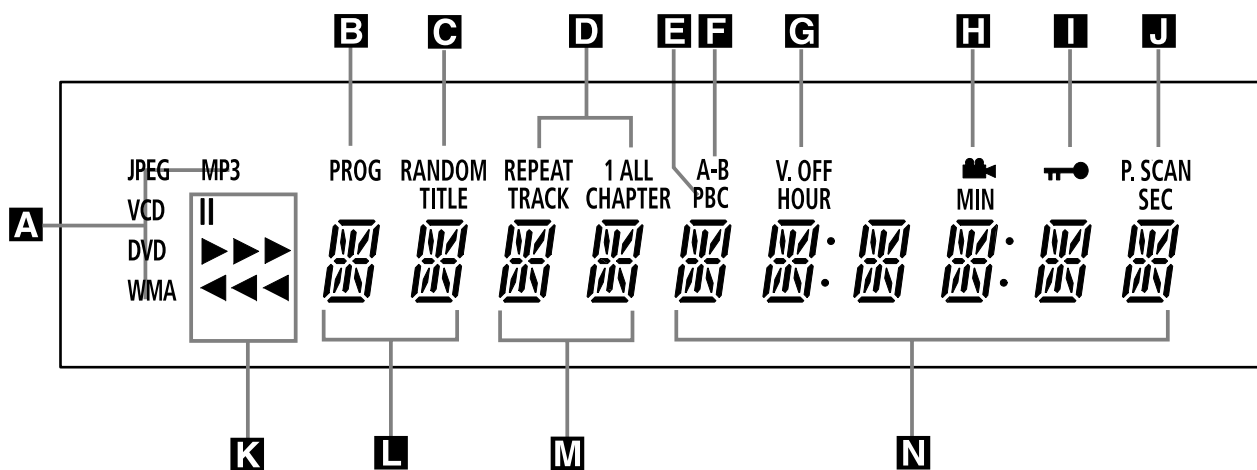
9 Display Dimmer: Press this button to reduce the brightness of the Information Display by 50% or to turn the display off completely in the following order: FULL BRIGHTNESS → HALF BRIGHTNESS → OFF → FULL BRIGHTNESS.

10 Disc Drawer: This drawer is used to hold the discs played in the unit. Be certain to seat all discs carefully within the recess in the drawer. Do not press down on the drawer when it is open, to avoid damage to the player.

11 Open/Close: Press this button to open or close the disc tray.

12 Information Display: The Information Display provides status information on the player and the disc being played through a series of specific indicators and messages that appear in the dot matrix display. See page 8 for more information on the display.

FRONT-PANEL INFORMATION DISPLAY



NOTE: To make it easier to follow the instructions that refer to the controls and connectors in this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmanardon.com.

- A** Disc-Type Indicators
- B** Program Indicator
- C** Random Indicator
- D** Repeat Indicators
- E** VCD Playback Control Indicator

- F** A-B Repeat Indicator
- G** V-OFF Indicator
- H** Angle Indicator
- I** Parental Lock Indicator
- J** Progressive Scan Indicator

- K** Playback-Mode Indicator
- L** Title Indicators
- M** Chapter/Track Number Indicators
- N** Time Indicators

A Disc Type Indicators: The DVD, CD, VCD, MP3, WMA or JPEG indicator will light to show the type of disc currently being played.

B Program Indicator: This indicator lights when the programming functions are in use.

C Random Indicator: This indicator lights when the unit is in the Random Play mode.

D Repeat Indicators: These indicators light when any of the Repeat functions are in use.

E VCD Playback Control Indicator: This indicator lights when the playback control function is turned on with VCDs.

F A-B Repeat Indicator: This indicator lights when a specific passage for repeat playback has been selected.

G V-OFF Indicator: This indicator lights in red when the unit's video output has been turned off by pressing the V-OFF button on the remote control.

H Angle Indicator: This indicator blinks when alternative viewing angles are available on the DVD currently playing.

I Parental Lock Indicator: This indicator lights when the parental-lock system is engaged in order to prevent anyone from changing the rating level without a code.

J Progressive Scan Indicator: This indicator lights when the unit sends out a progressive scan signal.

K Playback-Mode Indicators: These indicators light to show the current playback mode:

▶ Lights when a disc is playing in the normal mode.

▶▶▶ When the DVD 22 is in the Fast Search play mode, two or three of these indicators will light to show that the unit is in a Fast Play mode, depending on the speed.

|| Lights when the disc is paused.

◀◀ Lights when the disc is in the Fast Search Reverse mode.

L Title Indicators: These two positions in the display will show the current title number when a DVD disc is playing.

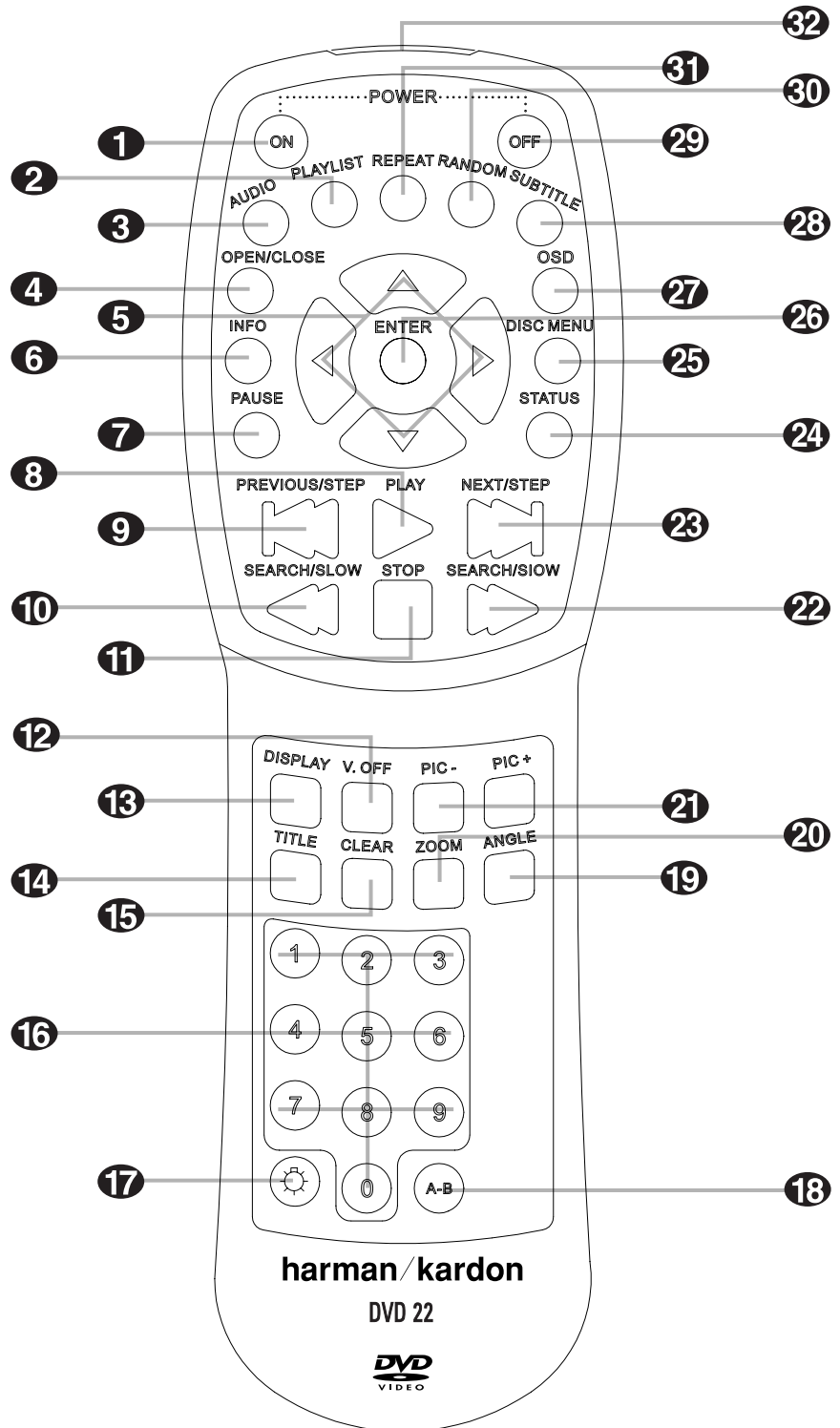
M Chapter/Track Number Indicators: When a DVD disc is playing, these two positions in the display will show the current chapter. When a CD disc is playing they will show the current track number.

N Time Indicators: These positions in the indicator will show the running time of a DVD in play. When a CD is playing, these indicators will show the current track time, time remaining in the current track, or the total remaining time on the disc.

NOTE: The indicators **LMN** will also display text messages about the DVD's status, including Reading when a disc is loading, Standby when the unit is turned off, and Disc Error when a disc not compatible with the DVD is put into the play position.

REMOTE CONTROL FUNCTIONS

- 1 Power On
- 2 Playlist
- 3 Audio Select
- 4 Open/Close
- 5 ▲/▼/◀/▶ Navigation Buttons
- 6 Info
- 7 Pause
- 8 Play
- 9 Previous Step/Skip
- 10 Search/Slow Reverse
- 11 Stop
- 12 Video Off
- 13 Display
- 14 Title
- 15 Clear
- 16 Numeric Keys
- 17 Light
- 18 A-B Repeat
- 19 Angle
- 20 Zoom
- 21 Picture -/+
- 22 Search/Slow Forward
- 23 Next Step/Skip
- 24 Status
- 25 Disc Menu
- 26 Enter
- 27 OSD
- 28 Subtitle
- 29 Power Off
- 30 Random
- 31 Repeat
- 32 IR Emitter



NOTE: To make it easier to follow the instructions that refer to the controls and connectors in this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

REMOTE CONTROL FUNCTIONS

- 1 Power On:** Turns on the player when it is in Standby mode (Harman Kardon logo appears on-screen).
- 2 Playlist:** Press this button to change the order in which tracks are played on a CD or chapters are played on a DVD. (See page 28 for more information on creating and playing playlists.)
- 3 Audio Select:** Press to access various audio languages on a DVD (if the DVD contains multiple audio streams).
- 4 Open/Close:** Press to open or close the disc tray.
- 5 ◀▶▲▼ Navigation Buttons:** Use to move the cursor in the OSD.
- 6 Info:** Press once for detailed informations on the disc playing (Video/Audio Bit rate, Movie aspect ratio and others). Press again to remove information from screen.
- 7 Pause:** Press this button to pause the disc and freeze the picture during DVD or VCD playback, or to pause the playback of a CD. To play a DVD in the fast, slow or forward mode, first press this button and then press either the **Search/Slow Forward** **22** or **Reverse** **10** button.
- 8 Play:** Press this button to begin the playback of a disc, or to resume the playback when a disc has been paused.
- 9 Previous Step/Skip:** Press this button once to skip back to the beginning of the current chapter on a DVD or track on a CD. Press it again to continue to skip back through the remaining chapters or tracks. After first pressing the **Pause** button **7**, press this button to step backwards through a DVD as a series of still image frames. Press it again to continue to skip back through the remaining previous chapters.
- 10 Search/Slow Reverse:** This button initiates fast or slow play in the reverse mode. For fast reverse play, each press of the button when playing DVD discs changes the speed as indicated by the number of left-facing arrows appearing in the upper right corner of the screen and in the **Playback Mode Indicators** **K**. For slow reverse play, first press the **Pause** button **7** and the each subsequent press of this button will change the slow play speed as indicated by the number of left-facing arrows appearing in the upper right corner of the screen and in the **Playback Mode Indicators** **K**.
- 11 Stop:** When a DVD is playing, press this button once to place the disc in the Resume mode, which means that playback will stop. However, as long as the disc drawer is not opened DVD playback will continue from the point where the disc was stopped when the **Play** button **8 3** is pressed again.

Pressing the button twice will stop the disc and play will start from the beginning of the disc when the **Play** button **8 3** is pressed again. During CD playback press this button to stop playback.

12 Video Off: Press this button to turn off the video output for improved audio performance when playing CDs. Press it again to view the on-screen menus.

13 Display: Press to change the brightness of the front panel display or to turn the display off completely in the following order: **FULL BRIGHTNESS** → **HALF BRIGHTNESS** → **OFF** → **FULL BRIGHTNESS**

14 Title: When a DVD is playing, press this button to go back to the main title menu for the disc being played.

15 Clear: Press this button to remove on-screen menus or banners from the display screen.

16 Numeric Keys: Press these buttons to enter a number.

17 Light: Press to illuminate remote controller.

18 A-B Repeat: Press this button to enter the starting point of a sequence on a disc you wish to repeat. The second press enters the end of the selection to be repeated. Once the "A" (start) and "B" (end) points have been entered the player will repeat the selection until the **Play** button **8 3** is pressed or the disc is stopped.

19 Angle: Press this button to change the angle on discs programmed for multiple angle views.

20 Zoom: Press this button to zoom in on the image from a DVD, VCD or JPEG image. The image may be expanded by a factor of x2, x3, x4 or x5. Once the on-screen indication of the zoom ratio leaves the screen you may use the **Navigation** buttons **5** to move the picture across the screen.

21 Picture -/+: Press these buttons to move to the next (+) or previous (-) image when playing a disc with JPEG images.

22 Search/Slow Forward: This button initiates fast or slow play in the forward mode. For fast forward play, each press of the button when playing DVD discs changes the speed as indicated by the number of right-facing arrows appearing in the upper right corner of the screen and in the **Playback Mode Indicators** **K**. For slow forward play, first press the **Pause** button **7** and the each subsequent press of this button will change the slow play speed as indicated by the number of right-facing arrows appearing in the upper right corner of the screen and in the **Playback Mode Indicators** **K**.

23 Next Step/Skip: Press this button once to advance to the beginning of the next chapter on a DVD or track on a CD. Press it again to continue to advance through the available chapters or tracks. After first pressing the **Pause** button **7**, press this button to step through a DVD as a series of still image frames.

24 Status: Press while a disc is playing to view banner display. Use the **Navigation** buttons **5** to move through the different features in the Banner Display. When a symbol is highlighted, press **ENTER** **26** on the remote to select it.

25 Disc Menu: While a DVD is playing, press this button to view the disc's main navigation menu.

26 Enter: Press this button to enter a setting to the player's menu or to confirm a menu selection choice on a disc's on-screen menu.

27 OSD: Press this button to use the on-screen menu system to adjust the player's configuration settings or to build a playlist.

28 Subtitle: When a DVD is playing, press to select a subtitle language or to turn subtitles off.

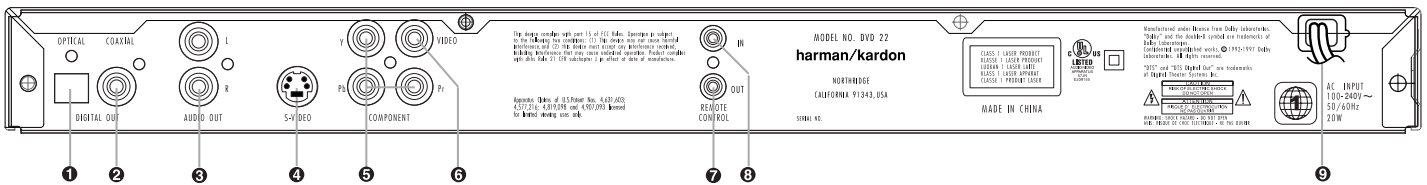
29 Off: Turns off the player to standby mode.

30 Random: Press this button to play the tracks on a CD, MP3, WMA or JPEG disc in random order.

31 Repeat: Press this button to view the Repeat Menu that allows you to change the playback mode to repeat a chapter or track or the entire disc.

32 IR Emitter: This small, clear button-like device sends the IR commands from the remote control to the DVD 22. To ensure proper performance of the remote control, be sure to point it toward the unit and do not cover it with your fingers when sending remote commands.

REAR-PANEL CONNECTIONS



NOTE: To make it easier to follow the instructions that refer to the controls and connectors in this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

- ❶ Optical Digital Output
- ❷ Coaxial Digital Output
- ❸ Analog Audio Outputs

- ❹ S-Video Output
- ❺ Component Video Outputs
- ❻ Composite Video Output

- ❼ Remote Control Output
- ❽ Remote Control Input
- ❾ AC Power Cord

❶ Optical Digital Output: Connect this jack to the optical digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

❷ Coaxial Digital Output: Connect this jack to the coaxial digital input of an A/V receiver or surround processor for Dolby Digital, DTS or PCM audio playback.

NOTE: The coaxial digital output should only be connected to a digital input. Even though it is the same RCA-type connector as standard analog audio connections, DO NOT connect it to a conventional analog input jack.

❸ Analog Audio Outputs: Connect these jacks to an audio input on an A/V receiver or surround processor for analog audio playback.

❹ S-Video Output: Connect this jack to the S-Video input on a television or video projector, or to an S-Video input on an A/V receiver or processor if you are using that type of device for S-Video input switching.

❺ Component Video Outputs: These outputs carry the component video signals for connection to display monitors with component video inputs. For standard analog TVs or projectors with inputs marked Y/Pr/Pb or Y/Cr/Cb, connect these outputs to the corresponding inputs. If you have a high-definition television or projector that is compatible with high-scan-rate progressive video, connect these jacks to the HD component inputs. If you are using a progressive scan display device, **PROGRESSIVE** must be selected in the Video menu in order to take advantage of the progressive scan circuitry. See "Scan Type" section on page 20 for more information on progressive scan video.

IMPORTANT: These jacks should NOT be connected to standard composite video inputs.

❻ Composite Video Output: Connect this jack to the video input on a television or video projector, or to a video input on an A/V receiver or processor if you are using that type of device for video input switching.

❼ Remote Control Output: Connect this jack to the infrared (IR) input jack of another compatible Harman Kardon remote-controlled product to have the built-in Remote Sensor on the DVD 22 provide IR signals to other compatible products.

❽ Remote Control Input: Connect the output of a remote infrared sensor, or the remote control output of another compatible Harman Kardon product, to this jack. This will enable the remote control to operate even when the front-panel Remote Sensor on the DVD 22 is blocked. This jack may also be used with compatible IR remote control-based automation systems.

❾ AC Power Cord: Connect this plug to an AC outlet. If the outlet is controlled by a switch, make certain that it is in the ON position.

NOTE: You'll find more details about all audio/video connections under Setup and Connections on the following pages.

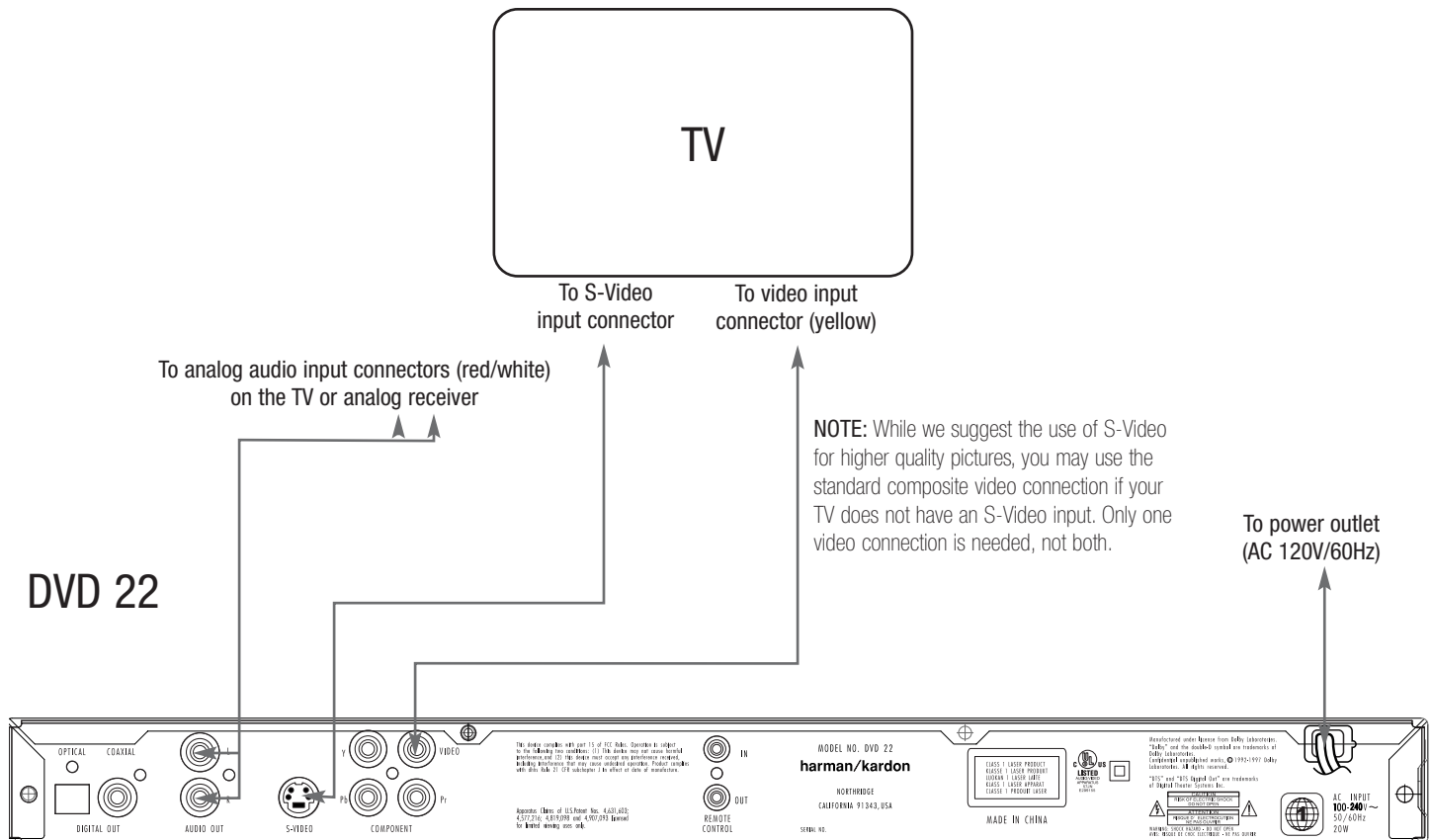
SETUP AND CONNECTIONS

- Ensure that the power switch of this unit (and of other equipment to be connected) is set to "Off" before commencing connection.

- Do not block the ventilation holes of any of the equipment and arrange them so that air can circulate freely.

- Read through the instructions before connecting other equipment.
- Ensure that you observe the color-coding when connecting audio and video cables.

Connecting to a TV and Analog Receiver



NOTES:

- The video output (yellow) combines the complete video signal (composite) and sends it to the TV (or to the A/V receiver) by one cable only. Use the video output when your TV set is equipped with a video input jack only.
- The S-Video output connector separates the color (C) and luminance (Y) signals before transmitting them to the TV set in order to achieve a sharper picture. Use

the S-Video cable when connecting the player to a TV equipped with an S-Video input for improved picture clarity. Never connect both outputs, video and S-Video, to your TV or A/V receiver; use only one of them.

- When the audio signal is to be fed to an analog receiver rather than to the TV, connect the audio out jacks to any analog audio input on your amplifier/decoder/receiver. The DVD 22 will "downmix"

Dolby Digital recordings to Pro Logic.* For more information see the IMPORTANT NOTE on next page.

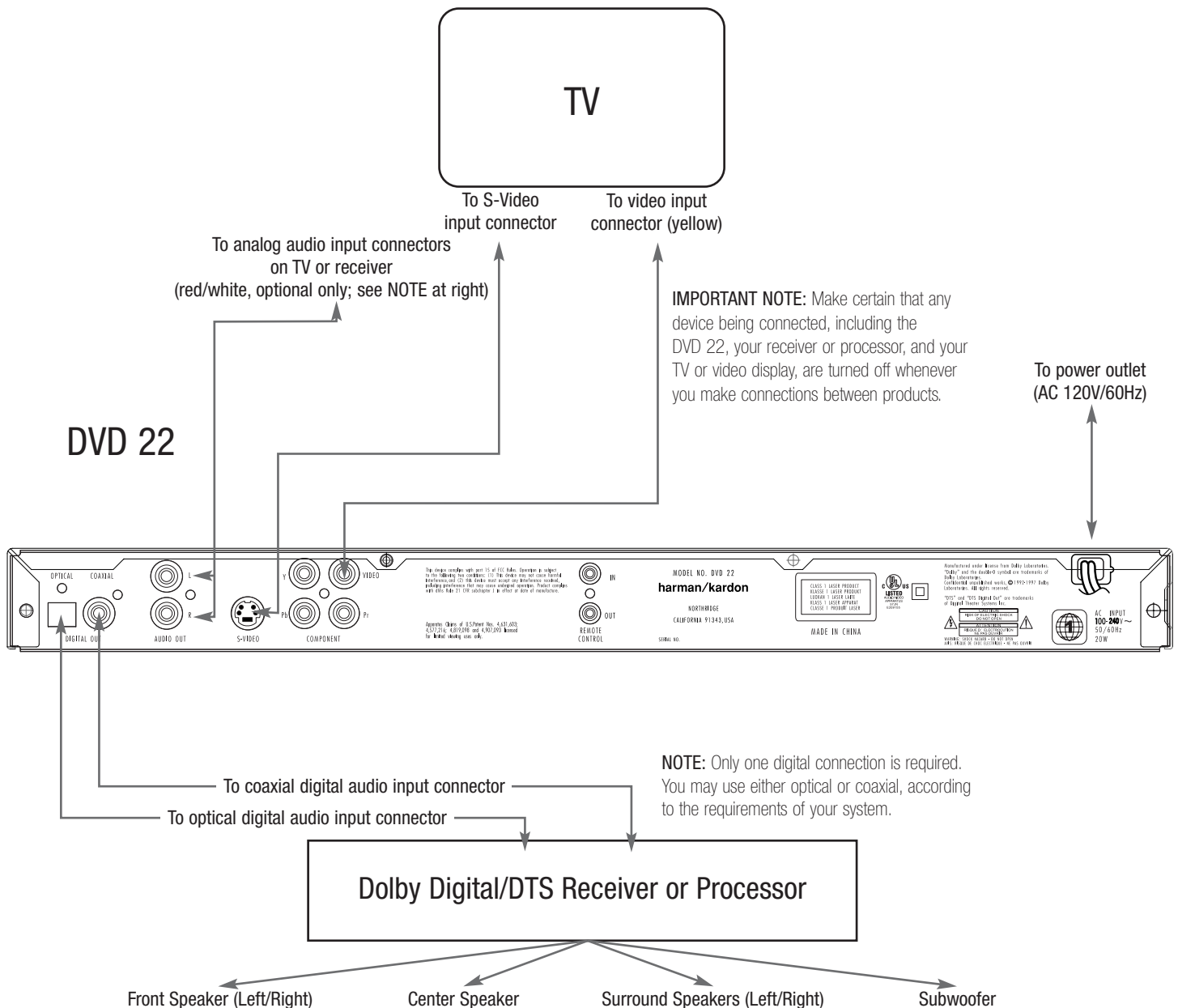
Audio Connections

• One of the major advantages of the DVD format is its ability to use a variety of digital audio formats for the ultimate in sonic performance. However, in order to enjoy the benefits of digital audio, you must use a receiver or processor that has digital audio decoding capabilities and make an optical or coaxial digital audio connection between the DVD 22 and your home theater system. This simple connection is made as shown below with an optional coax or optical cable. Note that only one of these connections is required, and the choice is determined by personal preferences, as well as the number of

inputs available on your receiver or processor as compared to the number of digital audio sources it must accommodate.

- When your receiver or processor does not have digital audio capability, connect the left/right audio outputs (red/white colored jacks) to an available left/right audio input on your receiver or processor. You may also connect these outputs directly to the left/right audio inputs on a television or video display when an analog stereo or multichannel receiver is not used.

• Even when making a digital audio connection, we recommend that you also connect the left/right analog audio outputs of the DVD 22 to your receiver or processor. While your primary listening will be done using multichannel audio that is decoded from the digital audio input, some receivers and processors also require an analog connection for use with multizone systems or recording outputs. This optional connection is shown below.

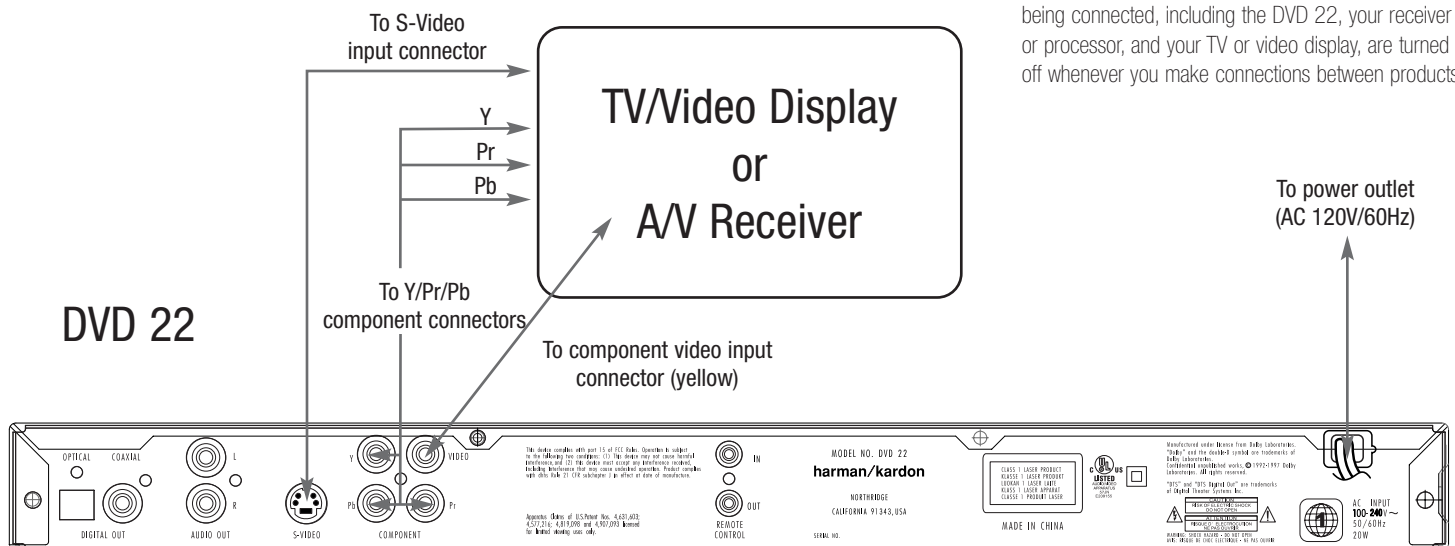


SETUP AND CONNECTIONS

Video Display Connections

- If your television, monitor, projector or video display has standard composite and S-Video connections only, connect one or the other (but not both) either to the matching video inputs on your receiver or processor, or directly to the inputs on your television or other video display.
- When both composite (yellow) and S-Video jacks (but not component inputs) are available on the video display, we recommend using the S-Video connection for higher video quality.
- If your receiver or processor has video switching capability, we recommend that the composite or S-Video outputs of the DVD 22 be connected to the receiver or processor, along with the output of other video sources in your system, such as a VCR and cable or satellite receiver. This simplifies the operation of your system since the receiver or processor will switch multiple sources and feed the selected output to the display.
- If your television, monitor, projector or video display has component video inputs, we strongly recommend that you connect the Y/Pr/Pb (green/red/blue) video output jacks on the DVD 22 to the matching video inputs on your receiver or processor, or directly to the inputs on your television or other video display.
- If your receiver or processor has component video switching capability, we recommend that the video outputs of the DVD 22 be connected to the receiver or processor, along with the output of other component video sources in your system, such as an HDTV tuner or cable or satellite receiver. This simplifies the operation of your system since the receiver or processor will switch multiple sources and feed the selected output to the display.
- If your video display is compatible with high-resolution video signals, be certain that the connections are made to the input jacks on the display marked "HD Component," if available.
- If your video display is compatible with high-resolution video signals, you may need to configure the input settings on the display for use with "480P" input signals.
- If you use the component video outputs with a video display that is compatible with high-resolution video signals, the DVD 22's video output should be changed from Interlaced to Progressive, as shown on page 20.
- When the component video outputs are used, we recommend that you also connect the standard composite or S-Video outputs to your receiver or processor so that standard-rate video signals are available for use with the multizone or record outputs, where applicable.

IMPORTANT NOTE: Make certain that any device being connected, including the DVD 22, your receiver or processor, and your TV or video display, are turned off whenever you make connections between products.

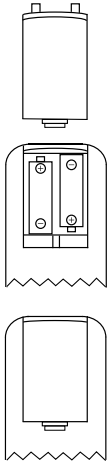


NOTES:

- If an S-Video or composite video connection is made either as your primary video connection or in addition to a component video connection for use in feeding a multizone system or recorder, note that you may make either type of connection, but not both. Only one type is needed.
- When video connections are made to an A/V receiver, surround processor or other device that switches the video signals, make the connections between that device and your video display in accordance with the instructions for that product. Depending on the capabilities of the receiver, processor or other switcher, you may need to make both composite or S-Video and component video connections.

Battery Installation

Insert the batteries supplied while observing the correct positive (+) and negative (-) polarities.



Service Life of Batteries

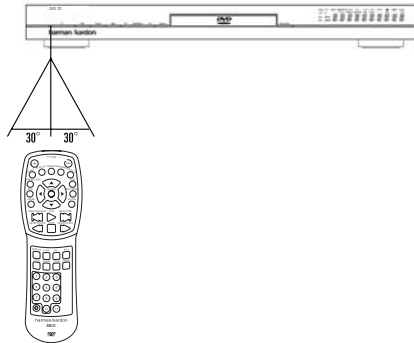
- The batteries normally last for about one year, although this depends on how often the remote control is used.
- If the remote control unit fails to work even when it is operated near the player, replace the batteries.
- Use fresh alkaline AA batteries.

NOTES:

- Do not attempt to recharge, short-circuit, disassemble or heat batteries; do not throw them into fire.
- Do not drop, step on or otherwise batter the remote control unit. This may damage the parts or lead to a malfunction.
- Do not mix old and new batteries.
- Wipe away any leakage inside the remote control unit, and install new batteries.
- If leakage should come into contact with your skin, immediately wash it off thoroughly with water.
- Batteries contain chemical substances and we recommend that you dispose of them properly and in compliance with any local regulations.

Remote Control Operation Range

Point the remote control unit from no more than about 20 feet from the remote control sensor and within about 60 degrees of the front of the unit.



- The operating distance may vary according to the brightness and type of lighting in a room.

NOTES:

- Do not point bright lights at the remote control sensor.
- Do not place objects between the remote control unit and the remote control sensor.
- Do not use this remote control unit while simultaneously operating the remote control unit of any other equipment.

DIGITAL AUDIO CONNECTIONS

Optical Digital Audio Connection Notes

- Remove the dust protection cap from the optical digital audio output and connect the cable firmly so that the configurations of both the cable and the connector match.
- Keep the dust protection cap and always reuse the cap when not using the connector.

Audio Output From the Unit's Optical/Coaxial Digital Audio Output Connector

Disc:	Sound recording format:	Optical/coaxial digital audio output:
DVD	Dolby Digital	Dolby Digital bitstream (2-5.1ch) or PCM (2ch, 48kHz, 16-bit) ^{††}
	Linear PCM (48/96kHz, 16/20/24-bit)	Linear PCM (2ch) (48/96kHz, 16/20/24-bit)
	DTS	Bitstream or no output ^{††}
CD	Linear PCM	Linear PCM (44.1kHz sampling)

^{††} Digital format must be selected as "Original" or "PCM" in Digital Output menu (see "Digital Output" section on page 19).

For Your Reference:

- Dolby Digital is a digital sound compression technique developed by the Dolby Laboratories Licensing Corporation. Supporting 5.1- or 7.1-channel surround sound depending on the specific disc, as well as stereo (2-channel) sound, this technique enables a large quantity of sound data to be efficiently recorded on a disc.
- DTS is another digital audio technology developed by Digital Theater Systems, Inc. It supports 5.1 and 6.1 surround sound, depending on the specific disc, thanks to a sophisticated encoding system.
- Linear PCM is a signal recording format used in CDs. While CDs are recorded in 44.1kHz/16-bit, DVDs are recorded in 48kHz/16-bit up to 96kHz/24-bit.
- If you have a Dolby Pro Logic Surround decoder connected to the DVD 22's analog audio out connectors, thanks to the "Downmix" function of the DVD 22 you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles encoded with Dolby Surround.
- The DVD 22 is designed to digitally output 96kHz PCM audio with a 96kHz sampling rate. The 96kHz indicator will light in the display. However, some 96kHz DVDs may include copy protection codes that do not permit digital output. For full 96kHz fidelity from these discs, use the analog outputs of the DVD 22. If your surround processor converter does not support 96kHz PCM audio, you must use the DVD 22 analog outputs for full 96kHz fidelity with these discs.
- When connecting a receiver or surround processor with a digital input but which does not contain a Dolby Digital or DTS decoder, be sure to select PCM as the initial setting in the Digital Output menu (see page 18). Otherwise, any attempt to play DVDs may cause such a high level of noise that it may be harmful to your ears and damage your speakers.
- CDs can be played as they would in a conventional CD player.

Dolby Digital and DTS

Both Dolby Digital and DTS are audio formats used to record 5.1-channel audio signals onto the digital track of film. Both of these formats provide six separate channels: left, right, center, left rear, right rear, and common subwoofer.

Remember that Dolby Digital or DTS will only play 5.1-channel sound if you've connected the optical or coaxial output of the DVD 22 to a DTS or Dolby Digital receiver or decoder (see page 13) and if the disc was recorded in the Dolby Digital or DTS format.

NOTE: Some first-generation DTS decoders that do not support DVD-DTS interface may not work properly with the DVD/CD player.

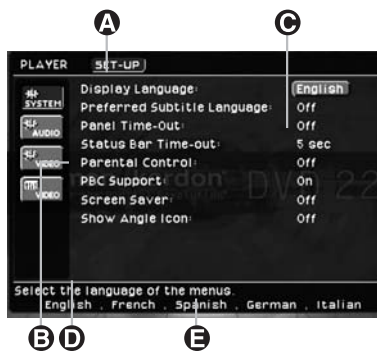
SYSTEM SETUP

The final step in the installation of the DVD 22 is to establish the system's configuration. Before proceeding further to make any adjustments, make certain that the DVD 22 is properly connected to a video display and an AC power source. Turn on the DVD 22 by pressing the **Power On/Off Switch 2** and note that the **Power Indicator 1** will change from amber to blue. You do not need to play a CD or DVD in the unit to make any system setup adjustments.

In many cases, you will be able to accept the default settings, which will greatly simplify the initial process. Of course, these settings may be changed at any time to reflect changes to the other equipment in your home theater system or to adjust the DVD 22's output or operation to your needs and preferences.

Menus and Navigation

Changes to the player's configuration or the creation and use of programmed playlists is made using the OSD menu system. While there are different menus and sub-menus for specific functions, they share a common layout and navigation scheme. Each menu screen is divided into six areas, as shown below:



A: The Main Menu line is at the top left corner of the screen and it allows you to select either the Player or Setup menus. Use the **▲▼ Navigation Buttons 5** to highlight either **PLAYER** or **SETUP** in light blue, and then press the **Enter Button 26** to activate the selected menus.

- The **PLAYER** menus contain items that create and control programmed playback and playlist creation, as well as providing information about the disc being played.
- The **SETUP** menus are used to establish the specific configuration settings for all aspects of the player's operation, including video, audio, system and parental control, which are made through a series of four setup menus, all of which share a common navigation method. To use any of the setup menus, press the **OSD Button 27** and note that the Player Info screen will appear. Press the **▶ Navigation Button 5** so that the on-screen menu changes to the **SYSTEM SETTINGS** menu.

B: The submenus listed in a vertical column at the left side of the screen access the specific groups of settings or controls. After selecting either of the two main menu screens as shown above, press the **◀ Navigation Button 5** once. A white box outline will surround the submenu that is at the top of the list. Press the **▲▼ Navigation Buttons 5** to select one of the available choices.

On the Player Main Menu the Available Submenus Are:

- The **INFO** menu, which is identified by an "i" icon, which provides information about the disc's contents and the controls used to initiate programmed play.
- The **PROGRAM** menu, as identified by an icon showing three stacked books, which shows the available tracks for a CD, or titles and chapters for a DVD, and the order in which they have been programmed for play.
- The **DISC INFO** menu (for DVD discs only), as identified by a disc icon, provides detailed information about the video and audio content on the disc being played.
- The **AUDIO** menu (for discs with MP3 or WMA files only), as identified by a musical note icon, contains the settings used to program playback of MP3 and Windows Media Audio files.
- The **PICTURE** menu (for discs with JPEG files only), as identified by a camera icon, contains the settings used to program playback of JPEG still image files.
- When the number of tracks or titles on a disc is greater than the space available on the screen to display them, **▲▼** indicators will appear at the bottom left side of the menu. To use these on-screen buttons to scroll through a program list, press the **▲▼ Navigation Buttons 5** to highlight either icon with a white outline box and press the **Enter Button 26**.

On the Setup Main Menu the Available Submenus Are:

- The **SYSTEM** setup menu, which is identified by a gear icon and the word **SYSTEM**, which establishes the general settings for the player.
- The **AUDIO** setup menu, as identified by a gear icon and the word **AUDIO**, which establishes the settings for the player's audio output.
- The **VIDEO** setup menu, as identified by a gear icon and the word **VIDEO**, which establishes the video formatting and configuration settings.
- The **VIDEO** adjustments menu, as identified by an icon with a set of slider controls and the word **VIDEO**, which changes the settings for the video output either with or without a color bars test signal.

C Control Settings: The main area of the menu screens shows a list of the control settings available for the current menu. On the left side of the main blue tinted area is a listing of the settings available on that menu. To the right of each line is the current setting.

To select a specific setting, press the **▲▼ Navigation Buttons 5** until the setting for the desired item is highlighted in a light blue box. Next, press the **Enter Button 26** and use the **▲▼ Navigation Buttons 5** to select one of the options shown on the **Adjustment Options Line E**, or enter the appropriate information with the **Numeric Keys 16**, depending on the option being adjusted.

D Command Description: The top message line in the dark blue bar at the bottom of the screen describes the function or setting that is being adjusted.

E Adjustment Options: The bottom line in the dark blue bar at the bottom of the screen displays the settings available for the **Control Setting C** under adjustment. To make a selection, use the **▲▼ Navigation Buttons 5** to select one of the options shown on the **Adjustment Options Line E**, or enter the appropriate information with the **Numeric Keys 16**, depending on the option being adjusted.

Within a given menu, adjustments are made using the following steps and commands on the remote control:

- Press the **▲▼ Navigation Buttons 5** to select an item to be adjusted.
- When the current setting for the item to be adjusted is highlighted, press the **Enter Button 26**.
- Press the **▲▼ Navigation Buttons 5** to select one of the options shown on the **Adjustment Options E** line. In cases where a series of underscore lines (_ _ _) is shown, enter the desired setting using the **Numeric Keys 16**.
- When the desired setting is highlighted or the numeric entry made, press the **Enter Button 26**.
- Press the **▲▼ Navigation Buttons 5** to select another item for adjustment, if required.
- When all required adjustments on this menu have been made, press the **▲▼ Navigation Buttons 5** to move to the **Submenu Selection Area B** and then press the **▲▼ Navigation Buttons 5** to select another Submenu.
- If all adjustments are complete, press the **OSD Button 27** to exit the menu system.

Most DVDs are created to allow setup menus to be displayed while the disc is playing, superimposed over the video playback. However, some discs are authored in a way that does not allow this. If you see the \emptyset icon displayed on the screen after pressing the **OSD Button 27**, press the **Stop Button 11** and then press the **OSD Button 27** again.

SYSTEM SETUP

This method of navigation, option selection and adjustment applies to all menus except for the Video Adjustments, which use a different control method due to the need for viewing the on-screen video or the DVD 22's internal test signal while the settings are being made. See page 20 for more information on changing the Video Adjustments.

Setup Menu

The four submenus within the **SETUP** menu are where you establish the basic system settings for the DVD 22. Most of these settings need to be adjusted only once, and in many cases you will find that the system defaults are the correct option for your combination of DVD player, A/V receiver or surround processor and video display. However, it is worth a few minutes to briefly scan through each of the Submenus to confirm that the settings are correct and to familiarize yourself with the available options so that you are aware of the flexibility of the DVD 22.

System Setup Menu

The **SYSTEM SETUP** submenu is where you establish the control options for the DVD 22 that do not relate to audio or video playback. In most cases, the system default options are sufficient for normal operation, but you may wish to change them to tailor the unit's operation to your preferences.

The following adjustments may be made on the **SYSTEM SETUP** menu.



Display Language: This setting selects the language that will be used for the DVD 22's OSD menus and other system messages. The default is English, but you may also select French, Spanish, German or Italian.

Preferred Subtitle Language: This setting selects the language used for the display of subtitles. The default setting is **OFF**, which plays discs without subtitles. To set the player so that subtitles will always play in a specific language when they are available, select from any of the choices shown on the **Adjustment Options Line** **E** when adjusting this item, as shown above. If you do not find your preferred language in the list of options, you may select a preferred language by first pressing the **▲▼ Navigation Buttons** **5** during the setting adjust-

ment so that **OTHER** is highlighted. Press the **Enter Button** **26** and then use the **Numeric Keys** **16** to enter the four-digit code listed on page 30 for the desired language. This selects a preferred subtitle language, but it will only be available when the disc being played contains that language. The list of subtitles available on any given disc is always shown on the disc jacket, usually at the bottom of the back cover. Note that the subtitles may also be switched on or off, or a new language selected during playback using the **Subtitle Button** **23**, as described on page 25.

Panel Time-Out: This settings selects the time-out interval for the front-panel **Information Display** **12**. The default setting is **OFF**, which disables this feature so that the front-panel indicators are always illuminated. You may also choose five to 20 seconds as the length of time after you press any button on the front panel or remote for the display to go out. To view the displays when they are off, press any button on the remote.

Status Bar Time-Out: This setting selects the time-out interval for the on-screen Status Bar that appears at the top of your video screen when the **Status Button** **24** is pressed while a disc is playing. During DVD playback, the status bar shows the current title and chapter, as well as the elapsed or remaining time in the current title. You may program the status bar to remain on-screen for either five or 20 seconds after the **Status Button** **24** is pressed. When **OFF** is selected, the time-out is disabled, and the status bar will remain on the screen until the **Status Button** **24** or **Clear Button** **15** is pressed.

Parental Control: This setting enables you to restrict viewing to films or other discs encoded with parental control information to a specific level or below, and it also enables you to change the password that must be entered to change the settings for this option. The default setting allows all discs to be played, but you may change the setting so that viewing is controlled within the eight steps, with lower numbers being more restrictive and high numbers allowing more material to be viewed. The steps correspond to the standard MPAA ratings symbols as follows. Additional information about movie ratings is available online at www.mpa.org/movieratings.

- Step 1 is equivalent to a "G" rating for general audiences with material appropriate for all viewers.
- Step 2 is an intermediate level between "G" and "PG" rated material.
- Step 3 is equivalent to a "PG" rating.
- Step 4 is equivalent to a "PG-13" rating.
- Step 5 is an intermediate level between "PG-13" and "R" rated material.
- Step 6 is equivalent to an "R" rating.
- Step 7 is equivalent to an "NC17" rating.

- Step 8 allows all discs to be played, regardless of their content rating.

To access the Parental Control settings, press the **▲▼ Navigation Buttons** **5** until the current setting on the **Parental Control Settings** **C** line is highlighted and press the **Enter Button** **26**. Next, enter the default password by pressing "8888" using the **Numeric Buttons** **16**. Finally, use the **▲▼ Navigation Buttons** **5** to highlight the desired parental control level as shown on the **Adjustment Options** **E** line as described above. You may also change the password by highlighting **NEW PASSWORD**, pressing **Enter Button** **26** and by following the instructions that appear in the **Command Descriptions** **D** line.

PBC Support: This setting controls the activation of PBC (Play Back Control) Support for VCD discs. If you plan to play VCD discs, which are a CD-ROM-based format that predates DVD, we recommend that the setting be turned **ON**.

Screen Saver: This setting controls the activation of a screen saver that prevents the image of the "splash screen" from being "burned" into the face of your video display when a disc is stopped for more than five minutes. If you use the DVD 22 with a plasma display, direct-view CRT set or a CRT-based projector, we strongly recommend that the setting be turned **ON**.

Show Angle Icon: This setting controls the activation of the Angle Icon. When this setting is turned **ON**, the Angle Icon, which is a small image of a movie camera, will appear in the upper right corner of the screen when multiple-angle material is available on the disc being played. When the icon appears, press the **Angle Button** **19** on the remote to switch between the available views or program material.

Audio Setup Menu

This menu establishes the DVD's configuration for general audio settings, such as preferred language and digital audio settings.

As with all setup menus, press the **OSD Button** **27** to activate the main menu screen, and then press the **▲▼ Navigation Buttons** **5** so that **SETUP** is highlighted. Press **Enter Button** **26**, and then use the **▲▼◀▶ Navigation Buttons** **5** until the **AUDIO SETUP** menu is highlighted within a white outline and press the **Enter Button** **26** again. Finally, press the **▲▼ Navigation Buttons** **5** once more to move the highlight to the **Control Settings** **C** side of the menu screen.



The following adjustments are available on the Audio Setup menu:

Preferred Audio Language: This setting is used to select the default language that will be used for program playback. The factory default setting is English, but you may choose French, Spanish, German or Italian by making a selection on the **Adjustment Options** **E** line. To select a language other than those shown, select **OTHER** from the choices on the **Adjustment Options** **E** line and press the **Enter Button** **26**. Then, use the **Numeric Keys** **16** to enter the four-digit code listed on page 30 for the desired language. This selects a preferred audio program language, but it will only be available when the disc being played contains that language. The list of languages available on any given disc is always shown on the disc jacket, usually at the bottom of the back cover. Note that the audio playback language may also be changed at any time during playback using the **Audio Button** **3**, as described on page 24, but any changes made will only be effective during playback of that disc.

Digital Output: This setting selects the digital audio data stream that is routed to the **Optical Digital Output** **1** or the **Coaxial Digital Output** **2**. Two choices are available:

- **ORIGINAL**, which is the default setting, sends the Dolby Digital or DTS soundtrack, as selected from the disc's menu or by using the **Audio Button** **3**, as explained on page xx. This setting should be used when your receiver or processor is capable of decoding signals in the Dolby Digital or DTS format.
- **PCM**, which outputs a standard PCM signal for decoding by standard digital-to-audio converters that are not compatible with Dolby Digital or DTS data streams.

PCM Limit: This setting selects the maximum sample rate for the digital audio output of the DVD 22. Before making a selection for this option, consult the owner's manual for your receiver or processor to determine the maximum sampling rate your receiver or processor is capable of handling. Three choices are available:

- If your receiver is not capable of resolving digital signals greater than 48kHz, or if you are uncertain

of your equipment's capabilities, select the 48kHz option. The DVD 22 will down-sample any program material with higher sample rates so that it is compatible with your equipment.

- If your receiver or processor is capable of handling digital signals up to 96kHz, select that option. The DVD 22 will down-sample any program material with higher sample rates so that it is compatible with your equipment.
- If your receiver or processor is capable of handling digital signals up to 192kHz, select the No Limit option. In this case all signals will be passed through at their native rates without down-sampling.

If you are unsure of the capabilities of your receiver or processor, we suggest that you start with the 96kHz option. If you select this setting and do not hear any audio when a high-resolution disc is played, change the setting to 48kHz so that the audio will be properly downsampled.

Dynamic Range: This setting allows you to take advantage of the programming present on some Dolby Digital recordings to reduce the volume of louder, peak passages while maintaining intelligibility of quieter passages. This means that you may listen to programs at a level that allows the full impact of a soundtrack to be heard at a volume that is lower than you might otherwise use to avoid complaints about loud volume levels. The DVD 22 accomplishes this by compressing the audio to a greater or lesser degree, depending on which setting you choose. Three options are available:

- **MINIMUM** does not make any changes to the original playback, and should be used when the volume setting in the listening room may be as loud as you desire.
- **MEDIUM** applies a moderate amount of compression so that louder passages are a little bit quieter.
- **MAXIMUM** applies more compression so that louder passages are much softer.

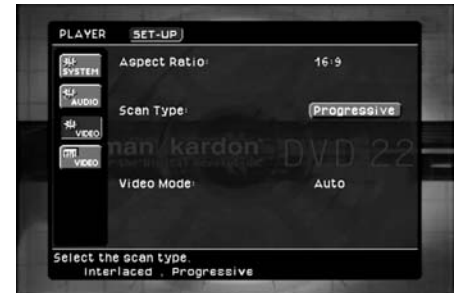
Feel free to experiment with the settings at any time. Note that if your receiver or processor also allows you to program the dynamic range setting, also known as the "Night Mode," you do not need to make any adjustments on the DVD 22 and should leave the setting at **MINIMUM**.

Video Setup Menu

This menu establishes the DVD's configuration for video format settings such as aspect ratio and output scan.

As with all setup menus, press the **OSD Button** **27** to activate the main menu screen, and then press the **Navigation Buttons** **5** so that **SETUP** is highlighted. Press the **Enter Button** **26**, and then

use the **Navigation Buttons** **5** until the **VIDEO SETUP** menu is highlighted within a white outline and press the **Enter Button** **26** again. Finally, press the **Navigation Buttons** **5** once more to move the highlight to the **Control Settings** **C** side of the menu screen.



The following adjustments are available on the Video Setup menu:

Aspect Ratio: This setting selects the aspect ratio of video programming. Your choice should be made according to the shape of your video display and your personal preferences. Three choices are available:

- **16:9:** If you have a widescreen (16:9) display, or a display that has a widescreen mode, choose this setting. With this setting, the DVD 22 will adjust the output for widescreen movies so that they fill the entire screen in the proper aspect ratio. Note, however, that in this setting a disc recorded in the 4:3 aspect ratio will appear in the widescreen as a boxed image in the center, with black columns on the left and right side of the screen. Note that if the widescreen option is chosen and a widescreen movie is played on a conventional 4:3 aspect ratio set, the image will be distorted due to vertical compression.
- **Letterbox:** If you have a standard, 4:3 aspect ratio video display, choose this setting if you wish to see the entire frame of the movie as it is recorded on the disc without any image cutoff at the left and right sides. While this allows widescreen movies to be shown in their entirety, they will occupy a smaller portion of the screen and black "letterbox" bars may appear at the top and bottom of the screen.
- **PanScan:** If you have a standard, 4:3 aspect ratio video display and prefer to have widescreen movies displayed without the black bars at the top and bottom of the screen, choose this option. Note, however, that since most DVDs do not contain special "pan/scan" coding that allows the on-screen image to follow the action, you may find that while the image will fill the screen, the vertical spread will cause the image to be cropped at the left and right side.

SYSTEM SETUP

Scan Type: This setting allows you to select between progressive and interlaced scanning for the **Component Video Outputs** 5 to maximize the image resolution for the type of video display in use. When all desired setup and configuration entries have been made, press the **OSD Button** 27 to return the player to normal operation and you are ready to enjoy the finest in DVD or CD playback! Note that the output at the **S-Video** 5 and **Composite Video** 6 outputs will always be standard-rate video that is compatible with any television set or video display. Two choices are available:

- **Progressive:** Select this option if you have a video display that is compatible with input sources of 480P or greater. Displays labeled as "HDTV Ready," including virtually all large-screen LCD and plasma displays, are compatible with progressive scan.
- **Interlaced:** Select this option when you are using an older video display that has Y/Pr/Pb component inputs, but which is not capable of displaying high scan rate, or "HD" signals.

Video Mode: This setting affects only the **Component Video Outputs** 5, and it controls how the video signals are optimized for progressive scan display. In most cases, the "automatic" mode is your best choice, as it senses whether the disc being played was originally recorded on video or shot on film. However, in some cases you may wish to compensate for errors in the disc authoring that occur when the frame rate is not properly maintained when films are converted to video. Three choices are available:

- **Auto:** This is the recommended setting, as it lets the DVD 22 analyze the signals from the DVD and adjust the output accordingly.
- **Movie:** Choose this option for optimal playback of material that was shot on film, even though you are viewing it on video via a DVD.
- **Video:** Choose this option for optimal playback of material that was shot directly to video, such as concerts and sports programming.

Video Adjustments Menu

This menu allows you to adjust five key parameters of the video signal to compensate for differences between your DVD player and other video sources. You may use either the DVD 22's built-in color bar test signal or a test disc as the standard for the adjustments. To ensure that your system is properly optimized, we strongly recommend that you adjust your video display using the display's own controls before making any changes to the DVD 22's output. Once the display is properly calibrated with all settings on the DVD 22 set to their midpoint, use the controls on this menu to fine-tune the DVD 22's output.

Due to the nature of these settings, the navigation is somewhat different from the DVD 22's other menus and controls. The menu itself is called up in the same way as the other menu. Press the **OSD Button** 27 to activate the main menu screen, and then press the **▲▼ Navigation Buttons** 5 so that **SETUP** is highlighted. Press the **Enter Button** 26, and then use the **▲▼◀▶ Navigation Buttons** 5 until the **VIDEO ADJUSTMENTS** menu box (which contains an icon with slider controls and the word **VIDEO**, and is located at the bottom of the column in the **Submenus Area** 3) is highlighted within a white outline. Then press the **Enter Button** 26 again.

When you press **Enter** 26 the video adjustments will appear inside a black bar at the top of the screen, with either the video from a disc being played or the splash screen shown on the rest of the screen.



To change any of the video adjustments shown at the top of the screen, first press the **▲▼◀▶ Navigation Buttons** 5 so that the "+" to the right of a parameter name is highlighted to increase the setting or "-" to the right of a parameter name is highlighted to decrease the setting. Then press the **Enter Button** 26 to change the value as shown by the number of blue lines to the left or right of the center line. When only the dark center line is shown with no blue lines, the setting is at the midpoint default value.

Changes to any of the settings may be made with a test disc playing, or you may use the internal test signal by pressing the **▲▼◀▶ Navigation Buttons** 5 until the word **OFF** is highlighted next to the **TEST SCREEN** line. To activate the test signal, press the **Enter Button** 26 and note that a special combination test signal, including both color bars and gray scale along with 100% black and white fields, will be displayed. To recall the video controls, press the **OSD Button** 27 and then navigate among the settings and make any necessary changes following the steps in the previous paragraph.

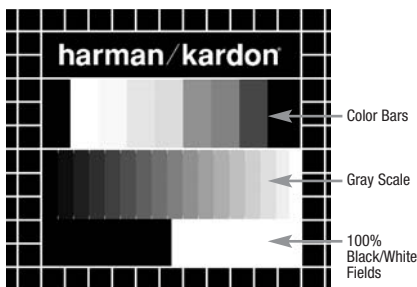
DVD is one of the highest quality sources ever made available for in-home playback of prerecorded pictures and sound. In order to make certain that your home theater system is fully optimized to take advantage of DVD's superb picture quality, the DVD 22 offers a built-in video test signal that makes it easy to calibrate your TV or video display for proper playback.

Test Screen

With the test screen showing on your video display, the following adjustments may be made:

- The proper color intensity setting on your TV.
- Proper color adjustments using the color bars, which should be (left to right) black, white, yellow, cyan (turquoise), green, magenta, red, blue, black.
- The proper color transition, seen as sharp separation of the bars.
- The performance of the color circuits in your TV (with "Video" signals); bar edges should show no vertical crawling dots.

With the gray scale and the black/white fields below the color bars, the brightness and contrast of your screen can be adjusted.



TV Picture Adjustment With Test Screen

Brightness Adjustment:

1. Turn down the color control on your TV until the color bars are visible in black and white.
2. Adjust the contrast to the lowest level where you still can see all bars within the gray scale in the test picture separately and clearly.
3. Adjust the brightness so that the bars in the gray scale are all visible. The bar furthest to the left has to be as black as possible rather than gray but the next gradation must clearly be distinct from it. All the bars in the gray scale should be gradually and evenly changing from black to white, going from left to right.

Contrast Adjustment:

1. Adjust the contrast on your TV until you see a bright white bar in the lower right corner of the screen and a deep-dark-black bar to the left. The optimal contrast setting will depend on your preference and the surrounding light in the TV room.
2. If the brightness of the white bar no longer increases when the contrast is turned up or the borders of the white "harman/kardon" letters on top bloom (overlight) into the black areas (drastically decreasing the sharpness of the type), the contrast has been turned up too much. Reduce the contrast until these effects disappear and the video still looks realistic.
3. If you are watching TV with customary surrounding daylight, adjust the contrast so that a normal video picture has about the same look as the surroundings in your room. That way the eye is relaxed when watching the TV picture. This contrast setting may be reduced when the surrounding light is dimmed, thereby usually improving the sharpness of a video significantly.
4. The gray scale in the middle line needs to have the same clear difference between each bar as before the contrast adjustment. If not, go back to "Brightness Adjustment" and repeat Step 3 and then "Contrast Adjustment," making only minor adjustments each time for optimization.

Color Adjustment

1. When the brightness and contrast are set optimally, turn up the color control to the level of your preference. Adjust to the level where the colors look strong but still natural, not overdone. If the color level is too high, depending on the TV, some of the bars will seem wider or the color intensity will not increase while the control is turned up. Then the color control must be reduced again. Ultimately, you also should test the color intensity with a video — e.g., pictures of natural faces, flowers, fruit and vegetables, and other common natural articles for an optimal setting of the color intensity.
2. Use the large white bar below the gray scale to tweak the warmth of the picture. Every viewer has a preference as to how the glow of the picture should be. Some prefer a little colder picture, some a warmer glow. The Tint function on your TV and the white bar can be used to control this. Adjust the Tint to the level where you feel the white color has the tone you prefer.

PLAYBACK BASICS FOR ALL FORMATS

Loading Discs

To load discs in the DVD 22, first turn the DVD 22 on by pressing in the **Power On/Off Switch 2** or **Power On Button 1**. Note that the **Power Indicator 1** will turn amber when the unit is connected to an AC power source. It will turn blue when the **Power On Button 2** is pressed.

Next, press the **Open/Close Button 9 11** until the disc tray opens.

Hold the disc by the edge, and gently place it into the disc drawer, making certain that the disc is properly seated in the tray's insert. If the disc is not correctly centered, you may damage both the disc and the player when the drawer closes. When loading discs, please note the following:

- The DVD 22 will play discs with the following logos as well as most DVD-RW or DVD+RW discs. DO NOT attempt to play another type of disc.



MP3

- The DVD 22 will only play discs in the NTSC video format. It will not play discs for other standards such as PAL or SECAM.
- Playback capability for CD-RW, DVD-RW, DVD-R, DVD+RW or DVD+RW discs will vary according to the quality of the disc. On some occasions it is possible that these discs may not play on the DVD 22. This does not indicate any problem with the DVD 22.
- The DVD 22 will only play discs that are coded for Region 1 or discs that are open to being played in all regions. Discs that contain a Region Code of 2, 3, 4, 5 or 6 (as noted by a number inside a world map logo on the disc's cover jacket or case) will not play.
- Both 5-inch (12cm) and 3-inch (8cm) discs may be used.
- When loading CD audio discs, load the discs with the label side up.
- When loading DVD discs with printed labels, load them label side up.
- Some DVD discs are double-sided. The title information for these will be printed on the inner ring of the disc, very close to the center hole. The title for the side you wish to play should be facing up.

After a disc is properly loaded, press the **Open/Close Button 11 4** to close the disc drawer. After the drawer closes, you will see a brief indication of **Reading** in both the Information Display and in the on-screen display to alert you to the fact that the unit is determining the type of disc (DVD, CD, VCD or MP3) and is reading the data for track, chapter, title and other information about the disc.

Once the disc's data has been read, the type of disc will be displayed by the **Disc-Type Indicator A** and the disc will automatically begin playing. Types of discs: DVD-Video, CD, CD-R, CD-RW, VCD, MP3, WMA, JPEG, DVD+R, DVD-R, DVD+RW, DVD-RW.

- When a DVD is detected, playback will automatically begin and the screen will show the program or the disc's menu, depending on how the disc has been created.
- If a CD is detected, playback will begin automatically and the screen will show the Info menu with information about the disc, including the number of tracks and the playback time. To remove this menu from the screen, press the **Clear Button 15**. To remove the video playback and simply listen to music with no on-screen messages, press the **Video Off Button 12**.

If a disc is already in the drawer when the unit is turned on, it will begin playing. If the disc was stopped using the Resume function, playback will begin from the point where it was stopped. If the disc was stopped by pressing the **Stop Button 5 11** twice, the disc will begin playing from its beginning.

Playback Features for DVD and CD Discs:

- To momentarily pause playback and freeze the current picture frame on a DVD, press the **Pause Button 7 14**. To resume playback after pressing the Pause button, press the **Play Button 3 8**.
- To move forward or backward through the tracks on a CD or the chapters on a DVD, press the **Skip Forward/Reverse Buttons 6 7** on the front panel or the **Previous/Next Buttons 8 23** on the remote.
- To move forward or backward through the DVD or CD disc being played at fast speed, press the **Search Forward/Reverse Buttons 10 22**, or press the front-panel **Skip/Search Buttons 5 6** briefly until fast play begins and then release them. Once one of these buttons is pressed, the fast search will continue until the **Play Button 8 23** is pressed. Note that the fast-play speeds are different for CD discs and DVDs.

For DVD playback, there are four fast-play speeds. Each press of the **Search Forward/Reverse Buttons 6 7 10 23** will cycle to the next speed in the following order: 2x, 4x, 8x, 16x.

For CD playback, there are two fast-play speeds. Each press of the **Search Forward/Reverse Buttons 10 22 6 7** will cycle to the next speed in the following order: 5x, 15x.

NOTE: Fast search is not available when MP3 discs are playing.

When a DVD is playing, you may move forward or backward through the disc by first pressing the **Pause Button 7** and then pressing the **Search/Slow Forward or Search/Slow Reverse Buttons 10 22**. Each press of the buttons will cycle the player through one of the four slow-play speeds. Press the **Play Button 8** to resume normal playback.

Note that there is no audio playback during fast or slow-forward or -reverse play of DVD discs. This is normal for DVD, as A/V receivers and surround processors cannot process the digital audio streams during slow modes. Slow-play is not available for CD discs.

- When a camera icon shows on the screen, or the **Angle Indicator H** appears, this is your indication that there is multiple-angle information on the disc being played. To change the angle, press the **Angle Button 19** until the desired angle view appears. An on-screen banner message will appear to indicate the angle view in use.

To illuminate the buttons on the remote control so that they may be seen in low-light conditions, press the **Light Button 34**.

Using a DVD's Menu

One of the unique features of the DVD system is that it offers a producer the opportunity to include a wide range of features on a disc, including multiple-language tracks; subtitles in a variety of languages; special information such as movie trailers and cast information; as well as other customized information. In addition, producers may divide a movie or program into chapters that allow for quick access to specific parts of the program. These chapters may be accompanied by thumbnail pictures of a scene from the specific chapter to help you select the desired spot on the disc.

When a disc is playing, press the **Disc Menu Button** **25** to pause the playback and display the disc's menu. As there are no hard rules about style and contents for DVD menus, the way they appear on the screen and the information they contain will vary from one disc to another. However, the following general rules apply to most menus:

- You may move through the options on a menu with the **Navigation Buttons** **5**, as the disc's programming allows. The option selected will typically be highlighted in a certain color or inside an outline box.
- To select a highlighted option, which may either play a portion of the disc or move to a submenu, press the **Enter Button** **25** or the **Play Button** **3 8**.
- On some discs, when you select the DVD menu during the playback of a movie, the disc will return to the point in the program where the menu was selected by offering a "Play Movie" option. Press the **Enter Button** **25** or **Play Button** **3 8** to resume play. However, not all discs offer this feature, and selecting the menu while playing a movie may mean that you will either have to go back to the beginning of the program or the start of a chapter. This feature is out of the control of the DVD 22, as it is set by the disc's internal programming.

Important Notes on DVD Playback

The DVD 22 is capable of all the features and options covered by the DVD standards. However, it is up to the producer of a DVD disc to decide which of those features and functions are available on any given disc. For that reason, not all discs will function identically, and some discs will not have many of the features of the DVD system. For example, most current DVD discs do not take advantage of the multiple-angle feature. When you press a button and the player displays the "Feature Prohibited" icon "⊗", this is an indication that the disc has not been programmed for that feature.

In addition, it is common for the producers of DVD discs to block the use of certain functions during only some parts of a disc. For example, many discs prohibit the use of fast-play buttons or prohibit access to the Chapter Menu display during the playback of copyright notices, studio logos, movie credits or trailers. The appearance of the "Feature Prohibited" icon "⊗", or the inability of certain features to operate when the disc itself has prohibited them, does not indicate a problem with the DVD 22, as these features are outside of the unit's control.

Zoom Feature

The DVD 22's advanced digital video processing circuits include a Zoom feature which allows you to enlarge the image for closer examination of a particular part of the picture. Four steps of enlargement are available.

- To use the Zoom feature, press the **Zoom Button** **23** while a disc is playing or paused. Each press of the button will increase the zoom-in effect. When you have zoomed through all four steps, the picture will return to normal size.
- When the zoom feature is activated, you may use the **Navigation Buttons** **5** to move the zoomed-in picture around the screen once the information box with the zoom ratio and playback time no longer appears on the screen.
- Some discs are created in a way that prevents the Zoom feature from operating. In addition, the Zoom feature will not operate on disc menus and may not operate on subtitles.

Playback Resume Feature

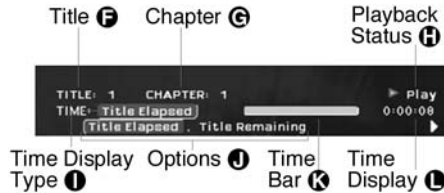
The DVD 22 offers a "Resume" feature for DVD playback that is different from the conventional "Stop" function you may be used to on CD players. When the **Stop Button** **5 11** is pressed once, the disc will stop and an on-screen **RESUME** indication will appear on the video screen and in the **Front-Panel Information Display** **12**. While the Resume feature is active, the disc's position is entered into the unit's memory so that when the **Play Button** **3 8** is pressed to resume playback, the program will continue at the point where it was when the **Stop Button** **5 11** was pressed.

To completely stop playback, press the **Stop Button** **5 11** twice.

PLAYING DVDs and CDs

Using the On-Screen Status Display

When a DVD or CD is playing, you may press the **Status Button** **24** at any time to view a quick summary of the disc's playback status. The Status Bar not only gives you a snapshot of the unit's current state; it also provides an easy way to select a different title, chapter or time display.



For DVDs:

- **Title F**: This display shows the current title.
- **Chapter G**: This display shows the current chapter.
- **Playback Status H**: This section shows whether the unit is in Play or Pause, or whether it is in a fast or slow search/scan mode.
- **Time Display Type I**: This section identifies the type of information in the **Time Display L** section of the display.
- **Options J**: This line is blank when the Status Display is first accessed, but when it is used to change the title, chapter or time display, the available choices will be shown here.
- **Time Bar K**: This display is a graphic representation of the time remaining for the disc being played. As the disc plays, blue bars will appear to give a relative indication of where the current scene is between the beginning and end of the title.
- **Time Display L**: This section of the display shows the time corresponding to the type of display indicated in the **Time Display Type I**.

When a CD is playing, the Title and Chapter lines are replaced by a single line that shows the current Track being played.

Selecting a Title (for DVDs)

To select a title, first press the **Status Button** **24** so that the Status Display appears. The **Current Title F** will be highlighted in a blue box. Press the **Enter Button** **26** and a list of the available titles will appear in the **Options Line J**. Use the **Navigation Buttons** **5** to select the desired title in a highlighted blue box and press the **Enter Button** **26** to begin playing the new title. Note that if a "ø" icon appears when you attempt to select a new title, this is an indication that the disc does not allow the title to be changed in this manner even though a list of title numbers will appear. This is a function of the way the disc was created and is not a flaw in the DVD 22.

Selecting a Chapter (for DVDs)

To select a chapter, first press the **Status Button** **24** so that the Status Display appears. Next, press the **Navigation Buttons** **5** so that the **Current Chapter Number G** is highlighted in a blue box. Press the **Enter Button** **26** and a list of the available chapters will appear in the **Options Line J**. Use the **Navigation Buttons** **5** to select the desired chapter in a highlighted blue box and press the **Enter Button** **26** to begin playing the new chapter.

To select a specific chapter on a DVD at any time during playback, simply press the number corresponding to the chapter you wish to view using the **Numeric Keys** **16**. You may also move one by one through the chapters at any time by pressing the **Previous Step/Next Step Buttons** **9** **23** on the remote or the **Skip Reverse/Skip Forward Buttons** **6** **7** on the front panel.

Selecting a Track (for CDs)

To select a track, first press the **Status Button** **24** so that the Status Display appears. Next, press the **Navigation Buttons** **5** so that the **Track Number G** is highlighted in a blue box. Press the **Enter Button** **26** and a list of the available tracks will appear in the **Options Line J**. Use the **Navigation Buttons** **5** to select the desired track in a highlighted blue box and press the **Enter Button** **26** to begin playing the new chapter.

To select a specific track on a CD at any time during playback, simply press the number corresponding to the track you wish to listen to using the **Numeric Keys** **16**. You may also move one by one through the chapters at any time by pressing the **Previous Step/Next Step Buttons** **9** **23** on the remote or the **Skip Reverse/Skip Forward Buttons** **6** **7** on the front panel. When you press the **Previous Step** **9** or **Skip Reverse** **6** button once, the player will return to the start of the current track. Additional presses of the buttons will step back through the available tracks, one at a time.

Changing the Time Display

To change the Time Display, first press the **Status Button** **14** so that the Status Display appears. Next, press the **Navigation Buttons** **5** so that the current **Time Display Type I** is highlighted in a blue box. Press the **Enter Button** **26** and a list of the available time display options will appear in the **Options Line J**.

For DVDs:

- **Title Elapsed** shows the time elapsed in the current title. In cases where the disc has only one title, this will be the same as the elapsed time on the disc.
- **Title Remaining** shows the time remaining in the current title. In cases where the disc has only one

title, this will be the same as the time remaining on the disc.

- **Chapter Elapsed** shows the time remaining in the current chapter.
- **Chapter Remaining** shows the time remaining in the current chapter.

For CDs:

- **Track Elapsed** shows the time elapsed in the current track.
- **Track Remaining** shows the time remaining in the current track.
- **Disc Elapsed** shows the time elapsed on the total disc.
- **Disc Remaining** shows the time remaining in the total disc.

Press the **Navigation Buttons** **5** to highlight the desired time display method and press the **Enter Button** **26** to change the display. Note that any changes made here will affect the time display in both the Status Display and the front-panel **Information Display** **12**.

NOTE: When a CD, MP3 or Windows Media disc is playing, the On-Screen Status Display will not be available. Instead, the **PLAYER** Menu of the OSD system will appear on-screen. (See page 28 for more information on using the Player Menu.)

For JPEG discs, the File Index number and File Name will be displayed; however, you will not be able to change them. To navigate a JPEG disc, you must use the Player Menu of the OSD system (see page 28).

Selecting the Audio Track (DVDs Only)

Many DVDs contain more than one audio track. On many discs, you will find multiple languages, while others will offer a choice of different audio formats or mixes (e.g., Dolby Digital or DTS), while some will also contain commentary from the director or stars or Descriptive Video Service content. The default audio language is set in the **AUDIO 0 SETUP** menu as shown on page 18.

To change the audio track, press the **Audio Select Button** **3** to show the current audio track configuration. When you press the **Enter Button** **26**, a series of numbers will appear. Press the **Navigation Buttons** **5** to change the numeric indication while noting that a description of the available options appears at the top left corner of the on-screen display. When your desired selection appears, press the **Enter Button** **26** and then press the **Navigation Buttons** **5** so that **DONE** is highlighted and then press the **Enter Button** **26** again to remove the on-screen display and return to normal playback.

Notes on Audio Tracks:

- Not all discs contain multiple audio track choices. Check the information on back of the disc jacket to see what audio languages or format options are available.
- Some DVDs do not allow direct selection of the audio track during playback. For these discs, you must change the audio track using the disc's menu system. Press **Disc Menu Button 25** to display the disc's menu and then use the **Navigation Buttons 5** to make your selection following the navigation scheme of the individual disc.
- When you change the audio track or language with the **Audio Select Button 3** on the remote control as shown above, you only override the audio language setting established in the Audio Setup menu for the disc currently being played. The unit will revert to its default setting with the next disc.

Selecting or Changing the Subtitle (DVDs Only)

Many DVDs contain one or more subtitles. The default subtitle is set in the System Setup Menu as described on page 18, but you may also turn the subtitles on or off or change the language at any time during a disc's playback.

To change the subtitle language or turn the subtitles on or off, press the **Subtitle Button 28** to show the current configuration. When you press the **Enter Button 26** the available subtitle choices will appear. Press the **Navigation Buttons 5** to highlight your choice from the available languages or select **OFF** turn the subtitles off. When your desired selection appears, press the **Enter Button 26** and then press the **Navigation Buttons 5** so that **DONE** is highlighted and then press the **Enter Button 26** again to remove the on-screen display and return to normal playback.

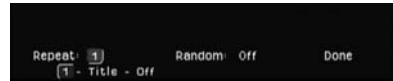
Selecting an Angle (DVDs only)

An increasing number of DVDs contain multiple-angle views, which allow the disc's creators to provide different views of the same scene, or to present additional on-screen or interactive information. In many cases the disc will alert you to the presence of multiple angles by showing a camera icon or other indication, but in any case where multiple-angle material is available, the **Angle Indicator H** will light in the front-panel **Information Display 12** and the Multiple Angle Icon will appear on-screen if it has been turned on in the System Settings menu.

When multiple angle views are available as shown by any of the available icons or indications, press the **Angle Button 19** to change the view. An information box will appear in the upper right corner of your video screen to show you which angle view is playing and how many are available.

Repeat Play

The DVD 22 offers a number of repeat functions that allow you to set the player so that it automatically repeats a title, chapter or selected segment of the disc ("Repeat A-B").



To repeat the current title or chapter, press the **Repeat Button 31** to bring a control bar to the top of the screen. When it appears, press the **Enter Button 26** and then press the **Navigation Buttons 5** to highlight your choice of either **1** to repeat the current chapter or **TITLE** to repeat the current title. For CDs the options are **1** to repeat the current track, or **ALL** to repeat the entire disc until the playback is stopped or the function is turned off. To turn off the repeat play function, highlight the word **OFF**. When your desired selection appears, press the **Enter Button 26** and then press the **Navigation Buttons 5** so that **DONE** is highlighted and then press the **Enter Button 26** again to remove the on-screen display and return to normal playback.

To program an "A-B" repeat, which allows you to select any portion of a disc for continual playback, press the **A-B Repeat Button 18** at the start of the section to be repeated, and press it again at the end of the segment to be repeated. The disc will then play back the part of the disc that elapsed between the two times the button was pressed until the **Stop Button 11** is pressed.

Information Display

At any time that a disc is playing, you may view a complete summary of the disc by pressing the **Info Button 6**.



The information shown is a mix of the settings for the player and the contents of the disc, as follows:

- **Disc:** This shows the type of disc being played.
- **Disc ID:** If the disc is encoded with its title, that information is shown on this line.
- **Aspect Ratio:** This line shows the aspect ratio of the programming recorded on the disc, and the way in which it is being played back according to the

setting established in the Video Setup menu as shown on page 19. Note that some discs may contain two versions of the same program with a widescreen aspect ratio on one side and a standard aspect ratio on the other.

- **Video Standard:** The disc's format is shown here. For the DVD 22, this will always be the NTSC format used in North America, as that is the only format activated for Region 1 players.
- **Scan Type:** This line shows the scan rate of the programming recorded on the disc, and the way in which it is being played back according to the setting established in the Video Setup menu, as shown on page 20.
- **Audio Resolution:** This line shows the sample rate and bit rate for the audio track being played on the disc.
- **Audio Format:** This line shows the audio format being played back.
- **Video Bit Rate:** The number of blue horizontal lines inside the white bar on this line gives you an indication of the video bit rate of the material being played back up to the limit of 10 Mbps. This indication will vary as a disc is played in response to changes in the amount of compression that was applied to the video signal when it was compressed during the disc creation process.
- **Audio Bit Rate:** The number of blue horizontal lines inside the white bar on this line gives you an indication of the audio bit rate of the material being played back up to the limit of 5 Mbps.

When you are finished reviewing the material on the Disc Info screen, you may use the **Navigation Buttons 5** and then the **Enter Button 26** to select another menu to adjust a setting or program this disc, or press the **Info Button 6** or **Clear Button 31** to remove the display from your screen.

MP3, WINDOWS MEDIA® AND JPEG PLAYBACK

MP3, Windows Media and JPEG Playback

The DVD 22 will recognize data from CD-ROM discs recorded in the MP3, Windows Media 9 (WMA) or JPEG formats. In addition to playing discs with only one of the formats, you may also play discs with more than one of the three formats and even program the player so that sound and image files play at the same time.

When an MP3, WMA or JPEG disc is loaded, the names of the files on the disc will appear on your video display. Use the **Navigation Buttons 5** to highlight any file and then press the **Enter Button 26** to play it. If the files have been organized into directories, you may select a folder from the list by using the **Navigation Buttons 5** to highlight a directory folder and press the **Enter Button 26** to expand it. Use the **Navigation Buttons 5** again to select a file and press the **Enter Button 26** to play it.

The Specific File Types That May be Played on the DVD 22 Are:

- **MP3 Files:** MP3 is a popular audio compression format that was developed by the Motion Picture Experts Group as part of the MPEG-1 video compression format. Depending on the specific MP3 encoder used, file size is greatly reduced so that you store many more songs on one compact disc than in the standard audio CD format. MP3 is also used to download audio files to computers for home use. Note, however, that in order to play an MP3 file on the DVD 22, the disc may not contain any encryption or coding that prevents playback. Always be certain that you have, or have purchased, the proper rights or authorization before creating a CD-ROM with MP3 or any other codec format. The DVD 22 is also able to play MP3 files while displaying their file names using its advanced graphic interface. Due to variations in the different encoders and variations of the MP3 codec and the different bit rates used to record MP3 discs, the DVD 22 may not be able to play all discs with MP3 files. We cannot guarantee complete compatibility with MP3 discs, even though they may play on a computer. This is normal and does not indicate a problem with the DVD 22. Note, also, that when a multisession disc with both standard CD audio and MP3 (or WMA) content is used, the DVD 22 will only play the CD audio sections of the disc.

- **WMA Files:** WMA (Windows Media Audio) is an audio compression format developed by the Microsoft® Corporation for use with its Windows Media Player. WMA files may be created with greater compression than MP3 without sacrificing audio quality so that even more songs may be recorded on a disc. Note that there have been a number of versions of Windows Media, and the DVD 22 is compatible only with files that end in the "wma" extension and that were recorded using the Windows Media Series 9 encoding.

- **JPEG Files:** "JPEG" is the acronym used to identify image files recorded according to specifications established by Joint Photographic Experts Group for compressing still images. Identified by the file extension "jpg" when they are recorded on most computers, JPEG files may be created by a digital still camera and then edited and "burned" to a disc in your personal computer, recorded on a CD-ROM disc from film images by a photo processor, or scanned from printed photos into your personal computer and then burned onto a CD-ROM. When playing a disc with JPEG images, press the **Picture +/- Buttons 21** to step through the images one by one.

When a disc with only JPEG files is being played, you may rotate the image by pressing the **Angle Button 19** as needed to turn the image 90, 180 or 270 degrees so that it is properly positioned. You may also use the **Zoom Button 20** to enlarge a JPEG image and the **Navigation Buttons 5** will reposition the image when it is zoomed-in. Note that these functions are not available when a disc contains both JPEG still image files and MP3 or Windows Media music files.

Slide Shows

The DVD 22 is unique in its capability to create a "slide show" when you play JPEG images on a disc that also contains MP3 or WMA audio files.

To program the player so that the JPEG images will each play in order for a set time period before switching to the next image while playing an MP3 or WMA audio file at the same time, first call up the Player Menu by pressing the **OSD Button 27**. Both the Audio and Picture icons will be active. This will play an audio and JPEG file at the same time. To view the images without hearing the audio files, press the **Navigation Buttons 5** to move the cursor to the Audio icon and press the **Enter Button 26** to deactivate it. To play the audio files without viewing the images, move the cursor to the Picture icon and press the **Enter Button 26** to deactivate it. One icon will always be active.

You may also change the amount of time each jpeg image remains on screen. When the Picture icon has been activated as described above, press the **Enter Button 26** and then use the **Navigation Buttons 5** to choose an on-screen image time of 15, 30 or 45 seconds. When you press the **Enter Button 26**, the setting will remain in effect until you stop play of the disc.

VCD Playback

VCD, a video playback format that predates DVD, is based on a different compression format than DVD and a recording method that is similar to CD. Although the DVD has, for the most part, replaced VCD as a format, the DVD 22 offers VCD playback so that you may play your existing library of VCD discs.

There are two versions of the VCD format: an early version which is simply called "VCD" and a later version with Playback Control which is called "Version 2.0" or "PBC". The DVD 22 is compatible with both forms of VCD, although playback will vary according to which version is used and the specific way in which the disc was created.

Even though VCD discs provide video, because the format is based on CD technology, the playback functions for a VCD disc are similar to CD. To play a VCD disc, place it in the DVD 22 as you would do with any other CD or DVD disc. The unit takes a few seconds to read the disc's contents; the **VCD Disc Type Indicators** **A I** in the front-panel display will light and the disc will begin playing. However, keep in mind that the exact level of functionality for any VCD will vary widely and it is ultimately determined by the way the disc was created, not by the DVD 22, particularly if the disc has been created under VCD Version 2.0 with Playback Control (see "Playback Control").

When playing VCD discs, most standard DVD/CD playback controls are used, including Play, Stop, Pause, Resume, Track Skip Forward and Reverse, Slow Forward, Step Forward and Fast Forward or Reverse Search. The functions Slow Reverse and Step Reverse are not available with VCDs.

With VCDs, you have the same access to detailed information on the disc playing or on the current player setting as with DVDs, by pressing the **Info Button** **6** on the remote.

Depending on the disc's functionality, some VCD discs allow the time display to be changed, even with PBC.

Playback Control

VCD discs made under the Revision 2.0 specification will usually offer PBC playback control.

The **PBC Indicator** **I** in the front display will turn on automatically with any VCD, when the disc is played.

With PBC, you can select titles and navigate the disc as with DVDs. However, the access to some functions may be prohibited by the PBC playback control; in that case, the prohibit icon will appear on-screen.

When the VCD is made without PBC, the disc can be controlled the same as an audio CD, but direct track access by entering a number is not possible without opening the On-Screen Banner Display.

With PBC, many discs include chapter selection menus that are similar to those found on DVDs. However, on VCD discs, the disc menu (if any) is accessed and controlled differently than on DVDs.

- **Play** **8** will start with the first track (which may be an intro), then leading to the VCD menu (if any) automatically.
- **Next** (Skip Forward) **23** will skip to the VCD menu from the intro (Track 1) directly.
- Once the menu options appear on the screen, make your selection by pressing the **Numeric Keys** **16** that correspond to your desired choice. The desired selection will begin playing automatically.
- Direct number entry without any VCD menu shown on-screen has no effect – even when the Status Banner is on.

The **Menu Button** **25** used during DVD playback is not used for VCD playback.

USING THE PLAYER MENU

Using the Player Menu

The DVD 22's innovative graphical interface uses a unique menu screen to control and program many normal playback functions once the initial configuration settings have been made. Depending on the type of disc being played, the Player menu contains a number of submenus that allow you to view information about the disc and to program tracks for playback.

To view the **PLAYER** Menu, press the **OSD Button 27** and note that the layout of the screen and the way in which you navigate through it is identical to the **SETUP** menu, as described on page 18. By way of review, to select an item for adjustment, use the **Navigation Buttons 5** to highlight the icon for a **Submenu B** in a white box, or use the **Navigation Buttons 5** to highlight a **Control Setting C** in the main portion of the menu screen in a blue box for adjustment. To select a menu or view the **Command Description D** and **Adjustment Options E** line for a Control Setting, press the **Enter Button 26** once the desired item is highlighted.

Disc Info Menu

The Disc Info Menu, which is at the top of the stack of **Submenu B** as indicated by an "i" icon and the word **INFO**, describes the disc, shows whether any of the repeat functions are turned on, and shows the current time of the disc.



To change the time display or turn the repeat functions on or off, use the **Navigation Buttons 5** to highlight the item to be changed and press the **Enter Button 26**. Use the **Navigation Buttons 5** to select the desired option on the **Adjustment Options E** line and then press the **Enter Button 26** again to enter the setting.

The bottom half of the main Info menu screen will show a list of the titles and chapters (for DVDs), tracks (for CDs) or files (for MP3, WMA or WMA discs) on the disc. Titles are indicated by a left pointing arrow icon, chapters by an open book icon, CD, MP3 or WMA audio tracks or files by a musical note icon and JPEG photo images by a camera icon. To play any indicated title, chapter, track or file, press the **Navigation Buttons 5** to highlight it and then press the **Enter Button 26**. For discs with multiple titles or file folders, highlight the title or track

name and press the **Enter Button 26** to move the list up one level.

When a disc contains a long list of tracks, files, titles or chapters, you may move up or down through the listings by pressing the **Navigation Buttons 5** so that the Page Up and Page Down "arrow" icons in the lower left corner of the menu screen are outlined in a white box. Press the **Enter Button 26** to move up or down through the listings.

If you wish to display only the list of titles, chapters, tracks or file names without the disc information, repeat functions and time display, press the **Navigation Buttons 5** to highlight the "i" info button at the top of the list of submenus at the left side of the screen and press the **Enter Button 26**. The full-screen display may be restored by highlighting the same icon and pressing the **Enter Button 26** again.

Using the Player Menu for Programmed Playback

The **PLAYER MENU** also contains a powerful yet easy-to-use tool that allows you to program the order in which titles, chapters, tracks or files will play. This innovative feature permits you to create your own playlist for optimal enjoyment of the contents of any disc the DVD 22 is capable of playing.

To program a disc's playback, first load it into the DVD 22, but do not start playback. If the disc begins to play, press the **Stop Button 5 11** to halt the playback. Next, press the **OSD Button 27** so that the **PLAYER** menu appears, and then press the **Navigation Buttons 5** until the **PROGRAM** icon is highlighted in a white box. At this point, you may press the **Enter Button 26** to remove the disc information, repeat settings and time display lines from the menu, or simply press the **Navigation Buttons 5** to move the highlight over to the main portion of the menu for programming.

When the **Program** Submenu first appears, the list of titles, tracks and/or file or folder names will be shown in the actual order in which they appear on a disc. On discs with multiple titles or folders, an icon with an open file folder will appear to the left of the title or folder to indicate that there are additional chapters or files within the title or folder. In that case, press that **Navigation Buttons 5** until the Title or Folder that contains the chapters, tracks or files you wish to play is highlighted and press the **Enter Button 26**. (To return back up to a list of titles or folders once they are opened, press the **Navigation Buttons 5** to highlight the Title or File with a left pointing "return" arrow and press the **Enter Button 26** to move up one level in the disc's hierarchy.



With the list of titles, chapters, tracks or files open to the desired place, programming is done by following these simple steps:

1. Make certain that there are two columns of information in the main portion of the screen, a list of titles, chapters, tracks or file names with their associated icons on the left side, and a column named "Disc List" on the right. As you start, the Disc List will be in ascending order.
2. To build the playlist, press the **Navigation Buttons 5** until the desired title, chapter, track or file is highlighted, and press the **Navigation Buttons 5** so that the highlight moves over to the Disc List column. Three options will appear on the **Adjustment Options E** line at the very bottom of the screen:
 - **ADD** is used to attach the highlighted title, chapter, track or file to the end of the current playback list.
 - A series of three underscore lines (_ _ _) is used to enter a specific playback position for the highlighted title, chapter, track or file in your new playlist.
 - **CLEAR** removes the highlighted title, chapter, track or file from your new playlist.
3. Press the **Enter Button 26** to program the track.
4. Press the **Navigation Buttons 5** to select the desired programming option. If you have chosen the middle option, which allows a specific playback position to be assigned, press the **Numeric Keys 16** that correspond to the desired playback position first, and then press **Enter 26**.
5. Repeat these steps for all titles, chapters, tracks or files you wish to program.
6. When all programming is complete, press the **Navigation Buttons 5** so that the option setting on the Playlist line is highlighted and press the **Enter Button 26**.
7. Press the **Navigation Buttons 5** so that **PROGRAMMED PLAY** is highlighted and press the **Enter Button 26** again.

8. Press the **OSD Button** **26** to remove the menus from the screen and press the **Play Button** **3 8** to begin playback in the order you have just programmed.
9. Playback of the disc will be in the programmed order until the disc is changed, or the Playlist setting is returned to **DISC ORDER**.

Notes on Programmed Playback:




- When you enter a numeric playback position for a title, chapter, track or file that is lower than its actual position on the disc, all other tracks will be "pushed down" one notch in the list.
- If you enter a numeric playback position that is greater than the actual number of titles, chapters, tracks or files on the disc, the DVD 22 will automatically assign the last available position number to that title, chapter, track or file.
- During programmed play, the title, chapter, track or file numbers shown in the front-panel display will continue to display the actual number of the title, chapter, track or file on the disc, but the playback will be in the order you have just programmed. The **Program Indicator** **B** will light to remind you that the disc's tracks are playing in programmed order.
- For discs containing both JPEG files and audio files, you may independently program the order in which pictures will appear on-screen, and the order in which audio files will be played. Select the Picture or Audio icon on the left side of the screen and follow the steps shown above to program a playlist.

DVD LANGUAGE CODES

The availability of specific languages for the main audio track or subtitles is dependent on the choices made by a disc's producer. You should always consult the disc's jacket for information on languages for any disc. In the case of some languages, you may be required to enter a code from the list below to access that language. See page 25 for more information on entering language codes.

Language	Code	Language	Code	Language	Code
Abkhazian	6566	Hungarian	7285	Russian	8285
Afar	6565	Icelandic	7383	Samoaan	8377
Afrikaans	6570	Indonesian	7378	Sangho	8371
Albanian	8381	Interlingua	7365	Sanskrit	8365
Ameharic	6577	Interlingue	7369	Scots Gaelic	7168
Arabic	6582	Iunpiak	7375	Serbian	8382
Armenian	7289	Irish	7165	Servo-Groatian	8372
Assamese	6583	Italian	7384	Sesotho	8384
Aymara	6588	Japanese	7465	Setswana	8478
Azerbaijani	6590	Javanese	7487	Shona	8378
Bashkir	6665	Kannada	7578	Sindhi	8368
Basque	6985	Kashmiri	7583	Singhalese	8373
Bengali; Bangla	6678	Kazakh	7575	Siswati	8383
Bhutani	6890	Kinyarwanda	8287	Slovak	8375
Bihari	6672	Kirghiz	7589	Slovenian	8376
Bislama	6673	Kirundi	8278	Somali	8379
Breton	6682	Korean	7579	Spanish	6983
Bulgarian	6671	Kurdish	7585	Sundanese	8385
Burmese	7789	Laothian	7679	Swahili	8387
Byelorussian	6669	Latin	7665	Swedish	8386
Cambodian	7577	Latvian, Lettish	7686	Tagalog	8476
Catalan	6765	Lingala	7678	Tajik	8471
Chinese	9072	Lithuanian	7684	Tamil	8465
Corsican	6779	Macedonian	7775	Tatar	8484
Croatian	7282	Malagasy	7771	Telugu	8469
Czech	6783	Malay	7783	Thai	8472
Danish	6865	Malayalam	7776	Tibetan	6679
Dutch	7876	Maltese	7784	Tigrinya	8473
English	6978	Maori	7773	Tonga	8479
Esperanto	6979	Marathi	7782	Tsonga	8483
Estonian	6984	Moldavian	7779	Turkish	8482
Faroese	7079	Mongolian	7778	Turkmen	8475
Fiji	7074	Naru	7865	Twi	8487
Finnish	7073	Nepali	7869	Ukrainian	8575
French	7082	Norwegian	7879	Urdu	8582
Frisian	7089	Occitan	7967	Uzbek	8590
Galician	7176	Oriya	7982	Vietnamese	8673
Georgian	7565	Oromo (Afan)	7977	Volapuk	8679
German	6869	Panjabi	8065	Welsh	6789
Greek	6976	Pashto, Pushto	8083	Wolof	8779
Greenlandic	7576	Persian	7065	Xhosa	8872
Guarani	7178	Polish	8076	Yiddish	7473
Gujarati	7185	Portuguese	8084	Yoruba	8979
Hausa	7265	Quechua	8185	Zulu	9085
Hebrew	7387	Rhaero-Romance	8277		
Hindi	7273	Romanian	8279		

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Unit does not turn on	<ul style="list-style-type: none"> No AC power 	<ul style="list-style-type: none"> Check AC power plug and make certain any switched outlet is turned on.
Disc does not play	<ul style="list-style-type: none"> Disc loaded improperly Incorrect disc type Invalid Region Code Rating is above parental preset 	<ul style="list-style-type: none"> Load disc label-side up; align the disc with the guides and place it in its proper position. Check to see that disc is CD, CD-R, CD-RW, VCD, MP3-CD, DVD-R and DVD-RW (standard conforming) or DVD-Movie; other types will not play. Use Region 1 disc only. Enter password to override or change rating settings (see page 18).
No picture	<ul style="list-style-type: none"> Intermittent connections Wrong input Progressive Scan output selected Video Off feature active 	<ul style="list-style-type: none"> Check all video connections. Check input selection of TV or receiver. Use Progressive Scan mode only with compatible TV. Press Video Off Button  to reactivate video circuitry (see page 20).
No sound	<ul style="list-style-type: none"> Intermittent connections Incorrect digital audio selection DVD disc is in fast or slow mode Surround receiver not compatible with 96kHz PCM audio 	<ul style="list-style-type: none"> Check all audio connections. Check digital audio settings. There is no audio playback on DVD discs during fast or slow modes. Use analog audio outputs.
Picture is distorted or jumps during fast forward or reverse play	<ul style="list-style-type: none"> MPEG-2 decoding 	<ul style="list-style-type: none"> It is a normal artifact of DVD playback for pictures to jump or show some distortion during rapid play.
Some remote buttons do not operate during DVD play; prohibited symbol  appears (see below)	<ul style="list-style-type: none"> Function not permitted at this time 	<ul style="list-style-type: none"> With most DVDs, some functions are not permitted at certain times (e.g., Track Skip) or at all (e.g., direct audio track selection).
The OSD menu is in a foreign language	<ul style="list-style-type: none"> Incorrect OSD language 	<ul style="list-style-type: none"> Change the display language selection (see page 18).
The  symbol appears	<ul style="list-style-type: none"> Requested function not available at this time 	<ul style="list-style-type: none"> Certain functions may be disabled by the DVD itself during passages of a disc.
Picture is displayed in the wrong aspect ratio	<ul style="list-style-type: none"> Incorrect match of aspect ratio settings to disc 	<ul style="list-style-type: none"> Change aspect ratio settings (see page 19).
Remote control inoperative	<ul style="list-style-type: none"> Weak batteries Sensor is blocked 	<ul style="list-style-type: none"> Change both batteries. Clear path to sensor or use optional outboard remote sensor.
Disc will not copy to VCR	<ul style="list-style-type: none"> Macrovision protection 	<ul style="list-style-type: none"> Many DVDs are encoded with Macrovision to prevent copying to VCR.

DVD 22 TECHNICAL SPECIFICATIONS

Applicable Disc:	Disc formats: 5-inch (12cm) or 3-inch (8cm) DVD-Movie, Standard conforming DVD-R, DVD+R, DVD-RW, DVD+RW, VCD, CD, CD-R, MP3 or CD-RW discs Region code: DVD Movie disc with Code 1 or 0 only DVD-Layers: Single Side/Single Layer, Single Side/Dual Layer, Dual Side/Dual Layer Audio formats: Linear PCM, MPEG, Windows Media 9, Dolby Digital or DTS Audio Discs Still image format: JPEG
Video Signal System:	NTSC
Composite Video Output:	1V p-p/75 ohms, sync negative polarity
S-Video Output:	Y/Luminance: 1V p-p/75 ohms, sync negative polarity C/Chrominance: 0.286V p-p
Component Video Output:	Y: 1V p-p/75 ohms, sync negative polarity Pr: 0.7V p-p/75 ohms Pb: 0.7V p-p/75 ohms
Analog Audio Output:	2V rms max
Frequency Response:	DVD (Linear PCM): 2Hz – 22kHz +0/–0.5dB (48kHz sampling) 2Hz – 44kHz +0/–0.5dB (96kHz sampling) CD: 2Hz – 20kHz +0/–0.5dB
Signal/Noise Ratio (SNR):	105dB (A-weighted)
Dynamic Range:	DVD: 100dB (18-bit)/105dB (20-bit) CD/DVD: 96dB (16-bit)
THD/1kHz:	DVD/CD: 0.0025%
Wow & Flutter:	Below Measurable Limits
AC Power:	100–240VAC/50–60Hz
Power Consumption:	2 Watts (On/Standby)/20 Watts (Max)
Dimensions (W x H x D):	17-3/10" x 1-15/16" x 12" (440mm x 49mm x 330mm)
Weight:	7.3 lb (3.3kg)

Depth measurement includes knobs and connectors.

Height measurement includes feet and chassis.

All specifications subject to change without notice.

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