harman/kardon

AVR 100 Audio/Video Receiver

OWNER'S MANUAL
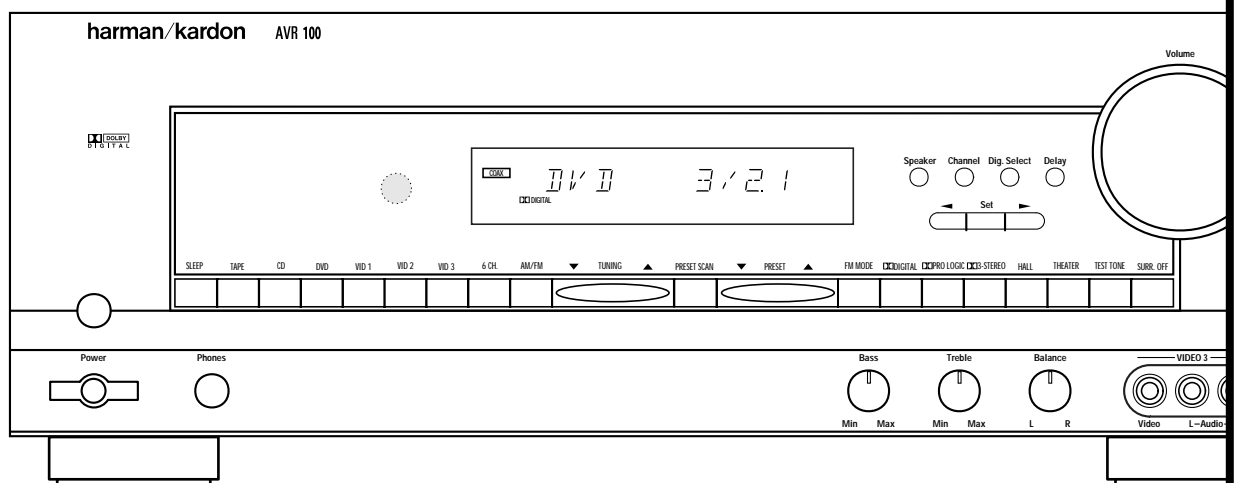
harman/kardon®

Power for the digital revolution.™

Version 7

October 5, 1999

AVR 100 Audio/Video Receiver

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 rear-panel connection jack

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

EXAMPLE – (outlined type) indicates a lit indicator in the front-panel information display

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

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

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

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

Thank you for choosing Harman Kardon!
With the purchase of a Harman Kardon AVR 100 you are about to begin many years of listening enjoyment. The AVR 100 has been custom designed to provide all the excitement and detail of movie sound tracks and every nuance of musical selections. With onboard Dolby* Digital, the AVR 100 delivers six discrete channels of audio that take advantage of the digital sound tracks from the latest DVD and LD movies and Digital Television (DTV/HDTV) broadcasts.

While complex digital systems are hard at work within the AVR 100 to make all of this happen, hookup and operation are simple. Color-keyed connections and a programmable remote control make the AVR 100 easy to use. To obtain the maximum enjoyment from your new receiver, we urge you to take a few minutes to read through this manual. This will ensure that connections to speakers, source playback units and other external devices are made properly. In addition, a few minutes spent learning the functions of the various controls will enable you to take advantage of all the power the AVR 100 is able to deliver.

If you have any questions about this product, its installation or its operation, please contact your dealer or custom installer. They are your best local source of information.

Description and Features
The AVR 100 is a full-featured A/V receiver, incorporating a wide variety of listening options. In addition to Dolby Digital decoding, Dolby Pro Logic* and Dolby 3 Stereo are available for compatibility with the tens of thousands of movies and television programs encoded with analog surround information. In addition, specially programmed Theater and Hall modes are available to enhance the enjoyment of conventional two-channel stereo recordings.

A total of four audio/video inputs, as well as three additional audio-only inputs, are selected through a learning remote control and an easy-to-read front-panel display.

The AVR 100's powerful amplifier uses traditional Harman Kardon high-current design technologies to meet the wide dynamic range of any program selection.

Harman Kardon invented the high-fidelity receiver more than forty-five years ago. With state-of-the-art circuitry and time-honored circuit designs, the AVR 100 is one of the finest receivers ever offered by Harman Kardon.

■ **Onboard Dolby Digital Decoding**

■ **Coax and Optical Digital Inputs**

■ **Programmable Remote Control**

■ **Composite Video Switching**

■ **6-Channel Direct Input for use with external surround decoders or DVD-Audio**

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: To prevent electric shock, do not remove the grounding plug on the power cord, or use any plug or extension cord that does not have a grounding plug provided. Make certain that the AC outlet is properly grounded. Do not use an adapter plug with this product.

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

Important Safety Information

Verify Line Voltage Before Use
Your AVR 100 has been designed for use with 120-volt AC current. 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
To avoid safety hazards, use only the power cord attached to your unit. 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 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 a staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service station.

CATV or Antenna Grounding
If an outside antenna or cable system is connected to this product, be certain that it is grounded so as to provide some protection against voltage surges and static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements of the grounding electrode.

NOTE TO CATV SYSTEM INSTALLER: This reminder is provided to call the CATV (Cable TV) system installer's attention to article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

Installation Location
- To assure 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. Under some circumstances a fan may be required.

- Do not place the unit directly on a carpeted surface.

- Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.

- Avoid moist or humid locations.

- 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 dry immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

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 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.

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. 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.

Front-Panel Controls

1 Main Power Switch
2 System Power Control
3 Power Indicator
4 Headphone Jack
5 Bass Control
6 Treble Control
7 Balance Control
8 Video 3 Inputs
9 Sleep Button
10 Tape Input Selector
11 CD Input Selector
12 DVD Input Selector

13 Video Input Selector
14 6-Channel Selector
15 AM/FM Button
16 Tuning Selector
17 Preset Scan
18 Preset Stations Selector
19 Tuner Mode
20 Dolby Digital Selector
21 Dolby Pro Logic Selector
22 Dolby 3 Stereo Selector
23 Hall Mode Selector
24 Theater Mode Selector

25 Test Tone Button
26 Surround Off
27 Mute
28 Volume Control
29 Delay
30 Digital Input Selector
31 Set Button
32 Channel Trim Button
33 Speaker Select Button
34 Selector Buttons
35 Information Display
36 Remote Sensor

1 **Main Power Switch:** Press this button to apply power to the AVR 100. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the amber LED **3** surrounding the **System Power Control 2**. This button MUST be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel so that the word "OFF" may be read at the top of the switch.

NOTE: In normal operation this switch is left in the "ON" position.

2 **System Power Control:** When the **Main Power Switch 1** is "ON," press this button

to turn on the AVR 100; press it again to turn the unit off. Note that the **Power Indicator** surrounding the switch **3** will turn green when the unit is on.

3 **Power Indicator:** This LED will illuminate in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is in operation, the indicator will turn green.

4 **Headphone Jack:** This jack may be used to listen to the AVR 100's output through a pair of headphones. Be certain that the headphones have a standard 1/4" stereo phone plug. Note that the main room speakers will automatically be turned off when the headphone jack is in use.

5 **Bass Control:** Turn this control to modify the low-frequency output of the left/right channels by as much as ±10dB. Set this control to a suitable position for your taste or room acoustics.

6 **Treble Control:** Turn this control to modify the high-frequency output of the left/right channels by as much as ±10dB. Set this control to a suitable position for your taste or room acoustics.
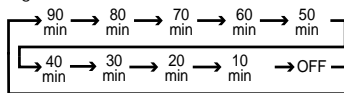
7 **Balance Control:** Turn this control to change the relative volume for the front left/right channels.

NOTE: For proper operation of the surround modes this control should be at the midpoint or "12 o'clock" position.

8 Video 3 Inputs: These audio/video inputs may be used for temporary connection of video games, camcorders, digital still cameras or portable audio products. To select a source connected to these jacks, press the **Vid 3 Input Selector 13**.

9 Sleep Button: Press this button to place the AVR in the Sleep mode. Once the button is pressed, **Information Display 35** will show the time remaining before the unit will automatically go into the Standby mode. To decrease the remaining time before the unit goes into Standby, press the button again, and each press will decrease the time in the following order:

$$90\ \text{min} \rightarrow 80\ \text{min} \rightarrow 70\ \text{min} \rightarrow 60\ \text{min} \rightarrow 50\ \text{min}$$
$$\rightarrow 40\ \text{min} \rightarrow 30\ \text{min} \rightarrow 20\ \text{min} \rightarrow 10\ \text{min} \rightarrow \text{OFF}$$

To cancel the Sleep timer setting, press and hold the button for two seconds and then release it.

10 Tape Selector: Press this button to select the device connected to the **Tape In** jacks **8** as the listening source.

11 CD: Press this button to select the device connected to the **CD Input** jacks **7** as the listening source.

12 DVD Input Selector: Press this button to select the device connected to the **DVD Input** jacks **6** as the listening and viewing source.

13 Video Input Selectors: Press one of these buttons to select a source connected to the rear panel **Video** inputs **16 17**, or the front panel **Video 3** input **8**.

14 6-Channel Direct Selector: Press this button to select the output of an optional, external 6-channel decoder connected to the **6-Ch Direct** inputs **19** as the listening source.

15 AM/FM: Press this button to select the tuner as the AVR 100's input source. When it is first pressed the last station tuned will be heard. Press it again to change between AM and FM bands.

16 Tuning Button: Press the left side of the button to tune lower frequency stations and the right side of the button to tune higher frequency stations. When a station with a strong signal is reached, the **TUNED** indicator **M** will illuminate in the **Information Display 35**.

To tune manually, tap the button lightly and note that the tuner will step up one frequency per button press. When the button is held for a few seconds you will note that the unit will quickly search the frequency band. Release it

once the fast tuning starts and the tuner will automatically scan for the next station with an acceptable signal and then stop.

17 Preset Scan: Press this button to automatically scan through the stations that have been programmed in the AVR 100's memory. The tuner will play five seconds of each station before moving to the next preset station. To stop the scan when the desired station is heard, press the button again. (See page 22 for more information on the tuner memory system.)

18 Preset Stations Selector: Press this button to select stations that have been entered into the preset memory. (See page 22 for more information on tuner programming.)

19 Tuner Mode: Press this button to select the stereo or mono mode for FM tuning. In the STEREO mode a **Stereo** indicator **K** will illuminate in the information display, and stereo reception will be provided when stations are transmitting stereo signals. In the MONO mode the left and right signals from stereo broadcasts will be mixed together. Select MONO for better reception of weak signals.

20 Dolby Digital Selector: Press this button to select the Dolby Digital surround mode when listening to a program that carries Dolby Digital information. (See pages 20–22 for more information on surround modes and digital audio.)

21 Dolby Pro Logic Selector: Press this button to select the Dolby Pro Logic surround mode when listening to an analog program that is encoded with surround-sound information. (See page 20–22 for more information on surround modes.)

22 Dolby 3 Stereo Selector: Press this button to select the Dolby 3 Stereo listening mode. This mode is used primarily when a center channel speaker, but no surround speakers, is installed. (See pages 21 for more information on surround modes.)

23 Hall Mode Selector: Press this button to activate the Hall mode as an alternative surround mode when stereo sources are in use. This mode provides the reverberant atmosphere of a medium-sized concert hall.

24 Theater Mode Selector: Press this button to activate the Theater mode as an alternate surround mode when stereo sources are in use.

25 Test Tone Button: Press this button to begin the process of setting the AVR 100's output levels. When this button is pressed, a test tone will replace the listening source, and circulate among the various output channels at a three-second interval. **The Information**

Display **35** will show the location of the channel where the test tone noise should be heard. (See page 17 for complete information on setting the output levels.)

26 Surround Off: Press this button to turn off all surround processing and to listen to a program in traditional stereo from the left-front and right-front speakers only.

27 Mute: Press this button to momentarily silence the speaker and headphone outputs of the AVR 100.

28 Volume Control: Turn the knob clockwise to increase volume, counterclockwise to decrease the volume. If the AVR is muted, adjusting volume control will automatically release the unit from the silenced condition.

29 Delay: Press this button to begin the sequence of steps required to enter delay time settings. (See pages 17–18 for more information on delay times.)

30 Digital Input Selector: When playing a source that has a digital output, press this button to select between the **Optical 15** and **Coaxial 14 Digital** inputs. (See pages 20–22 for more information on digital audio.)

31 Set Button: When making choices during the setup and configuration process, press this button to enter the desired setting, as shown in the **Information Display 35**, into the AVR 100's memory.

32 Channel Trim Button: Press this button to trim the output level settings using an input source as the program material. (See page 23 for complete information on trimming the output levels.)

33 Speaker Select Button: Press this button to begin the process of selecting the speaker positions that are used in your listening room. (See pages 16–18 for more information on setup and configuration.)

34 Selector Buttons: When you are establishing the AVR 100's configuration settings, use these buttons to select between the choices available, as shown in the **Information Display 35**.

35 Information Display: This display delivers messages and status indications to help you operate the receiver. (See page 7 for a complete explanation of the Information Display.)

36 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

Front-Panel Information Display
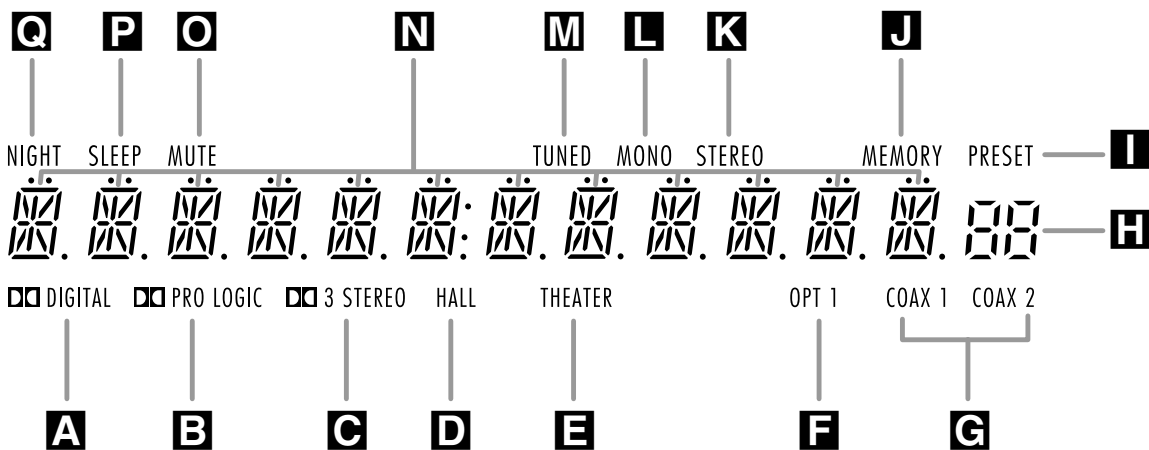
A Dolby Digital Indicator
B Dolby Pro Logic Indicator
C Dolby 3 Stereo Indicator
D Hall Mode Indicator
E Theater Mode Indicator
F Optical Source Indicator

G Coax Source Indicators
H Preset Number
I Preset Indicator
J Memory Indicator
K Stereo Indicator
L Mono Indicator

M Tuned Indicator
N Main Information Display
O Mute Indicator
P Sleep Mode Indicator
Q Night Mode Indicator

A **Dolby Digital Indicator:** This indicator illuminates when a Dolby Digital source is being played.

B **Dolby Pro Logic Indicator:** This indicator illuminates when the AVR is in the Dolby Pro Logic mode.

C **Dolby 3 Stereo Indicator:** This indicator illuminates when the AVR is in the Dolby 3 Stereo mode.

D **Hall Mode Indicator:** This indicator illuminates when the Hall mode is in use.

E **Theater Mode Indicator:** This indicator illuminates when the Theater mode is in use.

F **Optical Source:** This indicator illuminates when a digital source is in use via a connection to the **Optical Digital** input ⑮.

G **Coax Source Indicator:** This indicator illuminates when a digital source is in use via a connection to either of the **Coaxial Digital** inputs ⑭.

H **Preset Number:** This two-digit display indicates the station preset number that is currently in use or that is being entered.

I **Preset Indicator:** This indicator illuminates when a station previously entered into the preset memory is tuned. The number that appears below the indicator is the preset station's memory position.

J **Memory:** This indicator flashes when entering presets and other information into the tuner's memory.

K **Stereo Indicator:** This indicator illuminates when an FM station is being tuned in stereo.

L **Mono Indicator:** This indicator illuminates when the tuner has been placed in the monaural mode by pressing the **Tuner Mode** button ❻ ⑲. Set the tuner for mono listening to reduce noise and improve the quality of distant stereo signals.

M **Tuned Indicator:** This indicator illuminates when a station is being received with sufficient signal strength to provide acceptable listening quality.

N **Main Information Display:** This display shows messages relating to the status, input source, surround mode, tuner, volume level or other aspects of the AVR's operation.

O **Mute:** This indicator illuminates to remind you that the AVR 100's output has been silenced by pressing the **Mute** button ㉗ ㉜. Press the Mute button again to return to the previously selected output level.

P **Sleep Indicator:** This indicator is illuminated when the Sleep function is in use. The number that appears above the indicator is the number of minutes remaining before the AVR 100 will return to the Standby mode.

Q **Night Mode Indicator:** This indicator lights when the AVR 100 is in the Night mode, which preserves the dynamic range of digital program material at low volume levels.

Rear-Panel Connections
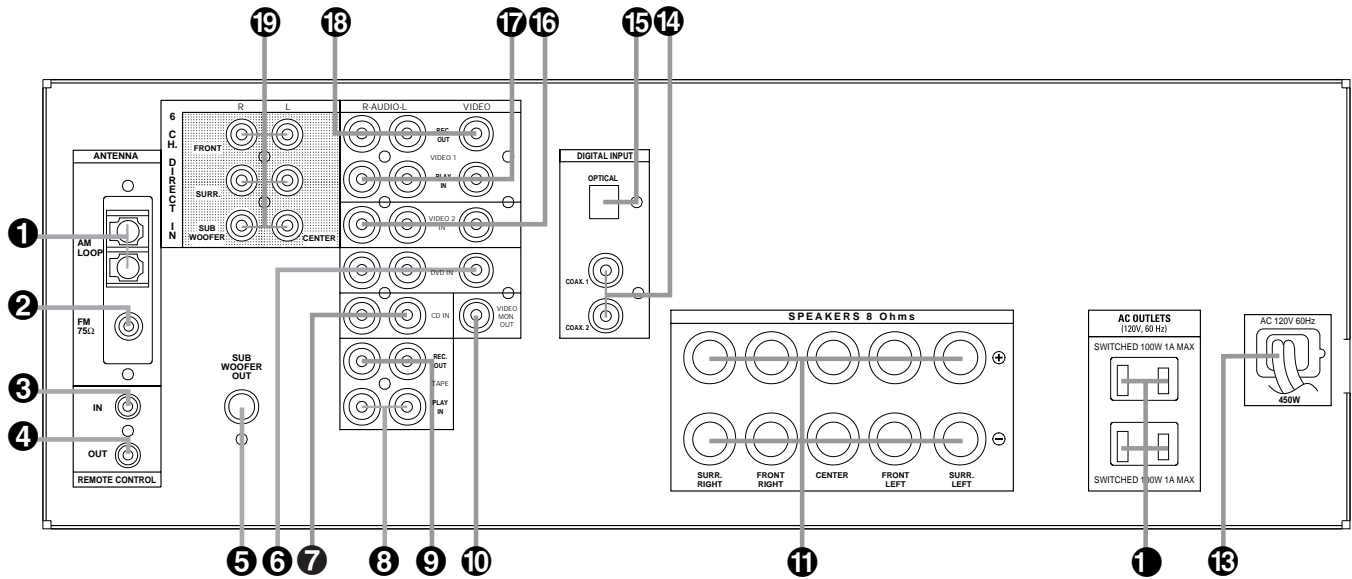
❶ AM Antenna
❷ FM Antenna
❸ Remote IR Input
❹ Remote IR Output
❺ Subwoofer Output
❻ DVD Inputs
❼ CD Inputs
❽ Tape Inputs

❾ Tape Outputs
❿ Video Monitor Output
⓫ Speaker Output Terminals
❶ Switched AC Outlet
⓭ AC Power Cord
⓮ Coax Digital Inputs
⓯ Optical Digital Input
⓰ Video 2 Inputs

⓱ Video 1 Inputs
⓲ Video 1 Outputs
⓳ 6-Channel Direct Inputs

Rear-Panel Connections

❶ AM Antenna: Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the **AM** and **GND** terminals in accordance with the instructions supplied with the antenna.

❷ FM Antenna: Connect the supplied indoor or an optional external FM antenna to this terminal.

❸ Remote IR Input: If the AVR 100's front-panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

❹ Remote IR Output: This connection permits the IR sensor in the receiver to serve other remote-controlled devices. Connect this jack to the "IR IN" jack on compatible equipment.

❺ Subwoofer Output: Connect this jack to the line-level input of a powered subwoofer. If an external subwoofer amplifier is used, connect this jack to the subwoofer amplifier input.

❻ DVD Inputs: Connect the analog audio outputs and composite video output of a DVD or LD player to these jacks.

❼ CD Inputs: Connect these jacks to the output of a compact disc player or CD changer.

❽ Tape Inputs: Connect these jacks to the PLAY/OUT jacks of an audio recorder.

❾ Tape Outputs: Connect these jacks to the RECORD/INPUT jacks of an audio recorder.

❿ Video Monitor Output: Connect this jack to the composite video input of a TV monitor or video projector to view the output of any standard video source selected by the receiver's video switcher.

⓫ Speaker Terminals: Connect these terminals to the appropriate speakers, following the designations shown.

NOTE: When making connections to the Speaker Terminals always be certain to maintain correct polarity between the speaker's terminals and those on the AVR by connecting red (+) terminals to red, and black (–) terminals to black. (See page 13 for more information on speaker polarity.)

❶ Switched AC Outlet: This outlet may be used to power any device that you wish to have turn on when the unit is turned on with the **System Power Control** switch **2**.

NOTE: The power consumption of the device plugged into this outlet ❶ should not exceed 100 watts.

⓭ AC Power Cord: Connect the AC plug to a nonswitched AC wall output.

⓮ Coaxial Digital Inputs: Connect the coax digital output from a DVD player, HDTV receiver, LD player or CD player to these jacks. The signal may be either a Dolby Digital signal or a standard PCM digital source.

⓯ Optical Digital Input: Connect the optical digital output from a DVD player, HDTV receiver, LD player or CD player to this jack. The signal may be either a Dolby Digital signal or a standard PCM digital source.

⓰ Video 2 Inputs: Connect these jacks to the audio and video outputs of a TV Tuner, Cable TV converter box, satellite receiver or any other audio/video source.

⓱ Video 1 Inputs: Connect these jacks to the audio and video PLAY/OUT jacks of a VCR.

⓲ Video 1 Outputs: Connect these jacks to the audio and video RECORD/IN jacks of a VCR.

⓳ 6-Channel Direct Inputs: If an external digital audio decoder is used, connect the outputs of that decoder to these jacks.

Remote Control Functions

1. Device Selectors
2. AM/FM Tuner Select
3. Main Power-Off Button
4. Sleep Button
5. Night Mode/Dim Switch
6. FM Tuner Mode Button
7. Disc-Skip Button
8. DVD Function Buttons
9. Play/Up Button
10. Title/CDP Button
11. Stop/Enter Button
12. Tune Down/Rewind Button
13. Pause/Down Button
14. Preset Down/Channel-Down Button
15. Numeric Keys
16. Speaker Select Button
17. Channel-Select Button
18. ◄/► Select Buttons
19. Test Tone Button
20. Set Button
21. Digital Input Selector
22. Clear Button
23. Memory Button
24. Direct/Random Play Button
25. Slow-Play Buttons
26. Delay Button
27. Preset Up/Channel-Up Button
28. Tune Up/Fast-Forward Button
29. Menu/CDR Button
30. Device Volume Control
31. Master Volume Control
32. Mute Button
33. Surround Mode Selectors
34. Open/Close Button
35. Source Power Controls
36. 6-Channel Direct Selector
37. Program/Command Indicator

NOTE: The function names shown here are each button's feature when used with the AVR. Most buttons have additional functions when used with other devices. See page 27 for a list of these functions.

TV   VCR
V1   V2   V3   DVD

INPUT/POWER ON
AM/FM   CD   TAPE   6 CH

MAIN POWER   SOURCE POWER
OFF   ON   OFF

DIM/NIGHT   SLEEP

DISC SKIP   MODE   MUTE   SURR.
PS

SUBTITLE — ON/OFF

ANGLE   AUDIO   VOLUME   MASTER VOL
Sin   Du

TITLE   MENU
CDP   CDR

UP

TUNING   TUNING
REW   STOP/ENTER   FF

DOWN

CH   ●/ II   CH

DOWN — PRESET TUNING — UP

1   2   3   4   5

6   7   8   9   0

SPK   CH   DELAY   SLOW
◄I   I►

CLEAR   RANDOM
◄   SET   ►   DIR

TEST TONE   DIGITAL INPUT   MEMORY
PROG.

AVR 100 RC
harman/kardon

Remote Control Functions

IMPORTANT NOTE: The AVR 100's remote is shipped from the factory to control all of the functions of the AVR, as well as most Harman Kardon CD, DVD and cassette players. In addition, it may also be programmed to operate many popular VCRs, TV sets, CD and DVD players.

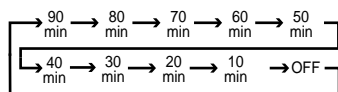Because of the versatility of the remote, each button may have different functions, depending on which product is being controlled. The descriptions shown here describe the function of the buttons for the AVR, as well as the most popular accessory source products. It is important to note that the capability of the remote to control a specific feature of any product other than the AVR depends on many factors, and not all features will work on all products. For complete information on programming the remote control, see page 24.

❶ **Device Selectors:** Pressing these buttons will perform three different actions at the same time. First, if the AVR is not turned on, pressing the button will power up the unit. Next, it will select the source shown on the button as the unit's input source. Finally, pressing the button will activate the control buttons for the device selected, provided that the remote has been properly programmed.

❷ **AM/FM Tuner Select:** Press this button to select the AVR's tuner as the listening choice. Pressing this button when a tuner is in use will select between the AM and FM bands.

❸ **Main Power Off Button:** Press this button to place the unit in the Standby mode.

❹ **Sleep Button:** Press this button to place the unit in the Sleep mode. After the time shown in the display, the AVR 100 will automatically go into the Standby mode. Each press of the button changes the time until turn-off in the following order:

$$\text{90 min} \rightarrow \text{80 min} \rightarrow \text{70 min} \rightarrow \text{60 min} \rightarrow \text{50 min}$$
$$\text{40 min} \rightarrow \text{30 min} \rightarrow \text{20 min} \rightarrow \text{10 min} \rightarrow \text{OFF}$$

Press and hold the button for two seconds to turn off the Sleep mode setting.

❺ **Night Mode/Dim Button:** Press this button to activate the Night mode. This mode is available in specially encoded digital sources, and it preserves dialog (center channel) intelligibilty at low volume levels.

❻ **Tuner Mode:** When the FM band is in use, press this button to change between **MONO** and **STEREO** modes. When the **MONO** indicator is lit, all stations will play in the mono mode only. Press the button to turn off the **MONO** indicator to put the unit an automatic mode which will select stereo when a station is broadcasting in stereo. When the signal strength is weak, press the button to go to the Mono mode for better reception.

❼ **Disc-Skip Button:** This button does not have any function on the AVR, but it is used with many CD changers after the CD Button ❶ has been pressed to change the disk being played.

❽ **DVD Function Buttons:** These buttons do not have any function on the AVR, but they are used with many DVD players or changers after the DVD Button ❶ has been pressed to change subtitle, angle or audio mode. They are also used with dual-well cassette or CDR players to select the playback mode.

❾ **Play/Up Button:** This button does not have any function on the AVR but it is used as the Play or Up/▲ function with many products.

❿ **Title/CDP Button:** This button does not have any function on the AVR but it is used with many DVD players as the Title button, and on dual-well CD-R recorders to select the play-only transport.

⓫ **Stop/Enter Button:** This button does not have any function on the AVR but it is used with many products as the "Stop" button or to enter a setting with the on-screen menu system.

⓬ **Tune Down/Rewind Button:** When the AVR's tuner is in use, press this button to tune down through the frequency band in use to select another station. Press the button for a few seconds and then release it to automatically tune to the next station with a signal that provides acceptable reception. This button is also used as the rewind button for many CD players, DVD players, cassette players and VCRs.

⓭ **Pause/Down Button:** This button does not have any function on the AVR but it is used as the Pause or Down/▼ function with many products.

⓮ **Preset-Down/Channel-Down Button:** When the AVR's tuner is in use, press this button to scroll down through the list of stations that have been entered into the preset memory. When a CD or DVD player is in use, this button is the Skip-Back function. When a VCR or TV is in use, this is the Channel-Down button.

⓯ **Numeric Keys:** These buttons serve as a ten-button numeric keypad to enter tuner preset positions. They are also used to select channel numbers when **TV** has been selected on the remote, or to select track numbers on a CD, DVD or LD player, depending on how the remote has been programmed.

⓰ **Speaker Select:** Press this button to begin the process of configuring the AVR 100's Bass Management System for use with the type of speakers used in your system. Once the button has been pressed, use the ◀/▶ selector buttons ⓲ to select the channel you wish to set up. Press the **Set** button ⓴ and then select another channel to configure. (See page 16 for more information.)

⓱ **Channel-Select Button:** Press this button to begin the process of setting the output-level trims when program material is being used as the source. (See page 23 for more information on setting the output level trims.)

⓲ **◀/▶ Select Buttons:** These buttons are used to scroll through the list of settings when adjustments are being made to the speaker configuration, delay time settings, digital input selection and other AVR setup procedures.

⓳ **Test Tone:** Press this button to begin the sequence used to calibrate the AVR 100's output levels. (See page 17 for more information on calibrating the AVR 100.)

⓴ **Set Button:** This button is used to enter settings into the AVR 100's memory. It is also used in the setup procedures for delay time, speaker configuration and channel output-level adjustment.

㉑ **Digital Input Select:** Press this button to assign one of the digital inputs ⓮⓯ to a source. (See page 20 for more information on using digital inputs.)

㉒ **Clear Button:** This button is used during the process of clearing preset stations from the tuner's memory. (See page 22 for more information on erasing the preset stations.)

㉓ **Memory Button:** Press this button to begin the process of entering stations into the AVR's preset memory system. (See page 22 for more information on the preset memory system.)

Remote Control Functions

24 Direct/Random Buttons: When the AVR's tuner is in use, press this button to enter a station's frequency directly into the tuner. After the button has been pressed, press the Numeric Keys **15** to enter the frequency. When a CD or DVD player is in use, this button is used to activate the Random-Play function.

25 Slow-Play Buttons: These buttons do not have any function on the AVR but when a DVD is in use they operate the Slow-Play Forward and Reverse functions.

26 Delay Button: Press this button to begin the process for setting the delay times used by the AVR 100 when processing surround sound. After pressing this button, the delay times are entered by pressing the **Set** button **20** and then using the ◄/► selector buttons **18** to change the setting. Press the Set button again to complete the process. (See page 18–19 for more information.)

27 Preset Up/Channel-Up Button: When the AVR's tuner is in use, press this button to scroll up through the list of stations that have been entered into the preset memory. When a CD or DVD player is in use, this button is the Skip-Forward function. When a VCR or TV is in use, this is the Channel-Up button.

28 Tune Up/Fast-Forward Button: When the AVR's tuner is in use, press this button to tune up through the frequency band in use to select another station. Press the button for a few seconds and then release it to automatically tune to the next station with a signal that provides acceptable reception. This button is also used as the fast-forward button for many CD players, DVD players, cassette players and VCRs.

29 Menu/CDR Button: This button does not have any function for the AVR but when a CDR recorder is in use, it selects the record transport. When many menu-driven products such as VCRs, DVDs and TVs are in use, it operates the functions associated with the Menu button.

30 Device Volume Control: These buttons do not have any function for the AVR but when a TV set or other product with a volume control is in use, they change the volume on that product.

31 Master Volume Up/Down: Press these buttons to raise or lower the system volume.

32 Mute: Press this button to momentarily silence the AVR 100 or TV set being controlled, depending on which device has been selected.

33 Surround Mode Selectors: Press these buttons to change the AVR's surround mode. (See page 20 for more information on surround mode selection.) These buttons are also used when programming the remote using the Auto Search mode. (See page 24 for more information on programming the remote.)

34 Open/Close Button: This button does not have any function for the AVR but when a CD or DVD player is in use, pressing it will open or close the disc drawer.

35 Source Power Controls: Press these buttons to turn on or off any additional products programmed into the remote. (See page 25 for more information on programming the remote for use with other products.)

36 6-Ch. Direct Inputs: Press this button to select the component connected to the 6-Ch. direct input **19** as the source.

37 Program/Command Indicator: This LED will flash briefly when a button is pushed to confirm that a command has been transmitted. Note that occasionally the light will not flash when a button is pushed. In most cases this indicates that no function is associated with that button. If the light does not flash when ANY button is pushed, the batteries should be replaced. This button is also used during the process of programming remote codes for the various devices. (See page 24 for more information on programming the remote.)

NOTE: When any of these buttons is pressed the Program/Command Indicator will briefly flash red to confirm your selection.

Installation and Connections

System Installation

After unpacking the unit, and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your audio and video equipment.

Audio Equipment Connections

We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the integrity of the signals.

When making connections to an audio source equipment or speakers it is always a good practice to unplug the unit from the AC wall outlet. This prevents any possibility of accidentally sending audio or transient signals to the speakers that may damage them.

1. Connect the analog output of a CD player to the **CD** inputs ❼.

NOTE: When the CD player has both fixed and variable audio outputs it is best to use the fixed output unless you find that the input to the receiver is so low that the sound is noisy, or so high that the signal is distorted.

2. Connect the analog Play/Out jacks of a cassette deck, MD, CD-R or other audio recorder to the **Tape In** jacks ❽. Connect the analog Record/In jacks on the recorder to the **Tape Out** jacks ❾ on the AVR 100.

3. Connect the output of any digital sources to the appropriate input connections on the AVR 100 rear panel. Note that the **Optical** and **Coaxial** digital inputs ❶❺❶❹ may be used with a Dolby Digital source or the output of a conventional CD or LD player's PCM (S/P-DIF) output.

4. Assemble the AM Loop Antenna supplied with the unit as shown below. Connect it to the **AM** and **GND** screw terminals ❶.
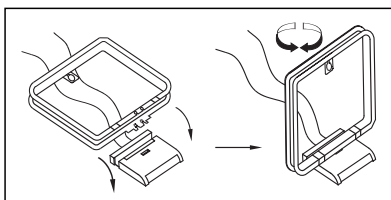
5. Connect the supplied FM antenna to the **FM (75 ohm)** connection ❷. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable TV system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you must use the 300-ohm-to-75-ohm adapter supplied with the unit to make the connection.

6. Connect the front, center and surround-speaker outputs ⓫ to the respective speakers.

To assure that all the audio signals are carried to your speakers without loss of clarity or resolution, we suggest that you use high-quality speaker cable. Many brands of cable are available and the choice of cable may be influenced by the distance between your speakers and the receiver, the type of speakers you use, personal preferences and other factors. Your dealer or installer is a valuable resource to consult in selecting the proper cable.

Regardless of the brand of cable selected, we recommend that you use a cable constructed of fine, multistrand copper with a gauge of 14 or smaller. Remember that in specifying cable, the lower the number, the thicker the cable.

Cable with a gauge of 16 may be used for short runs of less than ten feet. We do not recommend that you use cables with an AWG equivalent of 18 or higher due to the power loss and degradation in performance that will occur.

Cables that are run inside walls should have the appropriate markings to indicate listing with UL, CSA or other appropriate testing agency standards. Questions about running cables inside walls should be referred to your installer or a licensed electrical contractor who is familiar with the NEC and/or the applicable local building codes in your area.

When connecting wires to the speakers, be certain to observe proper polarity. Remember to connect the "negative" or "black" wire to the same terminal on both the receiver and the speaker. Similarly, the "positive" or "red" wire should be connected to like terminals on the AVR 100 and speaker.

We also recommend that the length of cable used to connect speaker pairs be identical. For example, use the same length piece of cable to connect the front-left and front-right or surround-left and surround-right speakers, even if the speakers are a different distance from the AVR 100.

NOTE: While most speaker manufacturers adhere to an industry convention of using black terminals for negative and red ones for positive, some manufacturers may vary from this configuration. To assure proper phase and optimal performance, consult the identification plate on your speaker or the speaker's manual to verify polarity. If you do not know the polarity of your speaker, ask your dealer for advice before proceeding, or consult the speaker's manufacturer.

7. Connections to a subwoofer are normally made via a line level audio connection from the **Subwoofer Output** ❺ to the line-level input of a subwoofer with a built-in amplifier. When a passive subwoofer is used, the connection first goes to a power amplifier, which will be connected to one or more subwoofer speakers. If you are using a powered subwoofer that does not have line-level input connections, follow the instructions furnished with the speaker for connection information.

Video Equipment Connections

Video equipment is connected in the same manner as audio components. Again, the use of high-quality interconnect cables is recommended to preserve signal quality.

1. Connect a VCR's audio and video Play/Out jacks to the **Video 1 In** jacks ⓱ on the rear panel. The Audio and Video Record/In jacks on the VCR should be connected to the **Video 1 Out** jacks ⓲ on the AVR 100.

2. Connect the analog audio and video outputs of a satellite receiver, cable TV converter or television set or any other video source to the **Video 2 In** jacks ⓰.

3. Connect the analog audio and video outputs of a DVD or laser disc player to the **DVD** jacks ❻.

4. Connect the digital audio outputs of a DVD player, satellite receiver, cable box or HDTV converter to the appropriate **Optical** or **Coaxial Digital Inputs** ⓯⓮.

5. Connect the **Video Monitor Out** ❿ jacks on the receiver to the composite Video input of your television monitor or video projector.

Installation and Connections

System and Power Connections

The AVR 100 is designed for flexible use with multiroom systems, external control components and power amplifiers.

Remote Control Extension
If the receiver is placed behind a solid or smoked-glass cabinet door, the obstruction may prevent the remote sensor from receiving commands. In this event, an optional remote sensor may be used. Connect the output of the remote sensor to the **Remote Cont. In** jack ❸.

If other components are also prevented from receiving remote commands, only one sensor is needed. Simply use this unit's sensor or a remote eye by running a connection from the **Remote IR Output** jack ❹ to the Remote In jack on Harman Kardon or other compatible equipment.

External Audio Decoder Connection
To provide for ultimate flexibility, the AVR 100 may be used in conjunction with optional, external decoders for digital audio systems other than the AVR 100's own built-in Dolby Digital decoding system. If an external decoder is used, connect the output jacks of the decoder to the **6-Channel Direct** inputs ❶❾, making sure to match channels.

These jacks may also be used for connections to devices such as DVD players or High Definition Television (HDTV) sets or decoders that feature built-in digital surround decoders. Although the digital decoding system in the AVR 100 will typically provide audio performance that is superior to other decoders, you may use these jacks to provide an additional 6-channel input for connection to a DVD player or HDTV set with a built-in decoder and discrete 6-channel analog outputs.

AC Power Connections
This unit is equipped with two accessory AC outlets. They may be used to power accessory devices, but they should not be used for high-current draw equipment such as power amplifiers. The total power draw to each outlet may not exceed 100 watts.

The **Switched** ❶ outlet will receive power only when the unit is on. This is recommended for devices that have no power switch or a mechanical power switch that may be left in the "ON" position.

NOTE: Many audio and video products go into a Standby mode when they are used with switched outlets, and cannot be fully turned on using the outlet alone without using that product's remote control.

Finally, when all connections are complete, plug the power cord into a nonswitched 120-volt AC wall outlet. You're almost ready to enjoy the AVR 100!

System Configuration

When all audio, video and system connections have been made, there are a few configuration adjustments that must be made. A few minutes spent to correctly configure and calibrate the unit will greatly add to your listening experience.

Speaker Selection and Placement
The placement of speakers in a multichannel home-theater system can have a noticeable impact on the quality of sound reproduced.

No matter which type or brand of speakers is used, the same model or brand of speaker should be used for the front-left, center and front-right speakers. This creates a seamless front soundstage and eliminates the possibility of distracting sonic disturbances that occur when a sound moves across mismatched front-channel speakers.

Speaker Placement
Depending on the type of center-channel speaker in use and your viewing device, place the center speaker either directly above or below your TV, or in the center behind a perforated front-projection screen.

Once the center-channel speaker is installed, position the left-front and right-front speakers so that they are as far away from one another as the center-channel speaker is from the preferred listening position. Ideally, the front-channel speakers should be placed so that their tweeters are no more than 24" above or below the tweeter in the center-channel speaker.

Depending on the specifics of your room acoustics and the type of speakers in use, you may find that imaging is improved by moving the front-left and front-right speakers slightly forward of the center-channel speaker. If possible, adjust all front loudspeakers so that they are aimed at ear height when you are seated in the listening position.

Using these guidelines, you'll find that it takes some experimentation to find the correct location for the front speakers in your particular installation. Don't be afraid to move things around until the system sounds correct. Optimize your speakers so that audio transitions across the front of the room sound smooth, and that sounds from all speakers appear to arrive at the listening position at the same time (without delay from the center speaker compared to the left and right speakers).

Surround speakers should be placed on the side walls of the room, at or slightly behind the listening position. The center of the speaker should face into the room. The speakers should be located so that the bottom of the cabinet is at least two feet higher than the listeners' ears when the listeners are seated in the desired area.

If side-wall mounting is not practical, the speakers may be placed on a rear wall, behind the listening position. Again, they should be located so that the bottom of the cabinet is at least two feet higher than the listeners' ears. The speakers should be no more than six feet behind the rear of the seating area.

Subwoofers produce nondirectional sound, so they may be placed almost anywhere in a room. Actual placement should be based on room size and shape and the type of subwoofer used. One method of finding the optimal location for a subwoofer is to begin by placing it in the front of the room, about six inches from a wall, or near the front corner of the room. Another method is to temporarily place the subwoofer in the spot where you will normally sit, and then walk around the room until you find a spot where the subwoofer sounds best. Place the subwoofer in that spot. You should also follow the instructions of the subwoofer's manufacturer, or you may wish to experiment with the best location for a subwoofer in your listening room.
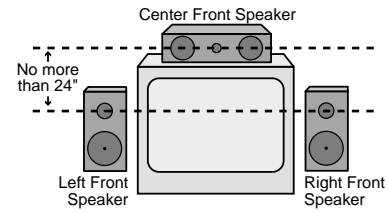
A) Front-Channel Speaker Installation with Direct-View TV Sets or Rear-Screen Projectors
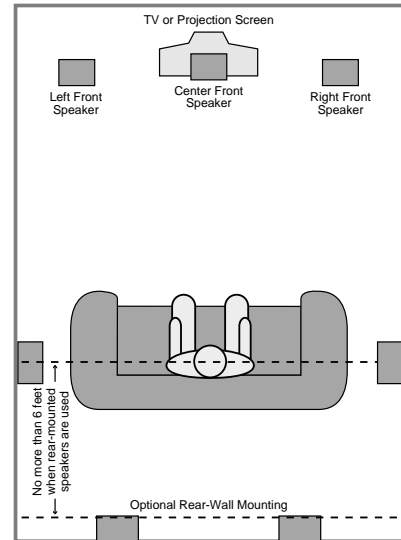
B) The distance between the left and right speakers should be equal to the distance from the seating position to the viewing screen. You may also experiment with placing the left and right speakers slightly forward of the center speaker.
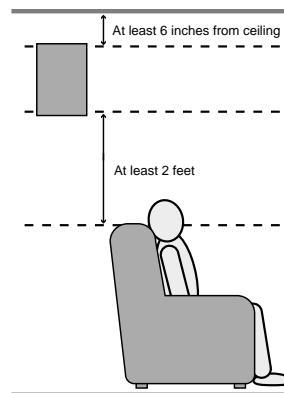
System Configuration

System Setup

Once the speakers have been placed in the room and connected, the remaining steps in the setup process are to program the AVR 100's bass management system for the type of speakers used in your system, calibrate the output levels, and set the delay times used by the surround-sound processor.

You are now ready to power up the AVR 100 to begin these final adjustments.

1. Plug the **Power Cable** ⓭ into an unswitched AC outlet.

2. Press the **Main Power Switch** **1** in so that it latches in and is flush with the front panel. Note that the **Power Indicator** **3** will turn amber, indicating that the unit is in the Standby mode.

3. Install the four supplied AAA batteries in the remote as shown. Be certain to follow the (+) and (–) polarity indicators that are on the bottom of the battery compartment.
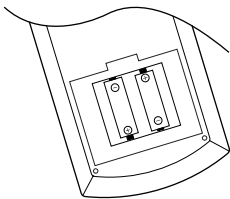
4. Turn the AVR 100 on either by pressing the **System Power Control** **2** on the front panel, or via the remote by pressing a **Device Selector** ❶ on the remote. The **Power Indicator** **3** will turn green to confirm that the unit is on, and the **Information Display** **35** will also light up.

Speaker Configuration

The first few adjustments tell the AVR 100 which type of speakers are in use. This is important as it adjusts the settings that determine which speakers receive low-frequency (bass) information. For each of these settings use the LARGE setting if the speakers for a particular position are traditional full-range loudspeakers that are capable of reproducing sounds below 100Hz. Use the SMALL setting for smaller, frequency-limited satellite speakers that do not reproduce sounds below 100Hz. Note that when "small" speakers are used, a subwoofer is required to reproduce low-frequency sounds. Remember that the "large" and "small" descriptions do not refer to the actual physical size of the speakers, but their ability to reproduce low-frequency

sounds. If you are in doubt as to which category describes your speakers, consult the specifications in the speakers' owner's manual, or ask your dealer.

With the AVR 100 turned on, follow these steps to configure the speakers:

1. Put the AVR 100 in the Dolby Pro Logic mode by pressing the **Dolby Pro Logic Selector** **21** on the front panel or by pressing the **Surround Mode Selectors** ㉝ on the remote, until PRO LOGIC appears in the **Main Information Display** **N** and the **PRO LOGIC** indicator **B** lights.

2. Press the **Speaker** button ⓰ **33** on the remote or front panel. The words FRNT SPEAKER will appear in the **Main Information Display** **N**.

3. Press the **Set** button ⓴ **31** and note that the ▶ pointer will stop flashing.

4. Press the ◄/► buttons ⓲ on the remote or the **Selector** buttons **34** on the front panel until either LARGE or SMALL appears, matching the type of speakers you have at the left-front and right-front positions, as described by the definitions shown in preceding section.

   When SMALL is selected, low-frequency sounds will be sent to the subwoofer output only. Note that if you choose this option, and there is no subwoofer connected, you will not hear any low-frequency sounds from the front channels.

   When LARGE is selected, a full-range output will be sent to the front-left and front-right outputs, and NO low-frequency signals will be sent to the subwoofer output.

5. When you have completed your selection for the front channel, press the **Set** button ⓴ **31**, and then press the ◄/► buttons ⓲ on the remote or the **Selector** buttons **34** on the front panel to change the display to CEN SPEAKER.

6. Press the **Set** button ⓴ **31** again, and use the ◄/► buttons ⓲ on the remote, or the **Selector** buttons **34** on the front panel, to select the option that best describes your system based on the speaker definitions shown in preceding section.

When CEN SP SMALL is selected, low-frequency center-channel sounds will be sent to the subwoofer output only. Note that if you choose this option and there is no subwoofer connected, you will not hear any low-frequency sounds from the center-channel speaker.

When CEN SP LARGE is selected, a full-range output will be sent to the center-speaker output, and NO center channel signal will be sent to the subwoofer output.

When CEN SP NONE is selected, no signals will be sent to the center-channel output. The receiver will operate in a "phantom" center-channel mode and center-channel information will be sent to the left- and right-front channel outputs.

7. When you have completed your selection for the center channel, press the **Set** button ⓴ **31**, and then press the ◄/► buttons ⓲ on the remote or the **Selector** buttons **34** on the front panel to change the display to SUR SPEAKER.

8. Press the **Set** button ⓴ **31** again, and then use the ◄/► buttons ⓲ on the remote or the **Selector** buttons **34** on the front panel to select the option that best describes your system based on the speaker definitions shown in preceding section.

   When SUR SP SMALL is selected, low-frequency surround-channel sounds will be sent to the subwoofer output only. Note that if you choose this option and there is no subwoofer connected, you will not hear any low-frequency sounds from the surround speaker.

   When SUR SP LARGE is selected, a full-range output will be sent to the surround-channel outputs, and NO surround channel signals will be sent to the subwoofer output.

   When SUR SP NONE is selected, surround-sound information will be split between the front-left and front-right outputs. Note that for optimal performance when no surround speakers are in use, the Dolby 3 Stereo mode should be used instead of Dolby Pro Logic.

System Configuration

9. When you have completed your selection for the surround channel, press the **Set** button ⑳ 🔢, and then press the ◄/► buttons ⑱ on the remote or the **Selector** buttons 🔢 on the front panel to change the display to S-W SPEAKER.

10. Press the **Set** button ⑳ 🔢, and then press the ◄/► buttons ⑱ on the remote or the **Selector** buttons 🔢 on the front panel to select the option that best describes your system.

    Select S-W SP YES if a subwoofer is connected to your system.

    Select S-W SP NO if a subwoofer is NOT connected to your system. Note that when no subwoofer is selected, low-frequency sounds below 100Hz will be sent to the front-left and front-right speakers, provided that the selection in Step 4 has been set to LARGE. Otherwise, no low-frequency sounds will be heard at all. This option is not available when the front, center or surround speakers are set to SMALL.

11. When all speaker selections have been made, press the **Set** button ⑳ 🔢 to return to normal operation.

Output Level Adjustment

Output level adjustment is a key part of the configuration process for any surround-sound product. It is particularly important for a Dolby Digital receiver such as the AVR 100, as correct outputs will ensure that you hear sound tracks in their proper place with the proper directionality and intensity.

IMPORTANT NOTE: Listeners are often confused about the operation of the surround channels. While some assume that sound should always be coming from each speaker, most of the time there will be little or no sound in the surround channels. This is because they are only used when a movie director or sound mixer specifically places sound there to create ambiance, a special effect or to continue action from the front of the room to the rear. When the output levels are properly set it is normal for surround speakers to operate only occasionally. Artificially increasing the volume to the rear speakers may destroy the illusion of an enveloping sound field that duplicates the way you hear sound in a movie theater or concert hall.

Before beginning the adjustment process make certain that all speaker connections have been properly made. The system volume should be set to the level that you will use during a typical listening session. Finally, make certain that the **Balance Control** 🔢 is set to the center "12 o'clock" position.

To adjust and calibrate the output levels, follow these steps. For accurate calibration, it is a good idea to make these adjustments while seated in your favorite listening position:

1. Put the AVR 100 in the Dolby Pro Logic mode by pressing the **Dolby Pro Logic Selector** 🔢 on the front panel, or by pressing the **Surround Mode Selectors** 🔢 on the remote, until PRO LOGIC appears in the **Main Information Display** 🅝 and the **PRO LOGIC** indicator 🅑 lights up.

2. Press the **Test Tone** button ⑲ on the remote. The words T-T FL 0dB will appear in the **Main Information Display** 🅝 and the letters FL will flash once each second.

3. The test noise will immediately begin to circulate in the speakers in a clockwise rotation, pausing at each position for three seconds. As the test noise rotates the speaker position will be shown in the **Main Information Display** 🅝.

    NOTE: This is a good time to verify that the speakers have been properly connected. As the test noise circulates, listen to make certain that the sound comes from the speaker position shown in the Main Information Display. If the sound from a speaker location does NOT match the position indicated in the display, turn the AVR 100 off using the **Main Power Switch** 🔢 and check the speaker wiring to make certain that each speaker is connected to the correct output terminal.

4. After checking for speaker placement, let the test noise circulate, and listen to see which channels sound louder than the others. Using the front left (FL in the display) speaker as a reference, press the ◄/► buttons ⑱ on the remote or the **Selector** buttons 🔢 on the front panel on each channel to begin to bring them to the same level. Note that when one of the buttons is pushed, the test noise circulation

will pause on the channel being adjusted to give you time to make the adjustment. When you release the button, the circulation will resume after 15 seconds.

5. Continue to adjust the individual speakers until they all have the same volume. Note that adjustments should be made with the ◄/► buttons ⑱ on the remote or the **Selector** buttons 🔢 on the front panel only, NOT the main volume controls. Then press the **Set** button ⑳ 🔢 to memorize the change. If you are using a sound pressure (SPL) meter for precise level adjustment, set the volume so that the meter reads 75dB, C-Weighting Slow.

NOTE: The subwoofer output level is not adjustable using the test tone. To change the subwoofer level, follow the steps for Output Level Trim Adjustment on page 23.

6. When you have adjusted the outputs so that all channels have the same level, press the **Test Tone** button ⑲ on the remote to complete the adjustment.

Delay Settings

Due the different distances between the front-channel speakers and the listening position compared to the surround speakers and the listening position, the amount of time it takes for sound to reach your ears from the front or surround speakers is different. You may compensate for this difference through the use of the delay settings to adjust the timing to tailor the specific speaker placement and acoustic conditions in your listening room or home theater.

The factory setting is appropriate for most rooms, but some installations create an uncommon distance between the front and surround speakers that may cause the arrival of front-channel sounds to become disconnected from surround-channel sounds.

To resynchronize the front and surround channels, follow these steps:

1. Measure the distance from the listening/ viewing position to the front speakers.

2. Measure the distance from the listening/ viewing position to the surround speakers.

3. Subtract the distance to the surround speakers from the distance to the front speakers.

System Configuration

a. When setting the delay time for the Dolby Digital surround modes, the optimal delay time is the result of that subtraction. For example, if the front speakers are ten feet away and the surround speakers are five feet away, the optimal delay time is figured as 10–5=5. Thus, in this example, the delay time for Dolby Digital should be set at five milliseconds.

b. When setting the delay time for the Pro Logic mode, take the result of the subtraction and add 15 to obtain the optimal delay time. For example, if the front speakers are ten feet away and the surround speakers are five feet away, the optimal delay time is figured as 10–5+15=20. Thus, in this example, the Pro Logic delay should be set at twenty milliseconds.

NOTE: The Theater and Hall modes use a fixed, nonadjustable delay time.

The Dolby Digital Mode also includes a separate setting for the center-channel delay mode, since the discrete nature of these signals makes the location of the center-channel speaker more critical. To calculate the delay for the center channel, measure the distance from the preferred listening position in the center of the room to both the center-channel speaker and either the left or right speaker.

If the distances are equal, no further adjustment is required and the center delay should be set to zero. If the distance to the front speakers is greater than the distance to the center speaker, you may wish to reposition the speakers by moving the front-left and front-right speakers closer to the listening position or the center speaker further away from the listening position.

If repositioning of the speakers is not possible, adjust the center delay time, adding one millisecond of center-channel delay for every foot closer to the listening position the center speaker is than the front speakers. For example, if the front-left and front-right speakers are each 10 feet from the listening position and the center-channel speaker is 8 feet away, the delay is figured as 10–8=2, suggesting an optimal center delay of 2 milliseconds.

To set the delay times, follow these steps:

1. Put the AVR 100 in the Dolby Pro Logic mode by pressing the **Dolby Pro Logic Selector** ㉑ on the front panel or by pressing the **Surround Mode Selectors** ㉝ on the remote, until PRO LOGIC appears in the **Main Information Display** Ⓝ and the **PRO LOGIC** indicator Ⓑ lights up.

2. Press the Delay button ㉖ ㉙ on the remote or front panel. The words R DELAY TIME will appear in the **Main Information Display** Ⓝ.

3. Press the **Set** button ⑳ ㉛.

4. Adjust the delay time by pressing the ◄/► buttons ⑱ on the remote or the **Selector** buttons ㉞ on the front panel until the delay time figure calculated using the formula entered above appears in the display.

5. If only analog sources will be used, no adjustment is needed for the center-channel delay. In that case, press the **Set** button ⑳ ㉛ to enter the surround delay settings into the AVR's memory. However, if you will be using digital sources and the calculations outlined above indicate that the center-channel delay requires an adjustment, continue with the following steps.

6. Before setting the center-channel delay time, make certain that a digital source has been selected. If a digital source is playing, COAX Ⓖ or OPTICAL Ⓕ will appear in the Information display Ⓝ. If a digital source is already connected and playing, press the Delay button ㉙ ㉖ and then the ◄/► buttons ⑱ ㉞ until the words C DELAY TIME appear in the Main Information Display ㉟ and proceed to step #10. If a digital source is not playing, follow steps 7 through 10.

7. Press the **Set** button ⑳ ㉛.

8. Select the Dolby Digital mode either by pressing the front panel **Dolby Digital Selector** ⑳ or by pressing the **Surround Mode Selectors** ㉝ on the remote on the remote until DOLBY DIG appears in the **Main Information Display** Ⓝ or in the on-screen display. Ignore any "NO DATA" message that may appear.

9. Press the **Delay** button ㉖ ㉙ on the remote or front panel. The words R DELAY TIME appear in the **Main Information Display** Ⓝ.

10. Press the ◄/► buttons ⑱ on the remote once, so that C DELAY TIME appears in the **Main Information Display** Ⓝ or in the on-screen display.

11. Press the **Set** button ⑳ ㉛.

12. Press the ◄/► buttons ⑱ on the remote until the desired delay time for the center channel appears in the display.

13. Press the **Set** button ⑳ ㉛ to enter the setting into the AVR 100's memory.

You have now completed the setup, adjustment and calibration of the AVR 100. You are now ready to enjoy the finest in music and home-theater listening.
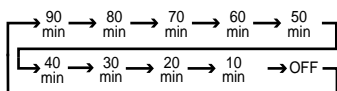
Operation

Basic Operation

Once you have completed the setup and config-uration of the AVR 100, it is simple to operate and enjoy. The following instructions should be followed for you to maximize your enjoyment of your new receiver:

• When using the AVR 100 for the first time, you must press the **Main Power Switch** 1 on the front panel to turn the unit on. This places the unit in a Standby mode, as indicated by the amber color of the **Power Indicator** 3 . Once the unit is in Standby, you may begin a listening session by pressing the **System Power Control** 2 on the front panel or the **Device Selectors** 1 on the remote. Note that the **Power Indicator** 3 will turn red, then green. This will turn the unit on and return it to the input source that was last used. The unit may also be turned on from Standby by pressing any of the **Input Selector** buttons on front panel 10 11 12 13 14 15 .

To turn the unit off at the end of a listening session, simply press the **System Power Control** 2 on the front panel or the **Power-Off Button** 3 on the remote. Power to any equipment plugged into the rear panel **Switched AC Outlet** 1 will be shut off and the **Power Indicator** 3 will turn amber.

When the remote is used to turn the unit "off" it is actually placing the system in a Standby mode, as indicated by the amber color of the **Power Indicator** 3 .

• To program the AVR 100 for automatic turn-off, press the **Sleep Button** 4 9 on the remote or front panel. Each press of the button will increase the time before shut down in the following sequence:

$$90 \text{ min} \rightarrow 80 \text{ min} \rightarrow 70 \text{ min} \rightarrow 60 \text{ min} \rightarrow 50 \text{ min}$$
$$40 \text{ min} \rightarrow 30 \text{ min} \rightarrow 20 \text{ min} \rightarrow 10 \text{ min} \rightarrow \text{OFF}$$

The sleep time will be displayed in the Information Display and it will count down until the time has elapsed.

When the programmed time has elapsed, the unit will automatically turn off. Note that the front-panel display will dim to one-half bright-ness when the Sleep function is programmed. To cancel the Sleep function, press and hold the **Sleep Button** 4 9 until the information display returns to normal brightness and the Sleep indicator numbers disappear.

• To change the brightness level of the **Information Display** 35 , press the **Dim Switch** 5 . The first press will dim the display to one-half brightness, the next press will turn it off. Note that changes to the display brightness will remain in effect only until the AVR is turned off. Regardless of what the display brightness setting was during the last listening session, it will turn on again at full brightness the next time the unit is turned on. In addition, the **Power Indicator** 3 will always remain on to remind you that the unit is turned on.

When you will be away from home for an extended period of time, it is always a good idea to completely turn the unit off using the front-panel **Main Power Switch** 1 .

NOTE: All preset memories are lost if the unit is left turned off with the **Main Power Switch** 1 for more than two weeks.

Source Selection

• To select a source at any time, press the **Selector** button on the remote or front panel 10 11 12 13 14 15 .

• The front-panel **Video 3 Inputs** 8 may be used to connect a device such as a video game or camcorder to your home-entertainment system on a temporary basis.

• When an audio source is selected, the last video input used remains routed to the **Video Outputs 1** 18 and **TV Monitor Video Output** 10 . This permits simultaneously viewing and listening to different sources.

• When a Video Input source is selected, the video signal for that input will be routed to the **TV Monitor Video Output** jack 10 and will be viewable on a TV monitor connected to the AVR 100. Make certain that your TV is set to the proper input to view the signal.

Volume Control

• Adjust the volume to a comfortable level using the front-panel **Volume Control** 28 or remote **Volume Up/Down** 31 buttons.

• When listening in the Stereo mode, with the surround circuits off, the **Balance Control** 7 may be used to adjust the relative sound output between the left-front and right-front speakers.

• To temporarily silence all speaker outputs press the **Mute** button 32 27 . This will interrupt the output to all speakers and the headphone jack, but it will not affect any recording or dubbing that may be in progress. When the system is muted the **MUTE** indicator O will light in the **Information Display** 35 . Press the **Mute** button 32 27 again to return to normal operation.

• During a listening session you may wish to adjust the **Bass Control** 5 and **Treble Control** 6 to suit your listening tastes or room acoustics.

• For private listening, plug the 1/4" stereo phone plug from a pair of stereo headphones into the front-panel **Headphone Jack** 4 .

• In normal operation, when the AVR 100 is turned on, it will always return to the volume setting in effect when the unit was turned off. However, for some installations you may prefer to always have the AVR turn on at a specific setting, regardless of the level when the unit was turned off. To enter that mode and setting, follow these steps:

1. Press the **Set Button** 20 31 until the word $\mathsf{DEFAULT\ OFF}$ will appear in the **Main Information Display** N .

2. Press the ◄/► **Buttons** 18 on the remote or the **Selector Buttons** 34 on the front panel, and then set the desired turn-on volume level using the **Volume Controls** 31 28 within five seconds.

3. When no volume setting is made for five seconds, the volume level will be entered into the AVR's memory and will be used each time the unit is turned on.

• To return the Volume Control setting at turn on to the last volume level in use, follow these steps:

1. Press the Set Button 20 31 until the word SET and the current volume level appear in the **Main Information Display** N .

2. Within five seconds, press the ◄/► buttons 18 on the remote or the Selector Buttons 34 on the front panel, so that $\mathsf{DEFAULT\ OFF}$ appears in the **Main Information Display** N .

Operation

3. Within five seconds the AVR will return to normal operation and the unit will now turn on at the same volume level that was in effect when the unit was turned off.

Surround-Mode Selection

One of the most important features of the AVR 100 is its ability to reproduce a full multi-channel surround-sound field from digital sources, analog matrix surround-encoded programs and standard stereo programs. In all, a total of six listening modes is available on the AVR 100.

Selection of a surround mode is based on personal taste, as well as the type of program source material being used. For example, motion pictures or TV programs bearing the logo of one of the major surround-encoding processes, such as Dolby Surround, DTS Stereo or UltraStereo,[†] may be played in either the Dolby Digital or Dolby Pro Logic modes, depending on the source material.

NOTE: Once a program has been encoded with surround information, it retains the surround matrix as long as the program is broadcast in stereo. Thus, movies with surround sound will carry surround information when they are broadcast via conventional TV stations, cable, pay TV and satellite transmission. In addition, a growing number of made-for-television programs, sports broadcasts, radio dramas and music CDs are also recorded in surround sound. You may view a list of these programs at the Dolby Laboratories Web site at www.dolby.com.

When a program is not listed as carrying intentional surround information, you may find that the Pro Logic or Dolby 3 Stereo modes often deliver enveloping surround presentations through the use of the natural information present in all stereo recordings. However, for stereo but non-surround programs, we suggest that you try the Hall or Theater modes.

Surround modes are selected using either the front-panel controls or the remote. To select a surround mode from the front panel, simply press the button that corresponds to the desired mode **20 21 22 23 24**. To select a surround mode using the remote, press the **Surround Mode Selectors 33**. As you press the buttons, the Surround mode name will appear in the **Main Information Display N**, and an individual mode indicator will also light up **A B C D E**.

Note that Dolby Digital may only be selected when a digital input is in use. For more information on selecting digital sources, see the following section of this manual.

To listen to a program in traditional two-channel stereo, using the front-left and front-right speakers only (plus the subwoofer if installed and configured), press the **Surround Off button 26** on the front panel until � SURR OFF appears in the **Main Information Display N** or the surround mode buttons on the remote **33**.

Dolby Digital Playback

Digital audio is a major advancement over past systems. It delivers five discrete channels: left front, center, right front, left surround and right surround. Each channel is full range and offers dramatically improved dynamic range and significant improvements to signal-to-noise ratios. In addition, both of the digital systems have the capability to deliver an additional channel that is specifically devoted to low-frequency information. This is the ".1" channel referred to when you see these systems described as "5.1". The bass channel is totally separate but since it is intentionally bandwidth limited, sound designers have given it that unique designation.

Dolby Digital (originally known as AC-3®) is available on DVD and LD discs and is also a part of the new high-definition television (HDTV) system.

Note that an optional, external RF demodulator is required to use the AVR 100 to listen to the Dolby Digital sound tracks available on laser discs. Connect the RF output of the LD player to the demodulator and then connect the digital output of the demodulator to the the the **Optical** or **Coaxial** inputs **15 14** of the AVR 100.

Selecting a Digital Source

To utilize either digital mode you must have a digital source properly connected to the AVR 100. Connect the digital outputs from DVD players, HDTV receivers and CD players to the **Optical** or **Coaxial** inputs on the rear panel **15 14**. In order to provide a backup signal and a source for analog stereo recording, the analog outputs provided on digital source equipment should also be connected to their appropriate inputs on the AVR 100 rear panel (e.g., connect the analog stereo audio output from a DVD to the **DVD** inputs **6** on the rear panel when you connect the source's digital outputs).

When playing a digital source such as DVD, first select the input using the remote or front-panel controls as outlined in this manual. Next, select the digital source by pressing the appropriate **Digital Input Selector** button **21 30** and then using the ◄/► buttons **18** on the remote or the **Selector** buttons **34** on the front panel to choose either of the OPTICAL or COAXIAL inputs, as they appear in the **Main Information Display N** or on-screen display. Press the **Set** button **20 31** to enter the desired choice. When the digital source is playing, the AVR 100 will automatically detect whether it is a multichannel Dolby Digital source or a conventional PCM signal, which is the standard output from CD players.

Digital Status

When a digital source is playing, the AVR 100 will automatically switch to the proper surround mode. It is important to note, however, that not all Dolby Digital sources are encoded with the full complement of five channels plus LFE. When a digital source is playing, the **Main Information Display N** will change to show the input source and digital type (OPTICAL or COAX). When a source with digital encoding is playing, the input source name will appear in the Information Display or on-screen display, followed by a numeric key indicating the type and number of channels being decoded, as follows:

3/2.1: This message appears when a full complement of Dolby Digital signals is present: 3 front channels (left, center and right), 2 surround channels (surround left and surround right) and "1" channel, which is the dedicated Low Frequency Effects (LFE) channel.

3/1: This message indicates the system is decoding a standard Dolby Pro Logic signal with left-front, center and right-front channels and a single mono surround channel.

2/0: This message indicates that the system is decoding a traditional two-channel stereo signal and that no center, surround or LFE signals are present.

1/0: This is a monaural signal that plays through the center-channel speaker only. There is no sound at the front-left, front-right or surround speakers.

Operation

Surround-Mode Chart

MODE	FEATURES	DELAY TIME RANGE
DOLBY DIGITAL	Available only with digital input sources encoded with Dolby Digital data. It provides up to five separate main audio channels and a special dedicated Low-Frequency Effects channel.	Center: 0 ms – 5 ms Surround: 0 ms – 15 ms
DOLBY PRO LOGIC	The standard mode for analog surround-sound decoding. It uses information encoded in a two-channel stereo recording to produce four distinct outputs: Left, Center, Right and a Mono Surround channel. Use this mode for accurate reproduction of programs bearing the Dolby Surround, DTS Stereo, UltraStereo or other "Surround" logos. Surround-encoded programs include videocassette, DVD and LD movies, TV and cable programs, radio programs and audio CDs. Dolby Pro Logic processing may also be used to provide a pleasing surround effect with some stereophonic source material that does not carry surround encoding.	15 ms – 30 ms Initial Setting = 20 ms
DOLBY 3 STEREO	Uses the information contained in a surround-encoded or two-channel stereo program to create center-channel information. In addition, the information that is normally sent to the rear-channel surround speakers is carefully mixed in with the front-left and front-right channels for increased realism. Use this mode when you have a center-channel speaker but no surround speakers.	No surround channels
HALL	This mode is designed for use with stereo recordings and provides a sound-field effect that simulates the complex combination of direct and reflected sounds that create the rich reverberant atmosphere of a concert hall.	Fixed delay, not adjustable
THEATER	This mode uses matrix surround decoding to simulate a standard movie or stage theater.	Fixed delay, not adjustable
STEREO	This mode turns off all surround processing and presents the pure left- and right-channel presentation of two-channel stereo programs.	No surround channels

Operation

Night Mode
A special feature of Dolby Digital is the Night mode, which enables specially encoded input sources to be played back with full digital intelligibility while reducing the minimum peak level by $1/4$ to $1/3$. This prevents abruptly loud transitions from disturbing others without reducing the impact of the digital source. The Night mode is available only when Dolby Digital signals with special data are being played.

To engage the Night mode, press the **Night** button ❺ on the remote and note that the NIGHT mode indicator **Q** will illuminate in the Information Display.

IMPORTANT NOTES ON DIGITAL PLAYBACK:

1. When the digital playback source is stopped, or in a pause, fast forward or chapter search mode, the digital audio data will momentarily stop, causing a NO DATA message to be displayed in the **Main Information Display N**. This is normal and does not indicate a problem with either the AVR 100 or the source machine. The AVR 100 will return to digital playback as soon as the data is available and when the machine is in a standard play mode.

2. Although the AVR 100 will decode virtually all DVD movies, CDs and HDTV sources, it is possible that some future digital sources may not be compatible with the AVR 100.

3. Note that not all digitally encoded programs contain full 5.1 channel audio. Consult the program guide that accompanies the DVD or laser disc to determine which type of audio has been recorded on the disc. The AVR 100 will automatically sense the type of digital surround encoding used and adjust to accommodate it.

4. When a digital source is playing, you may not select any of the analog surround modes such as Dolby Pro Logic, Dolby 3 Stereo, Hall or Theater.

5. When a Dolby Digital source is playing, it is not possible to make an analog recording using the Tape ❾ and Video 1 ⓲ record outputs.

PCM Audio Playback
PCM (Pulse Code Modulation) is the non-compressed digital audio system used for compact discs and Dolby Digital. The digital circuits in the AVR 100 are capable of high-quality digital-to-analog decoding, and they may be connected directly to the digital audio output of your CD or LD player.

Connections may be made to either the **Optical** or **Coaxial** inputs ⓯⓮ on the rear panel.

To listen to a PCM digital source, first select the input for the desired source (e.g., CD). Next, press the **Digital Select** button ㉚ ㉑ and then use the ◄/► buttons ⓲ on the remote or the **Selector** buttons ㉞ on the front panel until the desired choice of either OPTICAL or COAX appears in the **Main Information Display N**. Press the **Set** button ⓴ ㉛ to enter the desired choice.

During PCM playback you may select any surround mode except Dolby Digital.

Tuner Operation

The AVR 100's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually, or they may be stored as favorite station presets and recalled from a 30-position memory.

Station Selection
1. Press the **AM/FM** button ⓯ ❷ to select the tuner as an input.

2. Press the **AM/FM** button ⓯ ❷ again to switch between AM and FM so that the desired frequency band is selected.

3. To select a station by tuning manually, press and release the Tuning buttons ⓰ ⓬⓲ to move up or down through the frequency bands one increment at a time. Continue to press the buttons until the TUNED indicator **M** is illuminated for the desired station's frequency.

4. To automatically tune to the next station with a signal that provides for acceptable reception, press and hold the tuning buttons ⓰ ⓬ ⓲ for two seconds and then release. The tuner will automatically search for the next station that is a strong enough signal for good reception and then stop. Press and hold the buttons again to repeat the process and find another station.

5. Stations may also be tuned directly by pressing the **Direct** button ㉔ on the remote, and then pressing the **Numeric Keys** ⓯ that correspond to the station's frequency. The desired station will automatically be tuned.

NOTE: When the FM reception of a station is weak, audio quality will be increased by switching to Mono mode by pressing the **Tuner Mode** button ⓳ ❻ until the **STEREO** indicator **K** goes out.

Preset Tuning
Up to 30 stations may be stored in the AVR 100's memory for easy recall using the front-panel controls or the remote.

To enter a station to the memory, first tune the station using the steps outlined above, then:

1. Press the **Memory** button ㉓ on the remote. Note that **MEMORY J** and **PRESET I** indicators will illuminate and flash in the Information Display.

2. Within five seconds, press the **Numeric Keys** ⓯ corresponding to the location where you wish to store this station's frequency.

3. The preset number you have entered and the **MEMORY J** and **PRESET I** indicators will all flash briefly. When the **MEMORY J** goes out and the other indicators stop flashing, the station has been entered into the tuner's memory.

4. Repeat the process for any additional stations to be preset.

Recalling Preset Stations
• To manually select a station previously entered in the preset memory, press the **Numeric Keys** ⓯ that correspond to the desired station's memory location.

• To manually tune through the list of stored preset stations one by one, press the **Preset** buttons ⓲ ⓮ ㉗ on the front panel or remote.

• To automatically scan through the stations entered in the preset memory, press the **Preset Scan** button ⓱ on the front panel. The tuner will run through the list of preset stations, stopping for five seconds at each one. Press the button again to stop the scan at your desired station.

Clearing Preset Stations
To clear a preset station from the tuner's memory, follow these steps:

• Tune to the preset station being removed from the memory, using one of the methods described on this page.

Operation

• Press and briefly hold the **Memory/ Program** button ㉓ and release it when the **MEMORY** Ⓙ and **PRESET** Ⓘ indicators begin to flash.

• Within three seconds, press the **CLEAR** button ㉒ and hold it until the **Main Information Display** Ⓝ reads CLEAR. This will be followed by the preset memory number being cleared.

• The tuner will then return to normal operation.

• The preset memory number that was cleared is then "empty" and may be left alone or assigned to another station.

Tape Recording

In normal operation, the audio or video source selected for listening through the AVR 100 is sent to the record outputs. This means that any program you are watching or listening to may be recorded simply by placing machines connected to the outputs for **Tape Out** ⑨ or **Video 1** ⑱ in the record mode.

NOTE: Please make certain that you are aware of any copyright restrictions on any material you copy. Unauthorized duplication of copyrighted materials is prohibited by Federal law.

Output-Level Trim Adjustment

Normal output-level adjustment for the AVR 100 is established using the Test Tone, as outlined on page 17. In some cases, however, it may be desirable to adjust the output levels using program material such as a test disc, or a selection you are familiar with. Additionally, the output level for the subwoofer can only be adjusted using this procedure.

To adjust the output levels using program material, first set the reference volume for the front-left and front-right channels using the **Volume Control** ㉘ ㉛. If you wish to vary the difference between the left and right channels, use the **Balance Control** ⑦.

Once the reference level has been set, press the **Channel-Select** button ⑰ ㉜ and note that FRONT L LEV will appear in the **Main Information Display** Ⓝ. To change the level, first press the **Set** button ⑳ ㉛, and then use the **Selector** buttons ㉞ or the ◄/► buttons ⑱ to raise or lower the level.

DO NOT use the volume control, as this will alter the reference setting.

Once the change has been made, press the **Set** button ⑳ ㉛ and then press the **Selector** buttons ㉞ or the ◄/► buttons ⑱ to select the next output channel location that you wish to adjust. To adjust the subwoofer level, press the **Selector** buttons ㉞ or the ◄/► buttons ⑱ until S-WOOFER LEV appears in the **Main Information Display** Ⓝ.

Press the **Set** button ⑳ ㉛ when the name of the desired channel appears in the **Main Information Display** Ⓝ, and follow the instructions shown earlier to adjust the level.

Repeat the procedure as needed until all channels requiring adjustment have been set. When all adjustments have been made and no further adjustments are made for twenty seconds, the AVR 100 will return to normal operation.

NOTE: The output levels may be separately trimmed for each digital and analog surround mode. If you wish to have different trim levels for a specific mode, select that mode using the front-panel buttons ⑳ ㉑ ㉒ ㉓ ㉔ or ㉝ on the remote control and follow the instructions in the steps shown above.

6-Channel Direct Input

The AVR 100 is equipped for future expansion through the use of optional, external adapters for formats that the AVR 100 may not be capable of processing. When an adapter is connected to the **6-Channel Direct Input** ⑲, you may select it by pressing the **6-Ch Input Selector** ㊱ ⑭.

Note that when the 6-Channel Direct Input is in use, you may not select a surround mode, as the external decoder determines processing. In addition, there is no signal at the record outputs when the 6-Channel Direct Input is in use.

Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is accidentally unplugged or subjected to a power outage. This memory will last for approximately two weeks, after which time all information must be reentered.

Programming the Remote

The AVR 100 includes a powerful remote control that is preset to operate all AVR functions and most Harman Kardon products. In addition, the remote contains the codes for most popular brands of audio and video equipment, including DVD and LD players, TV sets and VCRs. Once the remote is programmed with the codes for the equipment in your system, you may eliminate most other remotes, replacing them with of a single, universal remote control.

Programming the Remote

As shipped from the factory, the remote is fully programmed for all AVR 100 functions, as well as those of most Harman Kardon CD changers, CD and DVD players, and cassette decks. In addition, by following one of the methods below, you may program the remote to operate a wide range of devices from other manufacturers.

Direct Code Entry
This method is the easiest way to program your remote to work with different products.

1. Use the tables in the following pages to determine the three-digit code or codes that match both the product type (e.g., VCR, TV), and the specific brand name. If there is more than one number for a brand, make note of the different choices.

2. Turn on the product you wish to program into the AVR 100 remote.

3. Press and hold both the **Device Selector** ❶ for the type of product to be entered (e.g., VCR, TV) and the **Mute** button ㉜ at the same time. Hold both buttons until the **Program/Command Indicator** ㊲ stays lit. Note that the next step must take place while the red light is on, and it must begin within 20 seconds after the light illuminates.

4. Point the remote towards the unit to be programmed, and enter the three digit code number using the **Numeric keys** ⓯. If the **Program/Command Indicator** ㊲ blinks three times, the code is NOT valid and a correct code must be entered. If the code was valid, look at the product being programmed to see if it turned off.

5. Press the **Device Selector** ❶ once to store the command and note that the **Program/Command Indicator** ㊲ will then go out. Proceed to step #7; if the unit

does not turn off, proceed to step #6 within 20 seconds.

6. If the unit to be programmed remains on, enter any additional codes that appear in the charts on the following pages. Follow the instructions in steps #4 and #5 to make certain that the code is valid, and to see if the unit responds. If no code appears to properly operate the device, press the **Device Selector** ❶ and try programming the remote with the Auto Search Mode.

7. Try all of the functions on the remote to make certain that the product operates properly. Keep in mind that many manufacturers use a number of different combinations of codes, so it is a good idea to make certain that not only does the Power control work, but that the volume, channel and transport controls work as they should. If functions do not work properly, you may need to use a different remote code.

8. If a code cannot be entered to turn the unit off, if the code for your product does not appear in the tables in this manual, or if not all functions operate properly, try programming the remote with the Auto Search Method.

Auto Search Method
If the unit you wish to include in the AVR 100's remote is not listed in the code tables in this manual or if the code does not seem to operate properly, you may wish to program the correct code using the Auto Search method that follows:

1. Turn on the product that you wish to include in the AVR 100 remote.

2. Press the **Input Device Selector** ❶ for the type of product to be entered (e.g., VCR, TV) and the **Mute** button ㉜ at the same time. Hold both buttons until the **Program/Command Indicator** ㊲ lights. Note that the next step must take place while the indicator is on, and it must begin within 20 seconds after the light illuminates.

3. Point the remote towards the device to be programmed. Press either one of the **Surround Mode Selector** buttons ㉝ and observe the device to see if it turns off. If it does turn off, press the **Device Selector** ❶ and note that the **Program/Command Indicator** ㊲ will go out. If the unit does NOT turn off, press one of the **Surround Mode Selector** buttons ㉝ again within

20 seconds. Repeat the process until the unit being programmed turns off; remember that if no button is pushed on the AVR remote within 20 seconds, it will exit from the programming mode without storing any code data.

4. Try all of the functions on the remote to make certain that the product operates. Keep in mind that many manufacturers use a number of different combinations of codes, and it is a good idea to make certain that not only the Power on/off control works, but that the volume, channel and transport controls also do, as appropriate. If all functions do not work properly, you may need to Auto-Search for a different code, or enter a code via the Direct Code Entry method.

NOTE:
• Device codes may only be assigned to the TV/V1, VCR/V2 and DVD buttons.
• The V3 button may not be programmed for device codes.
• The DVD button may be programmed with the codes for either a DVD player or LD player.
• The CD and Tape buttons are pre-programmed to operate only with Harman Kardon products.

Code Readout
When the code has been entered using the Auto Search method, it is always a good idea to find out the exact code so that it may be easily reentered, if necessary. You may also read the codes to verify which device has been programmed to a specific Control Selector button.

1. Press and hold both the **Input Device Selector** ❶ for the type of product to be entered (e.g., VCR, TV) and the **Mute** button ㉜ at the same time.

2. Press the **Master Volume Up** button ㉛. The **Program/Command Indicator** ㊲ will blink in a sequence that corresponds to the three-digit code, with a one-second pause between each digit. Count the number of blinks between each pause to determine the digit of the code. One blink is the number 1, two blinks is the number 2, and so forth. Ten blinks are used to indicate a "0".

Example: One blink, followed by a one-second pause, followed by six blinks, followed by a one-second pause, followed by ten blinks indicates that the code has been set to 160.

Programming the Remote

For future reference enter the Setup Codes for the equipment in your system here:

TV _____ DVD _____

CBL _____ SAT _____

TV _____ VCR _____

Programmed Device Functions

Once the AVR 100's remote has been programmed for the codes of other devices, press the appropriate **Device Selector** ❶ to change the remote from control over the AVR 100 to the additional product. When you press any of these buttons, the **Program/Command Indicator** ㉟ briefly flashes in red to indicate that you have changed the device being controlled, as well as the AVR's input source.

When operating a device other than the AVR 100, the controls may not correspond exactly to the function printed on the remote or button. Some commands, such as the numeric keys, are the same as they are with the AVR 100. Other buttons will change their function so that they correspond to a secondary label on the remote. For example, the Surround Mode selector buttons also function as the Channel-Up and Channel-Down buttons when operating many TV sets, VCRs or cable boxes. The same is true for standard CD player, cassette deck, VCR and DVD functions, which follow the standard function icons printed on top of the buttons.

For some products, however, the function of a particular button does not follow the command printed on the remote. In order to see which function a button controls, consult the Function List tables printed on page 27. To use those tables, first check the type of device being controlled (e.g., TV, VCR). Next, look at the remote control diagram pictured on page 26. Note that each button has a number on it.

To find out what function a particular button has for a specific device, find the button number on the Function List and then look in the column for the device you are controlling. For example, button number 8 is the FM Mode button for the AVR 100, but it is the "Input Select" button for many VCRs.

Note that the numbers used to describe the button functions on page 27 for the purposes of describing how a button operates are a different set of numbers than those used in the rest of this manual to describe the button functions for the AVR.

Notes on Using the AVR 100 Remote With Other Devices.

- Manufacturers may use different code sets for the same product category. For that reason, it is important that you check to see if the code set you have entered operates as many controls as possible. If it appears that only a few functions operate, check to see if another code set will work with more buttons.

- When a button is pressed on the AVR 100 remote, the **Program/Command Indicator** ㉟ should flash briefly. If it flashes for some but not all buttons for a particular product, it does NOT indicate a problem with the remote, but rather that no function is programmed for the button being pushed.

Using the Remote with a Harman Kardon CD-R Recorder/Player

The AVR's remote is programmed to operate Harman Kardon CD-R products, and you have a choice of having those commands work with either the "Tape" or "CD" Device Selector ❶. The choice of which is used should mirror where the CD-R is connected, as pressing the Device Selector will also choose an input source for the AVR.

If you have connected a Harman Kardon CD-R to the **Tape Inputs** ❽, press the **Tape Device Selector** ❶ and the "2" **Numeric Key** ⓯ at the same time. Release them when the Program/Command Indicator ㉟ blinks twice. To return the code functions to operate a Harman Kardon cassette deck, press the **Tape Device Selector** ❶ and the "1" **Numeric Key** ⓯ at the same time. Release them when the **Program/Command Indicator** ㉟ blinks once, and the Tape control functions will be restored.

If you have connected a Harman Kardon CD-R to the CD Inputs ❼, press the **CD Device Selector** ❶ and the "2" **Numeric Key** ⓯ at the same time. Release them when the **Program/Command Indicator** ㉟ blinks twice. To return the code functions to operate a Harman Kardon cassette deck, press the **CD Device Selector** ❶ and the "1" **Numeric**

Key ⓯ at the same time. Release them when the **Program/Command Indicator** ㉟ blinks once, and the CD control functions will be restored.

Resetting the Remote Memory

You may reset the remote memory at any time, either for some of the individual Device Selectors or for the entire remote.

To reset ONLY the memory for the TV, VCR or DVD selectors, press the **Device Selector** button ❶ that you wish to clear the memory for, and the Mute button ㉜ at the same time. Within 20 seconds, press the 0 **Numeric Key** ⓯ three times.

To reset the remote's entire memory, and to clear all codes that have been programmed, press the TV/V1 **Device Selector** ❶ and the Mute button ㉜ at the same time. Within 20 seconds, press the 9 **Numeric Key** ⓯ three times.

Reassigning the DVD Button

If you do not have a DVD but have a second VCR, the DVD button may be programmed to operate an additional VCR using the following steps:

1. Locate the brand of VCR you wish to program into the remote on the Code charts on pages 30 and 31 and make a note of the codes for that brand.

2. Turn on the VCR you wish to program the remote for.

3. Press the DVD **Device Selector** ❶ and the Mute button ㉜ at the same time until the **Program/Command Indicator** ㉟ illuminates.

4. Press the VCR **Device Selector** ❶ and release it.

5. Within 20 seconds, point the remote towards the unit to be programmed and enter the three digit code number for the VCR to be programmed using the **Numeric Keys** ⓯. If the **Program/Command Indicator** ㉟ blinks three times, the code is valid and was accepted by the remote. If the **Program/Command Indicator** ㉟ blinks one time, the code is NOT valid and a correct code must be entered. If the code

was valid, look at the product being programmed to see if it turns off.

6. If the VCR to be programmed turned off, press the DVD **Device Selector ❶** once to complete the process.

7. If the VCR to be programmed does NOT turn off, continue to enter any additional three digit codes for the VCR brand until the VCR turns off. When it does turn off, press the **DVD Device Selector ❶** once to complete the process.

8. If no code is entered that turns off the VCR, try programming the VCR's codes into the "VCR" **Device Selector ❶** using the Auto Search method as detailed on page 24, and use the **DVD Device Selector ❶** to enter the codes for a VCR that are known to be accurate.

AVR 100 RC

harman/kardon
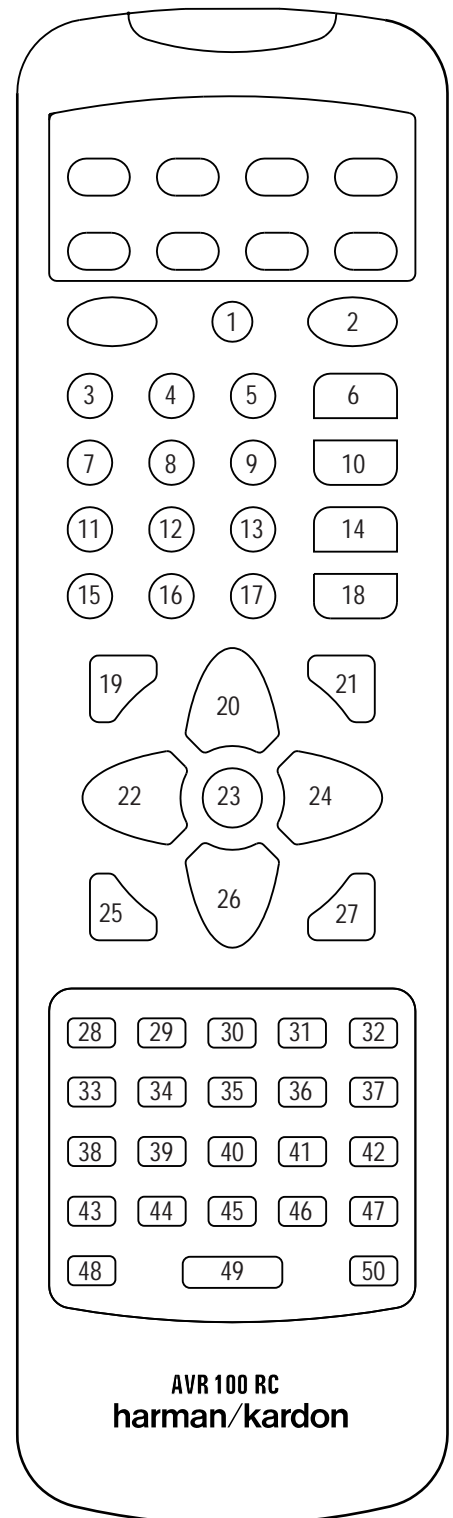
Function List

No.	Button Name	CD/CDR	Tape	DVD	TV	VCR
1	Source Power On	Power On		Power On	Power On	Power On
2	Source Power OFF	Power Off		Power Off	Power Off	Power Off
3	Dimmer/Night	Panel Dim	Panel Dim	Night		
4	Sleep					
5	Open/Close	Open/Close		Power Off		Open/Close
6	Surround Mode Up					
7	Disc Skip	Disc Skip		Disc Skip Up		
8	FM Mode		Direction Change	Mode	Input Select	Input Select
9	Mute				Mute	
10	Surround Mode Down					
11	Subtitle			Subtitle		
12	Subtitle On/Off			Subtitle On/Off		
13	Source Volume Up			Volume Up	Volume Up	Volume Up
14	AVR Volume Up					
15	Angle/Single	Single Play Mode		Angle		
16	Audio/Dual	Dual Play Mode		Audio	Guide	Guide
17	Source Volume Down			Volume Down	Volume Down	Volume Down
18	AVR Volume Down					
19	Title/CDP	CDP Play		Title	Prev. Channel	Pause
20	Play/▲	Play	Play Forward	Play	▲	Play/▲
21	Menu/CD	CDR Play		Menu	Menu	Menu
22	Rewind/ ◄◄	Search Reverse	Rewind	Search Reverse/◄	◄	Rewind/◄
23	Stop/Enter	Stop	Stop	Stop	Select/Enter	Select/Enter
24	Fast Forward ►►	Search Forward	Fast Forward	Search forward/►	►	Fast Forward/►
25	Chapter -/Skip Back	Skip Back		Skip Back/Chapter -	Channel -	Channel -
26	Rec/Pause ▼	Rec/Pause	Rec/Pause	Pause	▼	▼
27	Chapter +/Skip Back	Skip Forward		Skip Forward Chapter	Channel +	Channel +
28	1	1		1	1	1
29	2	2		2	2	2
30	3	3		3	3	3
31	4	4		4	4	4
32	5	5		5	5	5
33	6	6		6	6	6
34	7	7		7	7	7
35	8	8		8	8	8
36	9	9		9	9	9
37	0	0		0	0	0
38	Speaker					
39	Channel					
40	Delay					
41	Slow Play ◄			Slow Play ◄		
42	Slow Play ►			Slow Play ►		
43	Select ◄					
44	Set					
45	Select ►					
46	Clear	Clear		Clear	Clear	Clear
47	Random Play	Random Play		Random Play		
48	Test Tone					
49	Digital Input					
50	Memory/Program	Program		Program		

Setup Code Tables: TV

Manufacturer/Brand	Setup Code Number												
A Mark	094	122											
ADMIRAL	064	179											
AKAI	004	143											
AMSTRAD	049												
ANAM	041	051	053	071	086	090	097	100	103	113			
AOC	004	007	094										
BLAUPUNKT	077												
BROKSONIC	082												
CANDLE	001	004	005	007	153								
CAPEHART	055												
CENTRONIC	162	163											
CITIZEN	001	004	005	007	041	083	085	122	153				
CLASSIC	041												
CONCERTO	007												
CONTEC	037	041	047	048									
CORONADO	122												
CRAIG	041	051	156	157	158								
CROWN	041	122											
CURTIS MATHES	004	083	098	122									
CXC	041												
DAEWOO	007	018	019	034	041	052	063	068	085	089	093	096	099
	102	105	107	109	110	117	122						
DAYTRON	098	122											
DYNASTY	041												
DYNATECH	059												
ELECTROHOME	069	122											
EMERSON	004	008	009	029	041	045	047	048	082	098	122	126	127	145	156
	157												
ENVISION	155												
FISHER	009	054											
FUNAI	029	041											
GE	004	010	011	034	053	065	066	098	112	123	128	130	147
	148												
GOLDSTAR	007	084	088	092	094	095	098	101	104	109	118	122	
GRUNDIG	180												
HALL MARK	098												
HARMAN KARDON	181												
HITACHI	004	007	011	012	013	014	025	039	067	122	129	131	149
INFINITY	132												
INKEL	111												
JBL	132												
JC PENNEY	004	007	010	011	026	031	083	122	130				
JENSEN	015												
JVC	034	036	074	124									
KAWASHO	165												
KEC	041												
KENWOOD	004												
KLOSS	005	056											
KMC	122												
KTV	004	041	122	145									
LLOYTRON	164	155											
LODGENET	064												
LUXMAN	007												
LXI	009	017	049	072	130	132	149						
MAGNAVOX	001	004	007	056	057	058	060	061	109	122	130	132	153

Setup Code Tables: TV (continued)

Manufacturer/Brand	Setup Code Number												
MARANTZ	004	169	132										
MATSUI	132												
MEMOREX	009	064	098										
METZ	077												
MGA	004	007	029	040	046	069	098						
MINERVA	077												
MITSUBISHI	004	007	026	029	038	040	091	098	106	143	159	160	
NAD	017	027											
NATIONAL	169	170	171	172	173	174							
NEC	004	009	018	021	026	038	053	112	114	116	156		
OPTONICA	021	072											
ORION	082												
PANASONIC	034	053	071	079	132	161							
PHILCO	001	004	007	026	041	053	056	057	060	061	109	122	132	153
PHILIPS	001	004	007	036	056	062	080	122	130	132	153		
PIONEER	004	020	025	027	028	098	142						
PORTLAND	007	122											
PROSCAN	123												
PROTON	055	098	113	122	151								
QUASAR	034	053	079										
RADIO SHACK	021	041	044	098	109	122							
RCA	004	007	025	026	053	066	123	130	144	147	148		
REALISTIC	009	021	041	044									
RUNCO	133	134											
SAMPO	004	055	098										
SAMSUNG	047	078	083	087	095	098	109	115	118	122	130	154	
SANSUI	082												
SANYO	009	022	023	033	037	050	054	073	149				
SCOTT	029	041	045	098	122								
SEARS	007	009	017	029	031	054	073	083	098	122	130		
SHARP	007	016	021	024	029	030	072	122	135				
SIEMENS	077												
SONY	039	062	070	108	120	125							
SOUNDESIGN	001	029	041	098	153								
SSS	007	041											
SUPRE MACY	005												
SYLVANIA	001	004	007	056	057	060	061	098	109	121	130	132	153
SYMPHONIC	176												
TANDY	072												
TATUNG	053	059											
TECHNICS	075												
TECHWOOD	007												
TEKNIKA	001	004	005	007	026	029	032	041	064	069	083	085	122	153
TELERENT	064												
TERA	136												
THOMSON	177	178											
TMK	007	098											
TOSHIBA	009	017	031	038	048	059	083	119					
TOTEVISION	122												
UNIVERSAL	010	011											
VIDEO CONCEPTS	143												
VIDTECH	007	098											
WARDS	007	010	011	021	029	057	058	060	061	063	064	066	098	122	132
YAMAHA	004	007											
YORK	098												
ZENITH	064	065	081	085	146								

Setup Code Tables: VCR

Manufacturer/Brand	Setup Code Number										
AIWA	033										
AKAI	017	040	042	100	101	115					
AMPRO	088										
AMSTRAD	123										
ANAM	030	032	081								
ASA	124										
AUDIO DYNAMICS	013	023	037	040							
BROKSONIC	034	036	102	135							
CANDLE	124	125	127								
CANON	027	030	032	125							
CAPEHART	086										
CITIZEN	124										
CRAIG	005	038	108								
CURTIS MATHES	030	032									
DAEWOO	007	009	012	060	061	086	088	089	090	094	095	096
DAYTRON	088										
DBX	013	023	037	040							
DUAL	126										
DYNATECH	033	049									
ELECTROHOME	055										
EMERSON	008	018	025	026	028	030	033	034	035	036	042	079
	102	104	111								
FERGUSON	126										
FINLUX	123										
FISHER	005	010	011	012							
FUNAI	033										
GE	030	032	059	068	085	087	113	116			
GO VIDEO	105	109									
GOLDSTAR	013	014	020	079	084	092	099				
GRAETZ	126										
HARMAN KARDON	013	041									
HITACHI	006	033	040	059	110	119	139				
INSTANTREPLAY	030	032									
ITT	126										
JCL	030	032									
JC PENNEY	013	014	016	032	038	062	079				
JENSEN	040										
JVC	013	030	032	040	044	046	051	056	103	119	121
KENWOOD	015	037	040	044							
LLOYD	033										
LXI	014	015	033	079							
MAGIN	038										
MAGNAVOX	030	032	033	063	064						
MARANTZ	013	030	032	063	065						
MARTA	079										
MATSUI	026	029									
MEI	030	032									
MEMOREX	005	012	015	030	032	033	049	068	079	107	112
MGA	041	042	055								
MINOLTA	014	020									
MITSUBISHI	014	020	041	042	045	047	055	057	120	133	134
MTC	123										
MULTITECH	024	033									
NAD	128										
NATIONAL	129										

Setup Code Tables: VCR

Manufacturer/Brand	Setup Code Number										
NEC	013	023	037	040	044						
NORDMENDE	040										
OPTONICA	049	050									
ORION	135										
PANASONIC	062	066	070	078	106	114	136				
PENTAX	014	020	030	032	059						
PHILCO	030	032	033	063							
PHILIPS	030	032	033	050	063	067	079				
PILOT	079										
PIONEER	014	021	044								
PORTLAND	086										
PULSAR	068										
QUARTZ	001	015									
QUASER	032	062	071	114	132						
RADIO SHACK	123	124	129	130	131	137	138				
RCA	014	020	032	058	059	085	087	113	114	116	142
REALISTIC	005	010	012	015	030	032	033	038	049	050	079
RICO	054										
RUNCO	117										
SABA	126										
SALORA	015										
SAMSUNG	031	038	080	082	085	087	090	093	097	098	101
SANSUI	022	040	044	108	135						
SANYO	005	009	012	015	107						
SCHAUB LORENZ	126										
SCOTT	018	036	090	102	104						
SEARS	005	010	011	012	014	015	020	030	039	069	076	079
SHARP	030	050	118	141							
SHINTOM	024										
SONY	005	011	030	048	052	053	054	072	073	074	118
SOUNDESIGN	033										
STS	014										
SYLVANIA	030	032	033	055	063						
SYMPHONIC	033										
TANDY	012	033									
TASHICO	124										
TATUNG	037	040									
TEAC	033	037	040								
TECHNICS	030	032									
TEKNIKA	019	030	032	033	079						
TELEFUNKEN	126										
THOMAS	033										
THOMSON	126										
THORN	126										
TMK	008										
TOSHIBA	010	014	039	043	055	077	090	104	122	140	
TOTEVISION	038	079									
UNITECH	038										
VECTOR RESEARCH	013										
VICTOR	044										
VIDEO CONCEPTS	013	033	042								
VIDEOSONIC	038										
WARDS	005	014	018	024	030	032	033	038	049	050	104
YAMAHA	013	033	037	040							
ZENITH	033	044	052	054	068	075	079				

Setup Code Tables: DVD

Manufacturer/Brand	Setup Code Number			
CALIFORNIA AUDIO	038			
DENON	005	022	025	
GE	006	007		
GOLDSTAR	008			
HARMAN KARDON	001			
JVC	009			
KENWOOD	010			
LOTTE	011	037		
MAGNAVOX	012			
MITSUBISHI	026			
NAD	013			
ONKYO	018			
OPTIMUS	014			
PANASONIC	027	028	035	042
PIONEER	015	023		
RCA	021			
RUNCO	030			
SAMSUNG	034			
SANYO	016			
SHARP	024	031	040	
SONY	017	032	039	
TECHNICS	029			
THOMSON	006	007		
TOSHIBA	036	041		
YAMAHA	019	020	033	

Setup Code Tables: LD Players

Manufacturer/Brand	Setup Code Number		
CARVER	101	102	103
DENON	104	105	
DISCO VISION	106		
HITACHI	106		
MAGNAVOX	101	105	107
MARANTZ	102		
MITSUBISHI	108		
NAD	108		
NEC	109		
PANASONIC	110		
PHILIPS	102		
PIONEER	106	108	
QUASER	110		
RCA	111		
SAMSUNG	103		
SEGA	106		
SONY	112	113	114
THETA DIGITAL	107		
YAMAHA	107		

Troubleshooting Guide

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	• No AC Power	• Make certain AC power cord is plugged into a live outlet • Check to see if outlet is switch controlled
Display lights, but no sound or picture	• Intermittent input connections • **Mute** is on • Volume control is down	• Make certain that all input and speaker connections are secure • Press **Mute** button • Turn up volume control
No sound from any speaker; Light around power switch is red	• Amplifier is in protection mode due to possible short • Amplifier is in protection mode due to internal problems	• Check speaker-wire connections for shorts at receiver and speaker ends • Contact your local Harman Kardon service depot
No sound from surround or center speakers	• Incorrect surround mode • Input is monaural • Incorrect configuration • Stereo or Mono program material • Speakers not properly connected	• Select a mode other than Stereo • There is no surround information from mono sources • Check speaker mode • The surround decoder may not create center- or rear-channel information from nonencoded programs • Check speaker wire connections or use test tone to verify connections (see page 17)
Unit does not respond to remote commands	• Weak batteries in remote • Wrong device selected • Remote sensor is obscured	• Change remote batteries • Press the AVR selector • Make certain front-panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	• Local interference	• Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances

Processor Reset

In the rare case where the unit's operation or the displays seem abnormal, the cause may involve the erratic operation of the system's memory or microprocessor.

To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. If the system still malfunctions, a system reset may clear the problem.

To clear the AVR 100's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first turn the unit off by pressing and releasing the **Main Power Switch** **1** so that it pops out from its normal recessed position. Next, press and hold the **CD** **11** and **Vid 2** **13** buttons while pushing in the **Main Power Switch** **1** to turn the unit back on. Note that once you have cleared the memory in this manner, it is necessary to re-establish all system configuration settings and tuner presets.

NOTE: Resetting the processor will erase any configuration settings you have made for speakers, output levels, surround modes, digital input assignments as well as the tuner presets. After a reset the unit will be returned to the factory presets, and all settings for these items must be reentered.

If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

If these steps do not solve the problem, consult an authorized Harman Kardon service depot.

Technical Specifications

Audio Section

Stereo Mode
Continuous Average Power (FTC)

    50 Watts per channel, 20Hz–20kHz,
    @ < 0.08% THD, both channels driven into 8 ohms

Five-Channel Surround Modes
Power Per Individual Channel

    Front L&R channels:
    40 Watts per channel,
    @ < 0.08% THD, 20Hz–20kHz into 8 ohms

    Center channel:
    40 Watts, @ < 0.08% THD, 20Hz–20kHz into 8 ohms

    Surround channels:
    40 Watts per channel,
    @ < 0.08% THD, 20Hz–20kHz into 8 ohms

Input Sensitivity/Impedance	
Linear (High Level)	250mV/47k ohms

Signal-to-Noise Ratio (IHF-A)	90dB

Surround System Adjacent Channel Separation	
Analog Decoding	40dB
(Pro Logic, etc.)	
Dolby Digital (AC-3)	55dB

Frequency Response	
@ 1W (+0dB, –3dB)	10Hz–100kHz

High Instantaneous	
Current Capability (HCC)	±30 Amps

Transient Intermodulation	
Distortion (TIM)	0.08%
(20Hz – 20kHz)	

Rise Time	16 µsec
Slew Rate	40V/µsec

FM Tuner Section

Frequency Range	87.5–108MHz
Usable Sensitivity	IHF 1.5µV/14.8dBf
Signal-to-Noise Ratio	Mono/Stereo 73/70dB
Distortion	Mono/Stereo 0.3/0.5%
Stereo Separation	40dB @ 1kHz
Selectivity	±400kHz, 60dB
Image Rejection	40dB
IF Rejection	100dB
Tuner Output Level	1kHz, ±75kHz Dev 500mV

AM Tuner Section

Frequency Range	520–1710kHz
Signal-to-Noise Ratio	35dB
Usable Sensitivity	Loop 800µV/M
Distortion	1kHz, 50% Mod 1.5%
Selectivity	±10kHz, 30dB

Video Section

Video Format	NTSC
Input Level/Impedance	1Vp-p/75 ohms
Output Level/Impedance	1Vp-p/75 ohms
Video Frequency	10Hz–8MHz (–3dB)
Response	

General

Power Requirement	AC 120V/60Hz
Power Consumption	72W idle, 290W maximum
	(2 channels driven)

Dimensions (Max)	
Width	17.3 inches (440mm)
Height	6.2 inches (156mm)
Depth	14.7 inches (375mm)
Weight	27.9 lb (12.6 kg)

Depth measurement includes knobs, buttons and terminal connections.
Height measurement includes feet and chassis.
All features and specifications are subject to change without notice.