AVR 130 Audio/Video Receiver

OWNER'S MANUAL

AVR 130

● ⊡⊡ DIGITAL   ● 🔊 LOGIC 7
● ⊡⊡ PRO LOGIC II ● VMAₓ
● ⊡⊡ 3 STEREO   ● DSP
●   ● 5 CH. STEREO
● dts   ● SURR. OFF

| L | C | R |
| SL | | SR |
LFE

● VID 1   ● DVD
● VID 2   ● CD
● VID 3   ● FMAM
         ● TAPE
         ● 6 CH

Volume

Tone Mode Speaker Channel Digital Select Delay

harman/kardon

Set

Surr. Mode | Surr. Select | Tuning | AM/FM | Preset | Source | RDS

Bass   Treble
Min Max   Min Max

Phones

Optical 3 Coaxial 3   S-Video Video
— Digital Input —   — Video 3 —
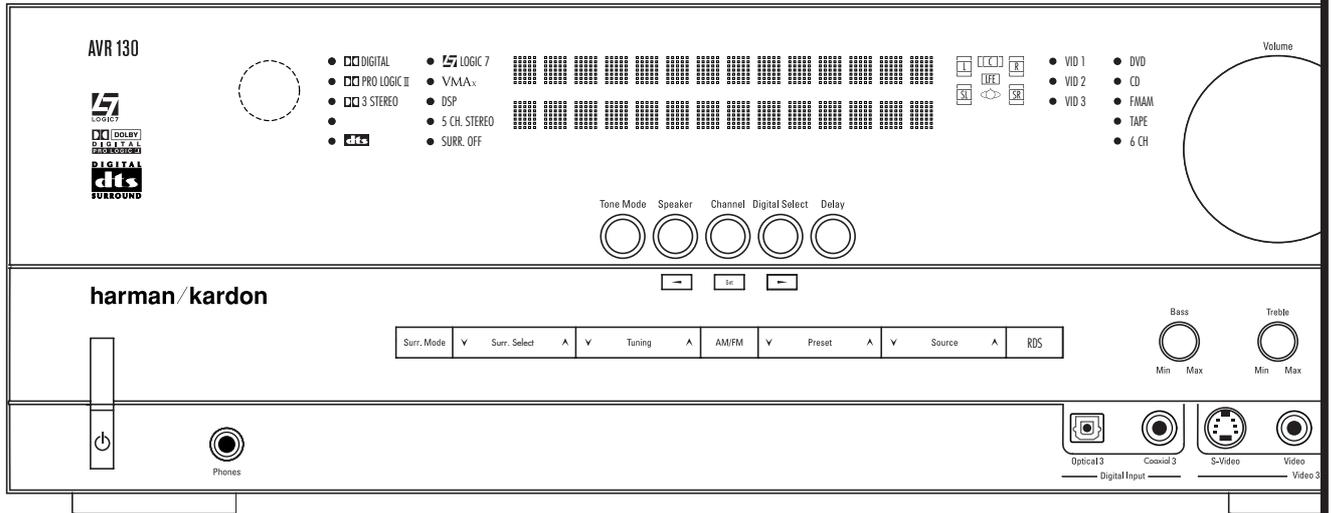
harman/kardon®

Power for the Digital Revolution®

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Declaration of Conformity

$C\epsilon$

We, Harman Consumer International
2, route de Tours
72500 Château-du-Loir,
FRANCE

declare in own responsibility, that the product described in this owner's manual is in compliance with technical standards:

EN 55013/6.1990

EN 55020/12.1994

EN 60065:1993

EN 61000-3-2/4.1995

Carsten Olesen
Carsten Olesen
Harman Kardon Europe
09/03

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

E X A M P L E – (OCR type) indicates a message that is visible on the front-panel information display

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

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

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

Introduction

Thank you for choosing Harman Kardon!
With the purchase of a Harman Kardon AVR 130 you are about to begin many years of listening enjoyment. The AVR 130 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 and DTS† decoding, the AVR 130 delivers six discrete channels of audio that take advantage of the digital sound tracks from the latest DVD and LD releases and Digital Television broadcasts.

While complex digital systems are hard at work within the AVR 130 to make all of this happen, hookup and operation are simple. Color-keyed connections and a programmable remote control make the AVR easy to use. To obtain the maximum enjoyment from your new receiver, we urge you to take the time 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 130 is able to deliver.

If you have any questions about this product, its installation or its operation, please contact your dealer. He is your best local source of information.

Description and Features
The AVR 130 is among the most versatile and multi-featured A/V receivers available, incorporating a wide range of listening options. In addition to Dolby Digital and DTS decoding for digital sources, a broad choice of analog surround modes are available for use with sources such as CD, VCR, TV broadcasts and the AVR's own FM/AM tuner. Along with the latest Dolby ProLogic II® decoding technology, Dolby 3 Stereo, 5 Ch Stereo and custom Hall and Theater modes, only Harman Kardon receivers offer Logic 7® to create a wider, more enveloping field environment and more defined fly-overs and pans. Another Harman Kardon exclusive is VMAx™,

which uses proprietary processing to create an open, spacious sound field even when only two front speakers are available.

In addition to providing a wide range of listening options, the AVR 130 is easy to configure so that it provides the best results with your speakers and specific listening-room environment. A Stereo-Direct mode bypasses the digital processor to preserve all of the subtleties of older analog, two-channel materials, while bass management, available in the surround and Stereo-Digital modes, improves your ability to tailor the sound to suit your room acoustics or taste.
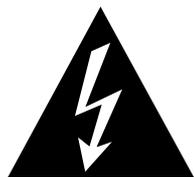
For the ultimate in flexibility, the AVR 130 features connections for four video devices, all with both composite and S-Video inputs, including the front-panel inputs. Two additional audio inputs are available, and a total of six digital inputs make the AVR 130 capable of handling all the latest digital audio sources. Coax and optical digital outputs are available for direct connection to digital recorders.
A video recording output and a six-channel input make the AVR 130 virtually future-proof, with everything needed to accommodate tomorrow's new formats right on board.

The AVR 130'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 fifty years ago. With state-of-the-art circuitry and time-honored circuit designs, the AVR 130 is one of the finest receivers ever offered by Harman Kardon within its price range.

■ **Onboard Dolby Digital and DTS Decoding Using Crystal® Chip Technology**

■ **Harman Kardon's Exclusive Logic 7 and VMAx Modes**

■ **Dolby Laboratory's latest ProLogic II decoding technology.**

■ **Stereo-Direct Mode for Two-Channel Sources Bypasses DSP Processing to Preserve the Integrity of Analog Materials**

■ **Stereo-Digital Mode for Programmable Bass Management of Low Frequencies Between Main Speakers and Subwoofer**

■ **Front panel digital inputs for easy connection to portable digital devices and the latest video game consoles**

■ **Multiple Digital Inputs and Outputs**

■ **6-Channel Direct Input for Use With DVD-Audio or SACD Players and Other Products With Internal Surround Decoders**

■ **Color-Coded Input, Output and Speaker Terminals Comply With CEA Standards for Easy Installation**

■ **Remote with Internal Codes Capability**

Safety Information

Important Safety Information

Verify Line Voltage Before Use
Your AVR 130 has been designed for use with 220-240-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 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 by an authorized service depot with a cord 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.

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.

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 Selector Buttons
6 Tone Mode
7 Surround Mode Group Selector
8 Tuning
9 Tuner Band Selector
10 Preset Stations Selector

11 Input Source Selector
12 RDS Select Button
13 Surround Mode Selector
14 Surround Mode Indicators
15 Remote Sensor Window
16 Bass Control
17 Balance Control
18 Treble Control
19 Volume Control
20 Set Button

21 Input Indicators
22 Delay
23 Digital Input Selector
24 Main Information Display
25 Channel Select Button
26 Speaker Select Button
27 Digital Optical 3 Input
28 Digital Coax 3 Input
29 Video 3 input jacks
30 Speaker/Channel Input Indicator

1 Main Power Switch: Press this button to apply power to the AVR. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the orange LED **3**. This button MUST be pressed in to operate the unit. To turn the unit off completely 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: This switch is normally 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; press it again to turn the unit off (to Standby). Note that the **Power Indicator 3** will turn blue when the unit is on.

3 Power Indicator: This LED will be illuminated in orange 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 blue.

4 Headphone Jack: This jack may be used to listen to the AVR's output through a pair of headphones. Be certain that the headphones have a standard 6.3 mm stereo phone plug. Note that the speakers will automatically be turned off when the headphones are connected.

5 Selector Buttons: When you are establishing the AVR's configuration settings, use these buttons to select from the choices available, as shown in the **Main Information Display 24**.

6 Tone Mode: Pressing this button enables or disables the Balance, Bass and Treble tone controls. When the button is pressed so that the words TONE IN appear in the **Main Information Display 24**, the settings of the **Bass 16** and **Treble 18** controls and of the **Balance** control **17** will affect the output signals. When the button is pressed so that the words TONE OUT appear in the **Main Information Display 24**, the output signal will be "flat," without any balance, bass or treble alteration.

Front Panel Controls

7 Surround Mode Group Selector: Press this button to select the top-level group of surround modes. Each press of the button will select a major mode grouping in the following order:

Dolby Modes ➜ DTS Digital Modes ➜ DSP Modes ➜ Stereo Modes ➜ Logic 7 Modes

Once the button is pressed so that the name of the desired surround mode group appears in the **Lower Display Line 24**, press the **Surround Mode Selector 13** to cycle through the individual modes available. For example, press this button to select Dolby modes, and then press the **Surround Mode Selector 13** to choose from the various mode options.

8 Tuning Selector: 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, MANUAL TUNED or AUTO TUNED will appear in the **Main Information Display 24** (see page 25 for more information on tuning stations).

9 Tuner Band Selector: Pressing this button will automatically switch the AVR to the Tuner mode. Pressing it again will switch between the AM and FM frequency bands, holding it pressed for some seconds will switch between stereo and mono receiving and between automatic and manual tuning mode (See page 25 for more information on the tuner).

10 Preset Stations Selector: Press this button to scroll up or down through the list of stations that have been entered into the preset memory. (See page 25 for more information on tuner programming.)

11 Input Source Selector: Press this button to change the input by scrolling through the list of input sources.

12 RDS Select Button: Press this button to display the various messages that are part of the RDS data system of the AVR's tuner. (See page 26 for more information on RDS).

13 Surround Mode Selector: Press this button to select from among the available surround mode options for the mode group selected. The specific modes will vary based on the number of speakers available, the mode group and if the input source is digital or analog. For example, press the **Surround Mode Group Selector 7** to select a mode grouping such as Dolby or Logic 7, and then press this button to see the mode choices available. For more information on mode selection, see page 22.

14 Surround Mode Indicators: A blue LED will light in front of the surround mode that is currently in use.

15 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.

16 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.

17 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.

18 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.

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

20 Set Button: When making choices during the setup and configuration process, press this button to enter the desired setting as shown in the **Main Information Display 24** into the AVR's memory. The set button may also be used to change the display brightness. (See page 25.)

21 Input indicators: A blue LED will light in front of the input that is currently being used as the source for the AVR.

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

23 Digital Input Selector: When playing a source that has a digital output, press this button to select between the **Optical 22** and **Coaxial 10 Digital** inputs. (See pages 22-24 for more information on digital audio.)

24 Main Information Display: This display delivers messages and status indications to help you operate the receiver.

25 Channel Select Button: Press this button to begin the process of trimming the channel output levels using an external audio source. (For more information on output level trim adjustment, see page 24.)

26 Speaker Select Button: Press this button to begin the process of selecting the speaker positions that are used in your listening room. (See page 15 for more information on setup and configuration.)

27 Digital Optical 3 Input: Connect the optical digital audio output of an audio or video product to this jack. When the Input is not in use, be certain to keep the plastic cap installed to avoid dust contamination that might degrade future performance.

28 Digital Coax 3 Input: This jack is normally used for connection to the output of portable digital audio devices, video game consoles or other products that have a coax digital jack.

29 Video 3 Input Jacks: These audio/video jacks may be used for temporary connection to video games or portable audio/video products such as camcorders and portable audio players.

30 Speaker/Channel Input Indicators: These indicators are multipurpose, indicating either the speaker type selected for each channel or the incoming data-signal configuration. The left, center, right, right surround and left surround speaker indicators are composed of three boxes, while the subwoofer is a single box. The center box lights when a "Small" speaker is selected, and the two outer boxes light when "Large" speakers are selected. When none of the boxes are lit for the center, surround or subwoofer channels, no speaker has been selected for that position. (See page 15 for more information on configuring speakers.) The letters inside each of the center boxes display active input channels. For standard analog inputs, only the L and R will light, indicating a stereo input. When a digital source is playing, the indicators will light to display the channels begin received at the digital input. When the letters flash, the digital input has been interrupted. (See page 15 for more information on the Channel Indicators).

Rear Panel Connections
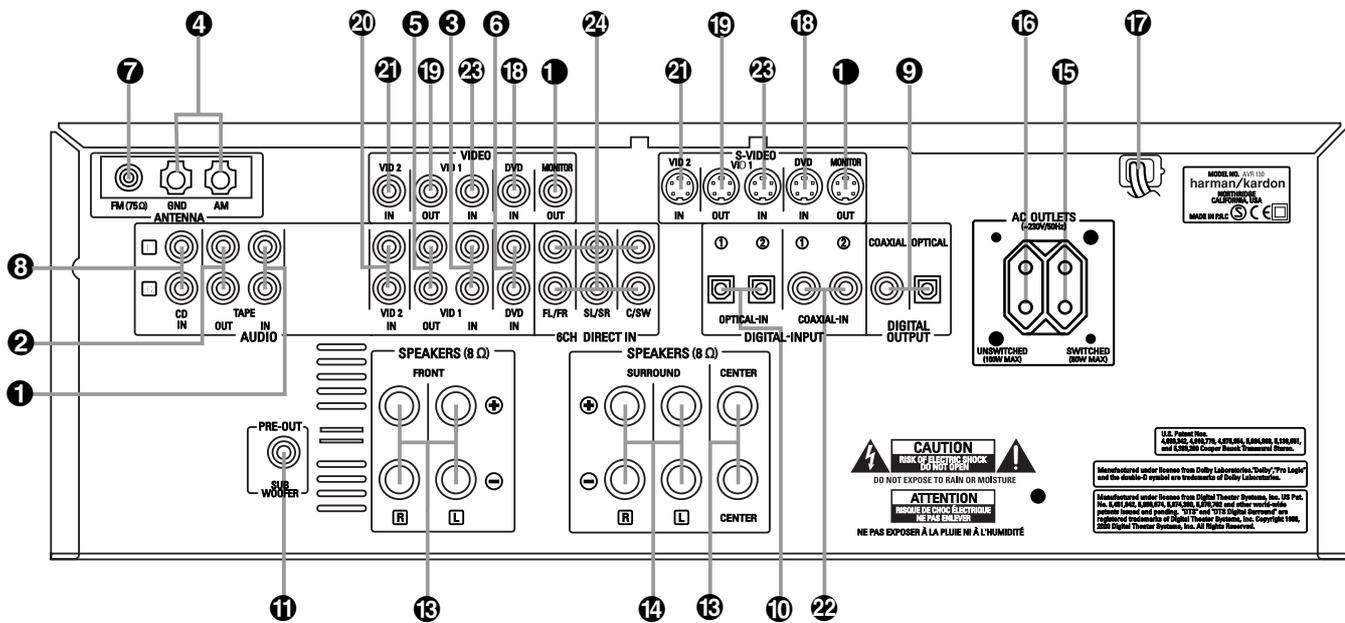
❶ Tape Inputs
❷ Tape Outputs
❸ Video 1 Audio Inputs
❹ AM Antenna
❺ Video 1 Audio Outputs
❻ DVD Audio Inputs
❼ FM Antenna
❽ CD Inputs
❾ Digital Audio Outputs
❿ Coaxial Digital Inputs
⓫ Subwoofer Output
⓬ Video Monitor Outputs

⓭ Front/Center Speaker Outputs
⓮ Surround Speaker Outputs
⓯ Switched AC Accessory Outlet
⓰ Unswitched AC Accessory Outlet
⓱ AC Power Cord
⓲ DVD Video Inputs
⓳ Video 1 Video Outputs
⓴ Video 2 Audio Inputs
㉑ Video 2 Video Inputs
㉒ Optical Digital Inputs
㉓ Video 1 Video Inputs
㉔ 6-Channel Direct Inputs

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

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

❸ **Video 1 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on a VCR or other video source.

❹ **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.

❺ **Video 1 Audio Outputs:** Connect these jacks to the **RECORD/INPUT** audio jacks on a VCR or any other Audio recorder.

❻ **DVD Audio Inputs:** Connect these jacks to the analog audio jacks on a DVD or other video source.

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

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

❾ **Digital Audio Outputs:** Connect these jacks to the matching digital input connector on a digital recorder such as a CD-R or MiniDisc recorder.

❿ **Coaxial Digital Inputs:** Connect the coax digital output from a DVD player, HDTV receiver, LD player, MD player or CD player to these jacks. The signal may be either a Dolby Digital signal, DTS signal or a standard PCM digital source. Do not connect the RF digital output of an LD player to these jacks.

⓫ **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.

Rear Panel Connections

⓬ **Video Monitor Outputs:** Connect these jacks to the composite and/or S-Video input of a TV monitor or video projector to view the output of any video source selected by the receiver's video switcher.

⓭ **Front/Center Speaker Outputs:** Connect these outputs to the matching + or – terminals on your front/center speakers. When making speaker connections, always make certain to maintain correct polarity by connecting the red (+) terminals on the AVR to the red (+) terminals on the speaker and the black (–) terminals on the AVR to the black (–) terminals on the speakers. (See page 14 for more information on speaker polarity.)

⓮ **Surround Speaker Outputs:** Connect these outputs to the matching + or – terminals on your left and right surround speakers. When making speaker connections always make certain to maintain correct polarity by connecting the red (+) terminals on the AVR to the red (+) terminals on the speakers and the black (–) terminals on the AVR to the black (–) terminals on the speakers. See page 14 for more information on speaker polarity.

⓯ **Switched AC Accessory 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**.

⓰ **Unswitched AC Accessory Outlet:** This outlet may be used to power any AC device. The power will remain on at this outlet regardless of whether the AVR is on or off (in Standby), provided that the **Main Power** switch **1** is on.

Note: The total power consumption of all devices connected to the accessory outlets should not exceed 100 watts from the **Unswitched Outlet** ⓰ and 50 W from the **Switched Outlet** ⓯.

⓱ **AC Power Cord:** Connect the AC plug to an unswitched AC wall output.

⓲ **DVD Video Inputs:** Connect these jacks to the composite or S-Video output jacks on a DVD player or other video source.

⓳ **Video 1 Video Outputs:** Connect these jacks to the **RECORD/INPUT** composite or S-Video jack on a VCR.

⓴ **Video 2 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on a VCR or other video source.

㉑ **Video 2 Video Inputs:** Connect these jacks to the **PLAY/OUT** composite or S-Video jacks on a second VCR or other video source.

㉒ **Optical Digital Inputs:** Connect the optical digital output from a DVD player, HDTV receiver, LD player, MD player or CD player to these jacks. The signal may be either a Dolby Digital signal, a DTS signal or a standard PCM digital source.

㉓ **Video 1 Video Inputs:** Connect these jacks to the **PLAY/OUT** composite or S-Video jacks on a VCR or other video source.

Note: Either the Video or S-Video output of any S-Video source must be connected to the AVR, not both in parallel, otherwise the video may be disturbed or its performance be adversely effected.

㉔ **6-Channel Direct Inputs:** These jacks are used for connection to source devices such as DVD-Audio or SACD players with discrete analog outputs.

Remote Control Functions

1. Power On Button
2. IR Transmitter Window
3. Program Indicator
4. Power Off Button
5. Input Selectors
6. AVR Selector
7. AM/FM Tuner Select
8. Test Button
9. Sleep Button
10. Surround Mode Selector
11. Night Mode
12. Channel Select Button
13. ▲/▼ Buttons
14. ◄ Button
15. Set Button
16. Digital Select
17. Numeric Keys
18. Tuner Mode
19. Direct Button
20. Tuning Up/Down
21. Macro Buttons
22. Transport Controls
23. Skip Up/Down Buttons
24. RDS Select Button
25. Preset Up/Down
26. Clear Button
27. Memory Button
28. Delay/Prev. Ch.
29. ► Button
30. Speaker Select
31. Spare Button
32. Volume Up/Down
33. TV/Video Selector
34. Mute
35. Dim Button
36. Dolby Mode Select Button
37. DTS Digital Mode Select Button
38. Logic 7 Mode Select Button
39. Stereo Mode Select Button
40. DTS Neo:6 Mode Select Button
41. 6-Channel Direct Input
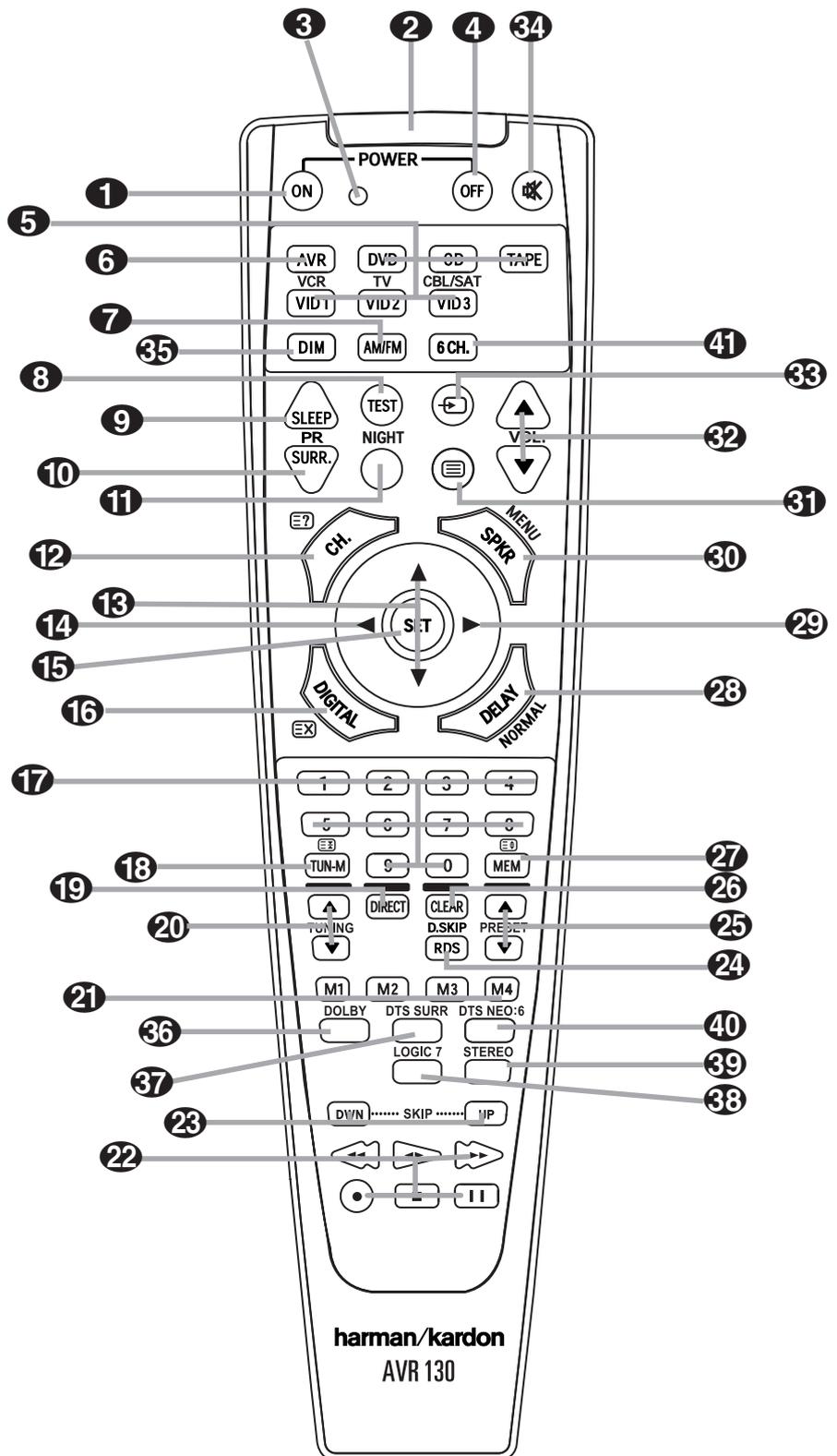
NOTE: The function names shown here are each button's feature when used with the AVR. Most buttons have additional functions when used with other devices. See page 30 and 31 for a list of these functions.

Remote Control Functions

IMPORTANT NOTE: The AVR's remote may be programmed to control up to seven devices, including the AVR. Before using the remote, it is important to remember to press the **Input Selector** button ➎ that corresponds to the unit you wish to operate. In addition, the AVR's remote is shipped from the factory to operate the AVR and most Harman Kardon CD or DVD players and cassette decks. The remote is also capable of operating a wide variety of other products using the control codes that are part of the remote. Before using the remote with other products, follow the instructions on pages 27 to program the proper codes for the products in your system.

It is also important to remember that many of the buttons on the remote take on different functions, depending on the product selected using the Input Selectors. The descriptions shown here primarily detail the functions of the remote when it is used to operate the AVR. (See page 30 and 31 for information about alternate functions for the remote's buttons.)

❶ **Power On Button:** Press this button to turn on the power to a device selected by pressing one of the **Input Selectors** ➎ (except Tape).

❷ **IR Transmitter Window:** Point this window towards the AVR when pressing buttons on the remote to make certain that infrared commands are properly received.

❸ **Program Indicator:** This three-color indicator is used to guide you through the process of programming the remote. See page 27 for information on programming the remote.

❹ **Power Off Button:** Press this button to place the AVR or a selected device unit in the Standby mode.
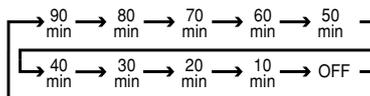
❺ **Input Selectors:** Pressing one of these buttons will perform three actions at the same time. First, if the AVR is not turned on, this will power up the unit. Next, it will select the source shown on the button as the input to the AVR. Finally, it will change the remote control so that it controls the device selected. After pressing one of these buttons you must press the **AVR Selector** button ➏ again to operate the AVR's functions with the remote.

❻ **AVR Selector:** Pressing this button will switch the remote so that it will operate the AVR's functions. If the AVR is in the Standby mode, it will also turn the AVR on.

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

❽ **Test Tone:** Press this button to begin the sequence used to calibrate the AVR's output levels. (See page 19 for more information on calibrating the AVR.)

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

```
→ 90    → 80    → 70    → 60    → 50
   min      min      min      min      min

↳ 40    → 30    → 20    → 10    → OFF
   min      min      min      min
```

Hold the button pressed for two seconds to turn off the Sleep mode setting.
Note that this button is also used to change channels on your TV, VCR and SAT receiver when selected.

❿ **Surround Mode Selector:** Press this button to begin the process of changing the surround mode. After the button has been pressed, use the ▲/▼ buttons ⓭ to select the desired surround mode (See page 22 for more information). Note that this button is also used to tune channels when the TV, VCR and SAT receiver is selected using the **Input Selector** ➎.

⓫ **Night Mode:** Press this button to activate the Night mode. This mode is available only with Dolby Digital encoded digital sources, and it preserves dialog (center channel) intelligibilty at low volume levels (See page 24 for more information).

⓬ **Channel Select Button:** This button is used to start the process of setting the AVR's output levels with an external source. Once this button is pressed, use the ▲/▼ buttons ⓭ to select the channel being adjusted, then press the **Set** button ⓯, followed by the ▲/▼ buttons again, to change the level setting. (See page 25 for more information.)

⓭ **▲/▼ Buttons:** These are multi-purpose buttons. They will be used most frequently to select a surround mode. These buttons are also used to increase or decrease output levels when configuring the unit, to select speaker configuration or to select the digital inputs. They are also used to enter delay time settings after the **Delay** button ㉚ has been pressed.

When the AVR remote is being programmed for the codes of another device, these buttons are also used in the "Auto Search" process (See page 27 for more information on programming the remote.)

⓮ **◄ Button:** This button does not have a function with the AVR. When a DVD player or TV is selected, it may be used to navigate the menus of those devices.

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

⓰ **Digital Select:** Press this button to assign one of the digital inputs ㉗㉘❿㉒ to a source. (See page 23 for more information on using digital inputs.)

⓱ **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**, **VCR** or **Sat** receiver 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.

⓲ **Tuner Mode:** Press this button when the tuner is in use to select between automatic tuning and manual tuning. When the button is pressed so MANUAL appears in the **Main Information Display** ㉔, pressing the **Tuning** buttons ⓴❽ will move the frequency up or down in single-step increments. When the FM band is in use and AUTO appears in the **Main Information Display** ㉔, pressing this button will change to monaural reception making even week stations audible. (See page 25 for more information.)

⓳ **Direct Button:** Press this button when the tuner is in use to start the sequence for direct entry of a station's frequency. After pressing the button simply press the proper **Numeric Keys** ⓱ to select a station (See page 25 for more information on the tuner).

⓴ **Tuning Up/Down:** When the tuner is in use, these buttons will tune up or down through the selected frequency band. If the **Tuner Mode** button ⓲ has been pressed or the **Band** button ❾ on the front panel was held pressed so that AUTO appears in the **Main Information Display** ㉔, pressing either of the buttons will cause the tuner to seek the next station with acceptable signal strength for quality reception. When the MANUAL appears in the **Main Information Display** ㉔, pressing these buttons will tune stations in single-step increments. (See page 25 for more information.)

Remote Control Functions

㉑ Macro Buttons: Press these buttons to store or recall a "Macro", which is a pre-programmed sequence of commands stored in the remote. (See page 28 for more information on storing and recalling macros.)

㉒ Transport Buttons: These buttons do not have any functions for the AVR, but they may be programmed for the forward/reverse play operation of a wide variety of CD or DVD players, and audio or video- cassette recorders. (See page 27 for more information on programming the remote.)

㉓ Skip Up/Down Buttons: These buttons do not have a direct function with the AVR, but when used with a compatibly programmed CD or DVD changer they will change the tracks on the disc currently being played in the changer.

㉔ RDS Select Button: Press this button to display the various messages that are part of the RDS data system of the AVR 's tuner. (See page 26 for more information on RDS).

㉕ Preset Up/Down: When the tuner is in use, press these buttons to scroll through the stations programmed into the AVR 's memory. When CD or DVD is selected using the **Input Selector** button ❺, these buttons may function as Slow Fwd/Rev (DVD) or "+10" (CD).

㉖ Clear Button: Press this button to clear incorrect entries when using the remote to directly enter a radio station's frequency.

㉗ Memory Button: Press this button to enter a radio station into the AVR 's preset memory. Two underline indicators will flash at the right side of the **Main Information Display ㉔**, you then have five seconds to enter a preset memory location using the **Numeric Keys ⑰**. (See page 25 for more information.)

㉘ Delay/Prev Ch.: Press this button to begin the process for setting the delay times used by the AVR when processing surround sound. After pressing this button, the delay times are entered by pressing the **Set** button ⑮ and then using the ▲/▼ buttons ⑬ to change the setting. Press the Set button again to complete the process. (See page 18 for more information.)

㉙ ▶ Button: This button does not have a function with the AVR. When a DVD player or TV is selected, it may be used to navigate the menus of those devices.

㉚ Speaker Select: Press this button to begin the process of configuring the AVR's Bass Management System for use with the type of speakers used in your system. Once the button has been pressed, use the ▲/▼ buttons ⑬ to select the channel you wish to set up. Press the **Set** button ⑮ and then select the speaker type (see page 15 for more information.)

㉛ Spare Button: This button does not have any function for the operation of the AVR, but it is available for use when programmed with the code from another remote. (See page 27).

㉜ Volume Up/Down: Press these buttons to raise or lower the system volume.

㉝ TV/Video Button: This button does not have a direct function on the AVR, but when used with a compatibly programmed VCR, DVD or satellite receiver that has a "TV/Video" function, pressing this button will switch between the output of the player or receiver and the external video input to that player. Consult the Owner's Manual for your specific player or receiver for the details of how it implements this function.

㉞ Mute: Press this button to momentarily silence the AVR or TV set being controlled, depending on which device has been selected.

When the AVR remote is being programmed to operate another device, this button is pressed with the **Input Selector** button ❺ to begin the programming process. (See page 27 for more information on programming the remote.)

NOTE: As any of the remote buttons pressed is active with the device selected, the corresponding **Selector** button ❺ ❻ will briefly flash red to confirm your selection.

㉟ Dim Button: Press this button to activate the Dimmer function, which reduces the brightness of the front panel display, or turn it off entirely. The first press of the button shows the default state, which is full brightness by indicating ⅅⅈⅯⅯⅇⅆⅇⅆⅎⅇⅆⅇ in the **Main Information Display ㉔**. Press the button again within five seconds to reduce the brightness by 50%, as indicated by ⅅⅈⅯⅯⅇⅆ Ⅾⅇⅆⅇ. Press the button again within five seconds and the main display will go completely dark. Note that this setting is temporary; the display will always return to full brightness when the AVR is turned on. In addition,both the **Power Indicator ③** and the blue accent lighting inside the volume control will always remain at full brightness regardless of the setting. This is to remind you that the AVR is still turned on.
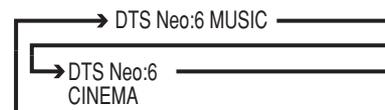
㊱ Dolby Mode Selector: This button is used to select one of the available Dolby Surround processing modes. Each press of this button will select one of the Dolby Pro Logic II modes, Dolby 3 Stereo or Dolby Digital. Note that the Dolby Digital mode is only available with a digital input selected and the other modes only as long as a Dolby Digital source is not playing . See page 21 for the available Dolby surround mode options.

㊲ DTS Digital Mode Selector: When a DTS source is in use the AVR will select the appropriate mode automatically and no other mode will be available. Pressing this button will display the mode currently selected by the AVR's decoder, depending on the surround material played and the speaker setting.

㊳ Logic 7 Selector: Press this button to select one of the available Logic 7 surround modes. (See page 21 for the available Logic 7 options).

㊴ Stereo Mode Selector: Press this button to select a stereo playback mode. When the button is pressed so that ⅅⅈⅤ Ⅾ ⅆⅉ appears in the **Main Information Display ㉔**, the AVR will operate in a bypass mode with true fully analog, two-channel left/right stereo mode with no surround processing or bass management as opposed to other modes where digital processing is used. When the button is pressed so that ⅅⅈⅣⅈⅈⅇⅆ ⅆⅉⅆⅉ appears in the **Main Information Display ㉔**, you may enjoy a two-channel presentation of the sound along with the benefits of bass management. When the button is pressed so that ⅆ ⅈⅈⅆⅉⅈⅇⅆⅇ appears, the stereo signal is routed to all five speakers, if installed.(See page 18 for more information on stereo playback modes).

㊵ DTS Neo:6 Mode Selector: Pressing this selector button cycles the AVR through the various DTS Neo:6 modes, which extract a five-channel surround field from two-channel program material (from PCM source or analog input signal). The first press selects the last DTS Neo:6 surround mode that was in use, and each subsequent press selects the next mode in the following order:

```
   ┌─────────→ DTS Neo:6 MUSIC ─────────┐
   │                                     │
   │  ┌──→ DTS Neo:6 ─────────────────┐  │
   │  │       CINEMA                  │  │
```

㊶ 6-Channel Direct Input: Press this button to select the component connected to the **6-Channel Direct Input ㉔** as the audio. Note that when you wish to use the Six Channel Direct Input in conjunction with a video source, you must first select the video source by pressing one of the Input Selectors ❺. Then press this button to choose the **6-Channel Direct Input ㉔** as the audio source.

Installation and Connections

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 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.

Important Note : In order to clearly identify all connectors and simplify nstallation, as per the new EIA/CEA-863 standard, all connections are colour coded as follows:
For Speakers and Audio In/Outputs: White (Left, speakers front) and Red (Right, speakers front).
For Speakers: Green (Center), Blue (Left Surround) and Grey (Right Surround).
For Audio Output: Purple (Subwoofer).
For Composite Video In/Outputs: Yellow.
For Digital Audio In/Outputs: Orange.

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

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 Input** jacks ❶. Connect the analog Record/In jacks on the recorder to the **Tape Output** jacks ❷ on the AVR.

3. Connect the output of any digital sources to the appropriate input connections on the AVR rear panel. Note that the **Optical** and **Coaxial** digital inputs ㉒❿ ㉗ ㉘ may be used with a Dolby Digital or DTS source or the output of a conventional CD, MD or LD player's PCM (S/P-DIF) output.

4. Connect the **Coaxial or Optical Digital Outputs** ❾ on the rear panel of the AVR to the matching digital input connections on a CD-R or MiniDisc recorder.

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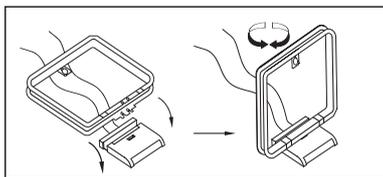
6. Connect the supplied FM antenna to the **FM (75 ohm)** connection ❼. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you must use a 300-ohm-to-75-ohm adapter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

7. Connect the front, center and surround speaker outputs ⓭⓮ 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 an area greater than 2 mm^2.

Cable with an area of 1.5 mm^2 may be used for short runs of less than 4 m. We do not recommend that you use cables with an area less than 1mm^2 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 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 and speaker.

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.

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.

8. Connections to a subwoofer are normally made via a line level audio connection from the **Subwoofer Output** ⓫ 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.

Note: Speaker sets with two front satellites and a passive subwoofer must be connected to the front speaker outputs ⓭ only rather than to the **Subwoofer Output** ⓫.

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. To ensure best video performance S-Video sources should be connected to the AVR only with their S-Video In/Outputs, not with their composite video connectors too.

1. Connect a VCR's audio and video Play/Out jacks to the **Video 1** or **Video 2 In** jacks ❸ ㉑ ㉓ ⑳ on the rear panel. The Audio and Video Record/In jacks on the VCR should be connected to the **Video 1 Out** jacks ❺ ⑲ on the AVR.

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** ㉑ ⑳.

3. Connect the analog audio and video outputs of a DVD or laser disc player to the **DVD** jacks ❻ ⑱.

4. Connect the **Video Monitor Out** ⑫ jacks on the receiver to the composite and S-Video input of your television monitor or video projector.

Video Connection Note:
• S-Video or Composite video signals may only be viewed in their native formats and will not be converted to the other format.

Installation and Connections

SCART A/V Connections

For the connections described above your video device needs RCA (cinch) connectors or/and S-Video connectors for all Audio and Video signals: Any normal video device (Not SVHS or High 8) for only playback needs 3 RCA jacks, VCRs for record and playback even 6 RCA jacks. Any S-Video device (SVHS, High 8) needs 2 RCA (Audio) and 1 S-Video jack (Video), if it´s a playback unit, or 4 RCA (Audio In/Out) and 2 S-Video (Video In/Out) jacks, if it´s a recording VCR.

Many european video devices are equipped with RCA (Cinch) or S-Video jacks only partially, not with all audio and video in/outputs needed as described above, but with a so called Scart or Euro-AV connector (almost rectangular jack with 21 pins, see drawings on this page).
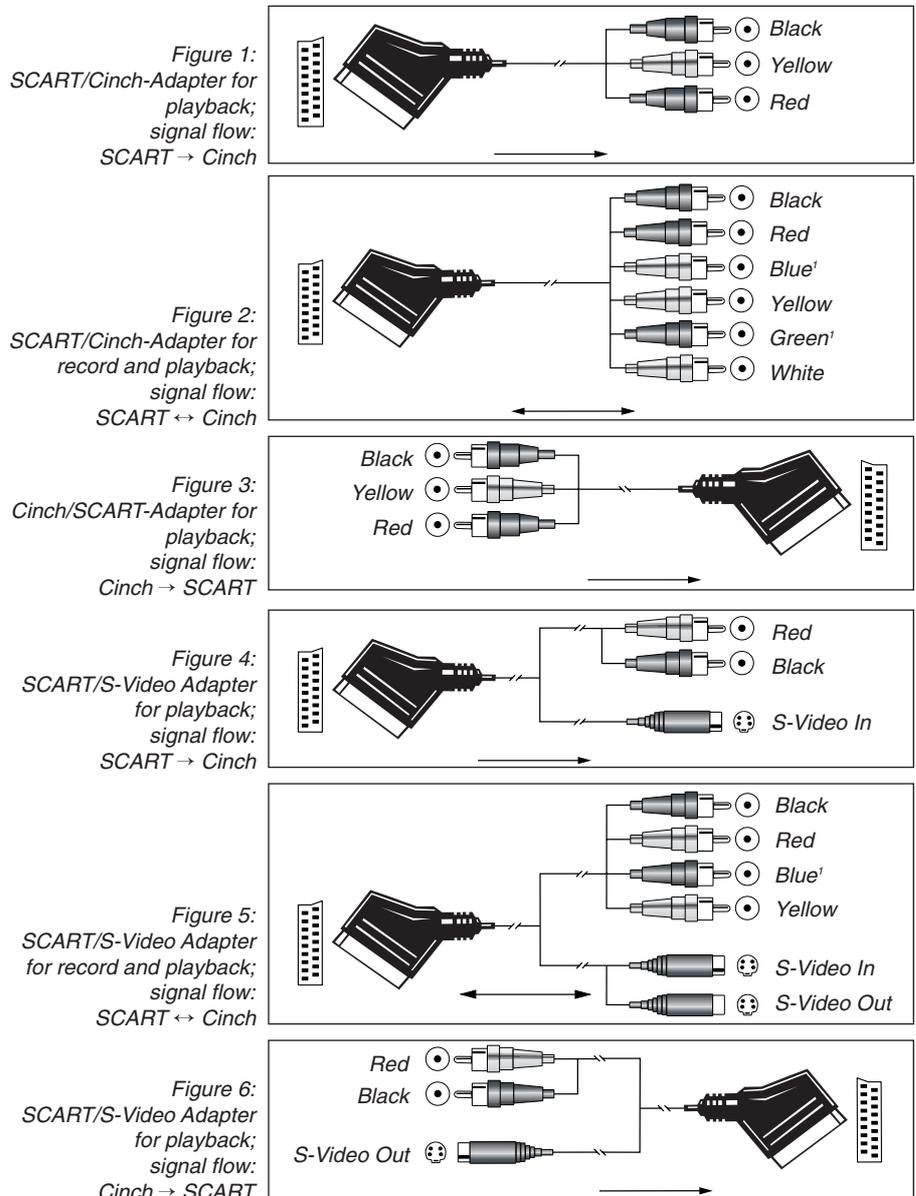
In that case the following Scart to Cinch adapters or cables are needed:

- Units for playback, such as satellite receivers, camcorders, DVD or LD players, need an adapter from Scart to 3 RCA plugs, see fig. 1 (normal video devices) or from Scart to 2 RCA+1 S-Video plugs, see fig. 4 (S-Video devices).

- HiFi VCRs need an adapter from Scart to 6 RCA plugs, see fig. 2 (normal video), or from Scart to 4 Audio+2S-Video jacks, see fig. 5 (S-Video VCR). Read carefully the instruction attached to the adapter to find which of the six plugs is used for the record signal to the VCR (connect with the AVR´s Out jacks) and for the playback signal from the VCR (connect with the AVR´s In jacks). Do not misconnect Audio and Video signals. Don´t hesitate to consult your dealer, if you are uncertain.

- If you use only normal video devices the TV monitor needs an adapter from 3 RCA plugs to Scart (fig. 3) only. If also S-Video devices are used an adapter from 2 RCA+1S-Video plugs to Scart is needed additionally (fig. 6), connected to the SCART input on your TV that is provided for S-Video.

Note that only the video plugs (the "yellow" cinch plug in fig. 3 and the S-Video plug in fig. 6) must be connected to the **TV Monitor Output** ⓬, and the volume on the TV must be reduced to minimum.

Important Note for Adapter Cables:
If the cinch connectors of the adapter you'll use are labeled, connect the Audio and Video "In" plugs with the corresponding Audio and Video "In" jacks on the AVR (and with a VCR connect the "Out" plugs to the "Out" jacks on the AVR). Note that with some adapter types it may be just turned around: If no signal is audible/ visible when the VCR is playing connect the "Out" plugs to the "In" jacks on the AVR and turned around. If the adapter plugs are not labeled in that way, pay attention to the signal flow directions as

Figure 1:
SCART/Cinch-Adapter for playback;
signal flow:
SCART → Cinch

Black
Yellow
Red

Figure 2:
SCART/Cinch-Adapter for record and playback;
signal flow:
SCART ↔ Cinch

Black
Red
Blue[1]
Yellow
Green[1]
White

Figure 3:
Cinch/SCART-Adapter for playback;
signal flow:
Cinch → SCART

Black
Yellow
Red

Figure 4:
SCART/S-Video Adapter for playback;
signal flow:
SCART → Cinch

Red
Black
S-Video In

Figure 5:
SCART/S-Video Adapter for record and playback;
signal flow:
SCART ↔ Cinch

Black
Red
Blue[1]
Yellow
S-Video In
S-Video Out

Figure 6:
SCART/S-Video Adapter for playback;
signal flow:
Cinch → SCART

Red
Black
S-Video Out

[1] *Also other colours possible, e.g. brown and grey.*

shown in the diagrams above and in the instruction attached to the adapter. If uncertain, don't hesitate to consult your dealer.

Important Notes for S-Video connections:
1. Only the S-Video In/Out of S-Video devices must be connected to the AVR, NOT both, normal video and S-Video In/Outputs (except the TV, see item 2).

2. Like most common AV units the AVR does not convert the Video signal to S-Video or vice versa. Thus both connections must be made from the AVR to the TV if both, Video and S-Video sources, are used, and the appropriate input on the TV must be selected.

Important Note for the Use of SCART-Cinch Adapters:
When video sources are connected to the TV directly with a SCART cable, specific control signals apart from Audio/Video signals will be fed to the TV. These specific signals are: With all video sources, the signal for automatic input selection that switches the TV automatically to the appropriate input as soon as the video source is started. And with DVD players, the signals automatically turning the TV to 4:3/16:9 format (with 16:9 TVs or 4:3 TVs with 16:9 capability) and turning the RGB video decoder of the TV on or off, depending on the DVD player´s setting. With any adapter cable, these control signals will be lost and the appropriate setting of the TV must be made manually.

Installation and Connections

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 with high-current draw equipment such as power amplifiers. The total power draw to the **Unswitched** Outlet ⑯ must not exceed 100 watts, that to the **Switched** Outlet ⑮ 50 watts.

The **Switched** ⑮ outlet will receive power only when the unit is on completely. 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 turn to Standby mode only when they are used with switched outlets, and cannot be fully turned on using the outlet alone without a remote control command.

The **Unswitched** ⑯ outlet will receive power as long as the unit is plugged into a powered AC outlet and the **Main Power** Switch ❶ is on.

Finally, when all connections are complete, plug the power cord into a nonswitched 220-240-volt AC wall outlet. You're almost ready to enjoy the AVR 130!

Speaker Selection

No matter which type or brand of speakers is used, the same model or brand of speaker should be used at least 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

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

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 60cm above or below the tweeter in the center-channel speaker.

They should also be at least 0.5 meter from your TV set unless the speakers are magnetically shielded to avoid colourings on the TV screen. Note that most speakers are not shielded, even with complete surround sets only the Center speaker may be.

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.

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 you.

If side-wall mounting is not practical, the speakers may be placed on a rear wall, behind the listening position. The speakers should be no more than two meters behind the rear of the seating area.

Subwoofers produce largely 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 15cm 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.
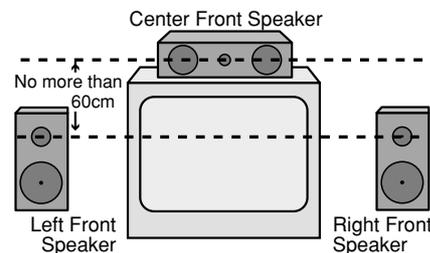
A) Front Channel Speaker Installation with Direct-View TV Sets or Rear-Screen Projectors
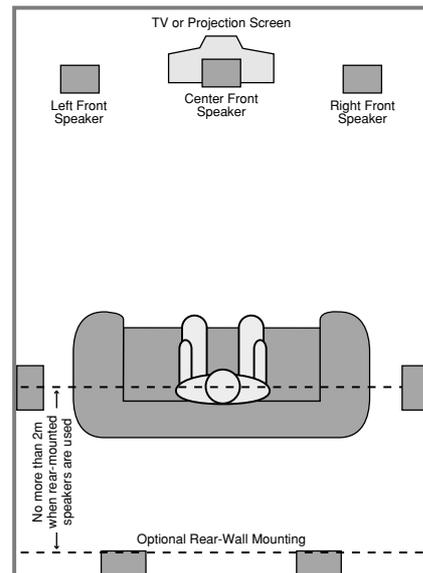
B) The distance between the left and right speakers should be equal to the distance from the seating position to the viewing screen. You may also experiment with placing the left and right speakers slightly forward of the center speaker.

System Configuration

Once the speakers have been placed in the room and connected, the remaining steps are to program the system configuration memories. With the AVR two kind of memories are used, those associated individually with the input selected, e.g. surround modes, and others working independently from any input selected like speaker output levels, or delay times used by the surround sound processor.

First Turn On

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

1. Plug the **Power Cable** ⑰ into an un-switched AC outlet.

2. Press the **Main Power Switch** ❶ in until it latches and the word "OFF" on the top of the switch disappears inside the front panel. Note that the **Power Indicator** ❸ will turn orange, indicating that the unit is in the Standby mode.

3. Remove the protective plastic film from the front-panel lens. If left in place, the film may affect the performance of your remote control.

4. Install the three 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.
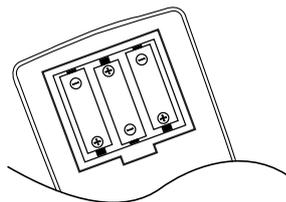
5. Turn the AVR on either by pressing the **System Power Control** ❷ or the **Input Source Selector** ⑪ on the front panel, or via the remote by pressing the **AVR Selector** ❻ or any of the **Input Selectors** ❺ ❼ on the remote. The **Power Indicator** ❸ will turn blue to confirm that the unit is on, and the **Main Information Display** ㉔ will also light up.

Settings to be Made With Each Input Used

The AVR features an advanced memory system that enables you to establish different settings for the speaker configuration, digital input, surround mode, delay times and output levels for each input source. This flexibility enables you to custom tailor the way in which you listen to each source and have the AVR memorize them. This means, for example, that you may associate different surround modes and analog or digital inputs with different sources, or set different speaker configurations with the resultant changes to the bass management system or the use of the Center speaker. Once these settings are made, they will automatically be recalled whenever you select an input.

The default settings for the AVR, as it is shipped from the factory, have all inputs set for an analog source (except for the DVD input, which has the **Coaxial Digital Input 1** ⑩ as the default), with Logic 7 Music as the surround mode, all speaker positions set to "small", and a subwoofer connected. Before using the unit, you will probably want to change these settings for most inputs so that they are properly configured to reflect the use of digital or analog inputs, the type of speakers installed and the surround mode associated with the input.

Input Setup

The first step in configuring the AVR is to select an input. This may be done by pressing the front panel **Input Source Selector** ⑪ until the desired input's name appears in the **Main Information Display** ㉔, and the blue LED lights next to the input's name in the front panel **Input Indicators** ㉑. The input may also be selected by pressing the appropriate Input Selector on the remote control ❺ ❼.

The second step is to associate one of the digital inputs with the selected input source (if this is needed, otherwise the selected analog input will remain). Press the **Digital Input Select** button ㉓ ⑯ on the front panel or the remote. Within five seconds, make your input selection using the **Selector** buttons on the front panel ❺ or the ▲/▼ buttons ⑬ on the remote until the desired digital or analog input is shown in the **Main Information Display** ㉔. Then press the **Set** button ⑮ to enter the new digital input assignment.

After the setting has been made with one input, repeat as described above with all inputs in use. The digital input associated with the input selected can also be changed at any time later and the AVR's memory system will keep the settings until they are changed again.

Speaker Setup

This setup tells the AVR which type of speakers are in use. This is important as it adjusts the settings that determine which speakers receive low frequency (bass) information and whether a Center speaker should be used or not, separately for each input used. 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" front (left and right) speakers are used, a subwoofer is required 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.

System Configuration

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

1. Press the **Speaker** button ❸⓿ ㉖ on the remote or front panel. The words SPEAKER SIZE will appear in the **Main Information Display** ㉔.

2. Press the **Set** button ⓯ ⓴.

3. When FRONT SPEAKER appears in the **Main Information Display** ㉔ press the **Set** button ⓯ ⓴ to continue.

4. Press the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel until either FRONT LARGE or FRONT 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 front channel sounds will be sent only to the subwoofer output. 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. This setting is not available with stereo mode to ensure purest sound by bypassing the crossovers of the DSP's.

When LARGE is selected, a full-range output will be sent to the front left and front right outputs. Depending on the subwoofer configuration (see below), the front left and right bass information may also be directed to a subwoofer.

Important Note: When a speaker set with two front satellites and a passive subwoofer is used, connected to the **front speaker outputs** ⓭, the fronts must be set for LARGE.

5. When you have completed your selection for the front channels, press the **Set** button ⓯ ⓴, and then press the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to change the display to CENTER SPEAKER.

6. Press the **Set** button ⓯ ⓴ again, and use the ▲/▼ buttons ⓭ on the remote, or the **Selector** buttons ❺ on the front panel, to select the option that best describes your system based on the Center speaker definitions shown in preceding section.

When SMALL is selected, low frequency center channel sounds will be sent to the Fronts, if they are set for LARGE and Sub is turned off. When Sub is on, low frequency center channel sounds will be sent to the subwoofer only.

When LARGE is selected, a full-range output will be sent to the center speaker output, and with analog and digital surround modes (except with the Pro Logic II Music mode) NO center channel signal will be sent to the subwoofer output.

When NONE is selected, no signal 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 and its bass will be sent to the subwoofer output too as long as SUB L/R+LFE is selected in the SUBWOOFER line in this menu (see below). This mode is needed if no Center speaker is used. Note that for the use of Logic 7C surround mode a Center speaker is needed, but Logic 7M works well without a Center too.

7. When you have completed your selection for the center channel, press the **Set** button ⓯ ⓴, and then press the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to change the display to SURR SPEAKER.

8. Press the **Set** button ⓯ ⓴ again, and then use the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to select the option that best describes your system based on the Surround speaker definitions shown in preceding section.

When SMALL is selected, with all digital surround modes low frequency surround channel sounds will be sent to the Fronts, when Sub is turned off, or to the subwoofer output when Sub is on. With the analog surround modes the rear bass feed depends on the mode selected and the setting of the sub and front speakers.

When LARGE is selected, a full-range output will be sent to the surround channel outputs (with all analog and digital surround modes), and, except with Hall and Theater modes, NO surround channel bass will be sent to the subwoofer output.

When 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.

9. When you have completed your selection for the surround channel, press the **Set** button ⓯ ⓴, and then press the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to change the display to S-W SPEAKER.

10. Press the **Set** button ⓯ ⓴, and then press the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to select the option that best describes your Subwoofer system.

The choices available for the subwoofer position will depend on the settings for the other speakers, particularly the front left/right positions.

If the front left/right speakers are set to SMALL, the subwoofer will automatically be set to SUB, which is the "on" position.

If the front left/right speakers are set to LARGE, three options are available:

• If no subwoofer is connected to the AVR, press the arrow buttons ⓭ ❺ so that SUB NONE appears in the display. When this option is selected, all bass information will be routed to the front left/right "main" speakers.

• If a subwoofer is connected to the AVR, you have the option to have the front left/right "main" speakers reproduce bass frequencies at all times, and have the subwoofer operate only when the AVR is being used with a digital source that contains a dedicated Low Frequency Effects, or LFE soundtrack. This allows you to use both your main and subwoofer speakers to take advantage of the special bass created for certain movies. To select that option press the arrow buttons ⓭ ❺ so that SUB LFE appears in the display.

• If a subwoofer is connected and you wish to use it for bass reproduction in conjunction with the main front left/right speakers, regardless of the type of program source or surround mode you are listening to, press the arrow buttons ⓭ ❺ so that SUB L/R+LFE appears in the display. When this option is selected, a "complete" feed will be sent to the front left/right "main" speakers, and the subwoofer will receive the front left and right bass frequencies under the crossover frequency 80 Hz, additionally to the LFE soundtrack (see above).

11. When all speaker selections have been made for the input selected, press the **Set** button ⓯ ⓴ twice or simply wait for three seconds until the display returns to the normal mode.

System Configuration

To assist in making these settings, the icons in the **Speaker/Channel Input Indicators** 30 will change as the speaker type is selected at each position. When only the inner icon box is lit, the speaker is set for "small." When the inner box and the two outer boxes with circles inside them are lit, the speaker is set for "large." When no indicator appears at a speaker location, that position is set for "none" or "no" speaker.

As an example, in the Figure below, the left front and right front speakers are set for "large," the center, left surround and right surround speakers are set for small, and a subwoofer is set.
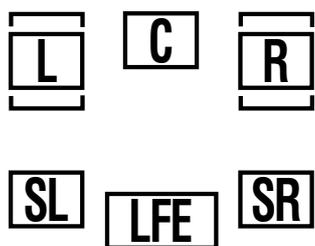
Triple Crossover Setting

The AVR 130 is unique among all receivers in its price class to provide Triple Crossover functionality. Where conventional bass management systems only accommodate a global crossover setting, Harman Kardon's Triple Crossover system allows you to set a different crossover point for the front left/right, center and surround speakers. This is key to creating a seamless soundfield when a system uses different brands or models of speakers from one of these three groupings to another.

If you are not familiar with what the crossover point is, the term refers to the frequency at which the full-range signal is divided between your main speakers and the subwoofer. Since the subwoofer is specially designed for low frequency reproduction, it isn't able to reproduce high frequencies. Conversely, by relieving the main speakers of the requirement to reproduce bass frequencies, it is possible to build smaller, more efficient "satellite" style speakers. Setting the crossover frequency properly means that each speaker does the job it was intended to do, without the strain or possible damage caused by being fed the wrong signals. In order to properly take advantage of the Triple Crossover function we encourage you to consult the owner's manual for your speakers to determine what the lowest frequency is that they are designed for, That is the number that will be used in making the settings in this section.

Note that the factory default setting is a crossover point of 100Hz for all speakers. If your speakers have a crossover at that setting you do not need to make any of these adjustments and you should proceed to the next step. However, if, for example, your front speakers have a crossover

point of 80Hz, your center speaker crosses over at 120Hz and your surround speakers crossover at yet a different point, adjusting these settings will help establish the proper relationship between the low frequency sound that is sent to your subwoofer and the balance of the sound that is reproduced by your main speakers.

If your speaker complement does require a change to the crossover settings, proceed as follows:

1. Press the **Speaker Button** 26 30.

2. Press the ▲/▼ **Buttons** 13 the remote or the ◄/► **Buttons** 5 on the front panel so that SPEAKER XOVER appears in the **Main Information Display** 24 and press the **Set Button** 15 20 to enter the crossover menu tree.

3. When FRONT 3X-FREQ appears in the **Main Information Display** 24, press the **Set Button** 15 20 to change the setting for the front left/right speakers.

4. Press the ▲/▼ **Buttons** 13 on the remote or the ◄/► **Buttons** 5 on the front panel, to scroll through the available choices, and when the crossover frequency that matches your speakers is appears in the **Main Information Display** 24, press the **Set Button** 15 20 to return to the speaker group selection.

5. Press the ▲/▼ **Buttons** 13 on the remote or the ◄/► **Buttons** 5 on the front panel again to select another speaker group, either CENTER FREQ to adjust the crossover for the center channel speaker, or SURR 3X-FREQ to adjust the crossover for the surround speakers, and press the **Set Button** 15 20 when the desired speaker group appears to change the setting as needed, following the instructions in step 4, above.

6. When all required crossover settings have been entered, press the **Set Button** 15 20 to return to normal operation.

Global/Independent Bass Manager Memory

A feature that is unique to the AVR in its class is the ability to allow the storage of different speaker size settings for each input source. In most cases you will not need to take advantage of this capability, particularly when the speakers used are all frequency-limited "satellite" type models. However, when a system's front speakers are large, full-range models, you may wish to use different "large" or "small" settings for inputs such as the tuner or CD, where two-channel stereo music may be the desired listening mode, as opposed to the DVD or other video-related inputs where a subwoofer will be used.

If you do not need to create different speaker configuration settings for each input, skip to the next section.

To take advantage of this capability, follow these steps:

1. Configure the speaker size information as indicated on page 15/16. This sets the common baseline for all inputs.

2. Select the input that you wish to have different settings than the original ones by pressing the appropriate **Input Selector** 5.

3. Press the **Speaker Button** 26 30 and then press the ▲/▼ **Buttons** 13 on the remote or the ◄/► **Buttons** 5 on the front panel so that BASS MANAGER appears in the **Main Information Display** 24. Press the **Set Button** 15 20.

4. When GLOBAL appears in the **Main Information Display** 24 press the ▲/▼ **Buttons** 13 on the remote or the ◄/► **Buttons** 5 on the front panel to select INDEPENDENT. Press the **Set Button** 15 20 to enter the request to the AVR's memory.

5. Once the BASS MANAGER message reappears in the **Main Information Display** 24 you have configured the AVR so that different speaker size and crossover settings may be chosen for each input. To enter these settings, first wait five seconds until the unit returns to normal operation. At that time, select another input and repeat the instruction steps for Speaker Setup and Triple Crossover Setting as shown on the previous pages.

Surround Setup

Once the speaker setup has been completed, the next setup step is to set the surround mode you wish to use with each input. Since surround modes are a matter of personal taste, feel free to select any mode you wish – you may change it later. The Surround Mode chart on page 24 may help you select the mode best suited to the input source selected. However, to make it easier to establish the initial parameters for the AVR, it is best to leave the default setting of Logic 7 Music mode for most analog inputs and Dolby Digital for inputs connected to digital sources. In the case of inputs such as a CD Player, Tape Deck or Tuner, you may wish to set the mode to Stereo, if that is your preferred listening mode for standard stereo sources, where it is unlikely that surround encoded material will be used.

To set the surround mode you wish to use with the input selected, press the **Surround Mode Selector** button 7 on the front or 10 and the ▲/▼ buttons 13 on the remote until the desired surround mode's name appears in the **Main Information Display** 24.

As the modes are changed, a blue LED will also light next to the mode names in the **Surround Mode Indicators** 14 on the front panel.

System Configuration

Note that Dolby Digital and DTS will only appear as choices when a digital input has been selected.

After the surround mode setting has been made with the current input, repeat the setting with all inputs you will use. The surround mode can also be changed at any time later, and the AVR's memory system will keep the settings for the input selected, until they are changed again.

Configuring the Surround Off (Stereo) Modes

For superior reproduction of two-channel program materials, the AVR offers two Stereo modes: an analog Stereo-Direct mode that bypasses the digital signal processing circuitry for a completely analog signal path that preserves the purity of the original signal, and a digital mode that is capable of providing bass management for optimal distribution of the low frequencies between smaller speakers and a subwoofer.

Stereo-Direct (Bypass) Mode
When the analog Stereo-Direct mode is selected by pressing the **Stereo Mode Selector** ㊴ until SURROUND OFF appears in the **Main Information Display** ㉔ and the **Surround Mode Indicator** ⓮ for Surround Off is lit, the AVR will pass the analog source material directly through to the front left and right speakers, bypassing the digital processing circuitry.

In this mode, the front left and right speakers will automatically be configured as LARGE; it is not possible to configure these speakers as SMALL.

When the AVR is in the Stereo Bypass mode you may still configure the subwoofer output so that it is either turned off, with a full-range signal going to the front left/right speakers, or you may configure it so that the subwoofer feed is activated. The factory default setting is to have the subwoofer turned off for this mode, but you may change that setting by following these steps:

1. Press the **Speaker Button** ㉖㉚.

2. Press the **Set Button** ⓯⑳ to activate the configuration menu.

3. Press the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel to select the desired option. SUB NONE turns off the feed to the subwoofer, while SUB <L+R> turns it on.

4. When the desired setting has been entered, press the **Set Button** ⓯⑳ to return to normal operation.

Stereo-Digital Mode
When the Stereo-Direct (Bypass) mode is in use a full range signal is always sent to the front left/right speakers. By its nature, that option does not pass the signal through the AVR's digital sig-

nal processing, creating the requirement for full-range speakers. If your front speakers are bandwidth limited, "satellite"speakers, we recommend that you do NOT use the Bypass mode, but rather use the DSP SURROUND OFF mode for stereo listening.

To listen to programs in the two-channel stereo mode while taking advantage of the bass management system, press the **Stereo Mode Selector** ㊴ until SURROUND OFF appears in the **Main Information Display** ㉔ and the DSP and SURR. OFF **Surround Mode Indicators** ⓮ both light up. When only the SURR. OFF **Surround Mode Indicators** ⓮ is lit you are in the Stereo-Direct (Bypass) mode.

When this mode is in use, the front left/right speakers and subwoofer may be configured to meet the requirements of your specific speakers using the steps shown in the Speaker Setup section on page 15.

Delay Settings
Only for the Dolby or DTS modes, you will need to adjust the delay time setting. Note that the delay time is not adjustable for any other modes.

Due to the different distances between the listening position for the front channel speakers and the surround speakers, 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 for the specific speaker placement and acoustic conditions in your listening room or home theater.

The factory setting (see Surround Mode Chart page 21) 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, center and surround channels, follow these steps:

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

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

3. Press the **Delay Button** ㉒㉘.

4. Press the ▲/▼ Button until UNIT appears. ⓭

5. Press the **Set Button** ⓯⑳ and choose either FEET or METER. Press the Set Button to confirm.

6. When FRONT DELAY appears in the **Main Information Display** ㉔ press the **Set Button** ⓯⑳.

7. Press the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel to enter the distance from the front left/right speakers to your listening position. Press the **Set Button** ⓯⑳ when this is complete.

8. Press the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel so that CENTER DELAY appears in the **Main Information Display** ㉔ and press the **Set Button** ⓯⑳.

9. Press the the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel to enter the distance from the center speaker your listening position. Press the **Set Button** ⓯⑳ when this is complete.

10. Press the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel so that SURR DELAY appears in the Lower Display Line⁻ and press the **Set Button** ⓯⑳.

11. Press the the ▲/▼ **Buttons** ⓭ on the remote or the ◄/► **Buttons** ➎ on the front panel to enter the distance from the surround speakers to your listening position. Press the **Set Button** ⓯⑳ when this is complete.

12. When all adjustments have been made, the unit will return to normal operation in five seconds.

Night Mode Settings
The Night mode is a feature of Dolby Digital that uses special processing to preserve the dynamic range and full intelligibility of a movie sound track while reducing the peak level. This prevents abruptly loud transitions from disturbing others, without reducing the sonic impact of a digital source. Note that the Night mode is only available when the Dolby Digital surround mode is selected.

To adjust the Night mode setting press the **Input Source Selector** ⓫ on the front or ➎ on the remote and select an input that is associated with a digital input and the Dolby Digital surround mode.

Next press the **Night** button ⓫ on the remote. When the button is pressed, the words D-RANGE (Dynamic Range) followed by the current setting (MID, MAX, OFF) will appear in the **Main Information Display** ㉔. Press the ▲/▼ buttons ⓭ within five seconds to select the desired setting:

OFF: When **OFF** is shown in the display, the Night mode will not function.

MID: When **MID** is shown in the display, a mild compression will be applied.

MAX: When **MAX** is shown in the display, a more severe compression algorithm will be applied.

System Configuration

When you want to use the Night mode feature, we recommend that you select the MID setting as a starting point and change to the MAX setting later, if desired.

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, as correct outputs will ensure that you hear sound tracks with the proper directionality and intensity.

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.

IMPORTANT NOTE: The output level can be adjusted for each digital and analog surround mode separately. This allows you to compensate for level differences between speakers, that may also vary with the surround mode selected, or to increase or decrease the level of certain speakers intentionally, depending on the surround mode selected. Note that adjustments made for any surround mode are effective with all inputs associated with that surround mode.

Before beginning the output level adjustment process, make certain that all speaker connections have been properly made. The system volume should be turned down at first. Finally, make certain that the **Balance Control 17** 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. As the adjustment must be made for each surround mode, it is best to select any input associated with any Dolby Pro Logic II mode, make the adjustment for that surround mode, then step through all inputs you´re using (and thus through all surround modes associated with the inputs) and repeat the adjustment when any surround mode appears that has not yet been adjusted.

1. Select any input associated with any Dolby Pro Logic II surround mode by pressing the **Input Source Selector 11 5** until the **Pro Logic II Surround Mode Indicator 14** on the frontdisplay lights up.

2. Press the **Test Tone** button **8 13** on the remote. The words ⊤ E 5 ⊤ - ⊤ F L ⎕ � 🄳 B will appear in the **Main Information Display 24**.

3. The test noise will immediately begin to circulate in the speakers in a clockwise rotation, pausing at each position for two seconds. As the test noise rotates the speaker positions F L, C, F R, 5 R, 5 L (Front Left, Center, Front Right, Surround Right, Surround Left) will be shown in the **Main Information Display 24**. As an added assist, while the test noise is circulating, the proper channel position will also be indicated in the **Speaker/Channel Indicators 30** by a blinking letter within the correct channel. Turn up the volume now until you can hear the noise clearly.

IMPORTANT NOTE: Because this test noise will have a much lower level than normal music, the volume must be lowered after the adjustment for all channels is made, BEFORE you turn the test tone off.

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 off using the **Main Power Switch 1** and check the speaker wiring to make certain that each speaker is connected to the correct output terminal.

After checking for speaker placement, let the test noise circulate again, and listen to see which channels sound louder than the others. Using the front left speaker as a reference, press the ▲/▼ buttons **13** on the remote to bring all speakers to the same volume 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 five seconds.

Continue to adjust the individual speakers until they all have the same volume. Note that adjustments should be made with the ▲/▼ buttons **13** on the remote only, NOT the main volume controls.

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 24.

When all channels have the same output level, turn the **Volume 19 32** down to about -40dB, otherwise the listening level may be too high as soon as the source's music starts to play. Afterwards press the **Test Tone Selector 13 8** button again to turn the test tone off and complete the process.

IMPORTANT NOTE: The Output level adjustment made will be effective for the surround mode currently selected, also when other inputs are selected using the same surround mode. To adjust the output level with all other surround modes used, step through all inputs you´re using by pressing the **Source Selector** buttons **11** on the front panel or the appropriate Input **Selectors 5** on the remote. When the indicator for any surround mode for which the level adjustment has not yet been made lights in the **Main Information Display 24** or its blue LED lights in the **Surround Mode Indicators** field **14**, repeat the level adjustment described above. This will also allow you to compensate level differences between speakers, that may be different with each surround mode, or to increase or decrease the level of certain speakers intentionally, depending on the surround mode selected.

Note: Output level adjustment is not available for the VMAx or Surround Off mode, as no surround speakers are used (so level differences between the speakers in the room cannot occur). But to compensate level differences between stereo, VMAx and other surround modes (independently from the input selected) the outputs can be adjusted with the Level Trim Adjustment procedure, see page 24, also for the Surround Off (Stereo) and VMAx modes.

Once the settings outlined on the previous pages have been made, the AVR is ready for operation. While there are some additional settings to be made, these are best done after you have had an opportunity to listen to a variety of sources and different kinds of program material. These advanced settings are described on page 28 of this manual. In addition, any of the settings made in the initial configuration of the unit may be changed at any time.
As you add new or different sources or speakers, or if you wish to change a setting to better reflect your listening taste, simply follow the instructions for changing the settings for that parameter as shown above. Note that any settings changed at any time, will be stored in memory in the AVR, also if it´s turned off completely, unless it will be reset (see page 32). Having completed the setup and configuration process for your AVR, you are about to experience the finest in music and home theater listening. Enjoy!

Operation

Basic Operation

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

Turning the AVR On or Off

• When using the AVR 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 orange 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** or the **Source** button **11** on the front panel or the **AVR Selector 6**. Note that the **Power Indicator 3** will turn blue. 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 **Source Selector** buttons on the remote **5 6 7 33**.

NOTE: After pressing one of the **Input Selector** buttons **5** to turn the unit on, press the **AVR Selector 6** to have the remote control the AVR functions.

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 4** on the remote. Power will be shut off to any equipment plugged into the rear panel **Switched AC Outlets 15** and the **Power Indicator 3** will turn orange.

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

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 with the front panel **Main Power Switch 1**.

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

Using the Sleep Timer

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

```
→ 90 → 80 → 70 → 60 → 50
  min   min   min   min   min
→ 40 → 30 → 20 → 10 → OFF
  min   min   min   min
```
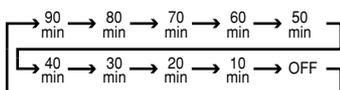
When the programmed sleep time has elapsed, the unit will automatically turn off (to Standby mode). Note that the front panel display will dim to one half brightness when the Sleep function is programmed. To cancel the Sleep function, press and hold the **Sleep Button 9** until the information display returns to normal brightness and the SLEEP OFF message appears in the **Main Information Display 24**.

Source Selection

• To select a source, press any of the **Source Selector** buttons on the remote **5 6 7 33**.

NOTE: After pressing one of the **Input Selector** buttons **5** you must press the **AVR Selector 6** to have the remote control the AVR functions.

• The input source may also be changed by pressing the front-panel **Input Source Selector** button **11**. Each press of the button will move the input selection through the list of available inputs.

• As the input is changed, the AVR will automatically switch to the digital input (if selected), surround mode and speaker configuration that were entered during the configuration process for that source.

• The front-panel **Video 3 Inputs 29** may be used to connect a device such as a video game or camcorder to your home entertainment system on a temporary basis.

• As the input source is changed, the new input name will appear in the **Main Information Display 24** and a green LED will light next to the selected input's name in the front-panel **Input Indicators 21**.

• When a pure audio source (Tuner, CD, Tape) is selected, the last video input used remains routed to the **Video 1 Outputs 19** and **Video Monitor Output 12**. This permits simultaneous viewing and listening to different sources.

• When a Video source is selected, its audio signal will be fed to the speakers and the video signal for that input will be routed to the appropriate **Monitor Output** jack **12** and will be viewable on a TV monitor connected to the AVR.

Controls and Use of Headphones

• Adjust the volume to a comfortable level using the front panel **Volume Control 19** or remote **Volume Up/Down 32** buttons.

• The **Balance Control 17** 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 **34**. 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. Press the **Mute** button **34** again to return to normal operation.

• During a listening session you may wish to adjust the **Bass Control 16** and **Treble Control 18** to suit your listening tastes or room acoustics.

• To set the output of the AVR so that the output is "flat," with the Tone controls and the Balance control de-activated, press the **Tone Mode** button **6** button once or twice so that the words Tone Out appear momentarily in the **Main Information Display 24**. To return the tone controls to an active condition, press the **Tone Mode 6** button once or twice so that the words Tone In momentarily appear in the **Main Information Display 24**.

• For private listening, plug the 6.3 mm stereo phone plug from a pair of stereo headphones into the front panel **Headphone Jack 4**. Note that when the headphone's plug is connected, the word HEADPHONE will scroll once across the **Main Information Display 24** and all speakers will be silenced. When the headphone plug is removed, the audio feed to the speakers will be restored.

Surround Mode Selection

One of the most important features of the AVR is its ability to reproduce a full multichannel surround sound field from digital sources, analog matrix surround encoded programs and standard stereo or even mono programs. In all, a total of fifteen listening modes are available on the AVR.

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, CD's or TV programs bearing the logo of one of the major surround encoding processes, such as Dolby Surround should be played in either the Dolby Pro Logic II Movie (with movies) or Music (with music) surround mode or with the Harman Kardon´s exclusive Logic 7 Movie Mode, to create a full range discrete 5.1 channel surround signal from surround encoded programs with a stereophonic left and right rear signal,

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 Initial Setting – 0 ms Surround: 0 ms – 15 ms Initial Setting – 0 ms
DTS	Available only with digital input sources encoded with DTS data. Available on special DVD, LD and audio-only discs, DTS provides up to five separate main audio channels and a special dedicated low frequency channel.	Delay time not adjustable
DOLBY PRO LOGIC II	Dolby Pro Logic II is the latest version of Dolby Laboratory's benchmark surround technology that creates or decodes full range, discrete left, center, right, right surround and left surround channels from either matrix surround encoded programs and conventional stereo sources. The Dolby ProLogic II Movie mode is optimized for movie soundtracks that are recorded with matrix surround, by creating true rear left, center and right signals. The ProLogic II Music mode should be used with musical selections, that are recorded with matrix surround or with normal stereo mode, creating discrete rear left and right signals.	Movie: 10 ms - 25 ms, Initial Setting - 10 ms, Music: 0 ms - 15 ms, Initial Setting - 0 ms
LOGIC 7 C LOGIC 7 M	An advanced mode that extracts the maximum surround information from either conventional stereo material or surround-encoded programs. When used with encoded material, decoding is more accurate in terms of the placement of sounds, and fades and pans are much smoother and more realistic than with former decoding techniques. Logic 7 also delivers increased spaciousness and a wider sound stage when it is used with conventional natural stereo recordings and music programs throug the use of the natural surround information present also in those stereo recordings. The Logic 7C or Cinema mode is tailored to provide an optimal sound field for movie soundtracks. The Logic 7M or Music mode uses a decoding formula that is best suited to music.	Delay time not adjustable
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
THEATER	The THEATER mode creates a sound field that resembles the acoustic feeling of a standard live performance theater, with stereo and even pure mono sources.	Delay time not adjustable
HALL 1 HALL 2	The two Hall modes create sound fields that resemble a small (HALL 1) or medium sized (HALL 2) concert hall, with stereo and even pure mono sources.	Delay time not adjustable
VMAx Near VMAx Far	When only the two front channel loudspeakers are used, Harman's patented VMAx mode delivers a three-dimensional sound space with the illusion of "phantom speakers" at the center and surround positions. The VMAx N, or "Near Field" mode should be selected when your listening position is less than 1,5m from the speakers. The VMAx F, or "Far Field" mode may be selected when your listening positioin is greater than 1,5m from the speakers.	No surround channels
5-Channel Stereo	This mode takes advantage of multiple speakers to place a stereo signal at both the front and back of a room. Ideal for playing music in situations such as a party, it places the same signal at the front-left and surround-left, and at the front-right and surround-right speakers. The center channel is fed a summed mono mix of the in-phase material of the left and right channels.	No delay is available for this mode
Surround Off (Stereo) Surround Off (Bypass) DSP Surround Off	These modes turn off all surround processing and present the pure left- and right-channel presentation of two-channel stereo programs. The Surround Off (Bypass) mode may only be used with analog source inputs, as it preserves the analog format of the audio signal for its entire path of travel through the receiver to the speaker and subwoofer outputs, bypassing all digital processing. Digital bass management is not available in Surround Off mode. The DSP Surround Off mode can be used with either an analog or digital input, as the signal undergoes digital bass management to optimize the distribution of the low frequencies between the main speakers and a subwoofer.	No surround channels

Operation

just as it was recorded in real life (e.g. sound being recorded from left rear side will be heard from that side only, for more details see chart on page 21).

When no rear speakers are in use, the Dolby 3 Stereo mode should be selected with all surround recordings.

Note that when Dolby Digital 2.0 signals (e.g. "D.D. 2.0" tracks from DVD), that are encoded with Dolby Pro Logic information, are received via any digital input, the Dolby Pro Logic II Movie mode will be selected automatically (in addition to the Dolby Digital mode) and will decode a full range 5.1 channel surround sound even from those recordings (see also "Dolby Digital" on page 24).

To create wide, enveloping sound field environments and defined pans and flyovers with all analog stereo recordings select the Dolby Pro Logic II Music mode or Harman Kardon's exclusive Logic 7 Music mode for a dramatic improvement in comparison to the Dolby Pro Logic (I) mode of former times.

NOTE: Once a program has been encoded with matrix surround information, it retains the surround information as long as the program is broadcast in stereo. Thus, movies with surround sound may be decoded via any of the analog surround modes such as Dolby Pro Logic II or Logic 7, 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.

Even when a program is not listed as carrying intentional surround information, you may find that the Dolby Pro Logic II, Dolby 3 Stereo or Logic 7 modes often deliver enveloping surround presentations through the use of the natural surround information present in all stereo recordings.

However, for stereo programs without any surround information the Theater, Hall and 5CH Stereo modes should be tried (effective particularly with old "extreme" stereo recordings) and for mono programs, we suggest that you try the Theater or Hall modes. And when you use only two front channel speakers you should select Harman's patented VMAx mode, delivering a virtually three dimensional sound space with two speakers only.

Surround modes are selected using either the front panel controls or the remote. To select a surround mode from the front panel, press the **Surround Mode Group Selector Button** 7 to scroll through the list of available surround groups (for example, any Dolby mode or Logic 7 mode). Next press the **Surround Mode**

Selector Button 13 to choose the specific mode within the desired group (for example, within the Dolby mode group the options are Dolby Pro Logic, Dolby Pro Logic II Music, Dolby Pro Logic II Movies and Dolbt 3 Stereo). To select a surround mode using the remote, any of the surround mode selector buttons ⑩ ㊱ ㊲ ㊳ ㊴ ㊵ until the desired mode appears. As you press the buttons, the Surround mode name will appear in the **Main Information Display** 24. As the surround mode changes, a blue LED will light next to the current mode in the **Surround Mode Indicators** list 14 on the front panel. Regard that any time a surround mode is changed it remains associated with the input just selected until another choice is made.

NOTE: The name of each Surround Mode will scroll through the **Main Information Display** 24 while the modes are being selected. To avoid exiting from the surround mode selection process, be certain to push the ▲/▼ buttons 13 while a mode name is still visible.

Note that the Dolby Digital or DTS modes may only be selected when a digital input is in use. In addition, when a digital source is present, the AVR will automatically select and switch to the correct mode (Dolby Digital or DTS), regardless of the mode that has been previously selected. 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), follow the instructions shown above for using the remote until ꜱURR OFF appears in the **Main Information Display** 24.

Digital Audio Playback

Digital audio is a major advancement over older analog matrix surround systems. It delivers five discrete channels: left front, center, right front, left surround and right surround. Each channel reproduces full frequency range (20Hz to 20kHz) and offers dramatically improved dynamic range and significant improvements to signal-to-noise ratios. In addition, 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 descibed as "5.1". The bass channel is separate from the other channels, but since it is intentionally bandwidth limited, sound designers have given it that unique designation.

Dolby Digital
Dolby Digital (originally known as AC-3®) is a standard part of DVD, and is available on specially encoded LD discs and satellite broadcasts and it is a part of the new high-definition television (HDTV) system.

Note that an optional, external RF demodulator is required to use the AVR 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 **Optical** or **Coaxial** inputs ㉒ ⑩ ㉗ ㉘ of the AVR. No demodulator is required for use with DVD players or DTS-encoded laser discs.

DTS
DTS is another digital audio system that is capable of delivering 5.1 audio. Although both DTS and Dolby Digital are digital, they use different methods of encoding the signals, and thus they require different decoding circuits to convert the digital signals back to analog.

DTS-encoded sound tracks are available on select DVD and LD discs, as well as on special audio-only DTS CDs. You may use any LD, DVD or CD player equipped with a digital output to play DTS-encoded special audio-only CDs with the AVR, but DTS-LDs can be played on LD players and DTS-DVDs on DVD players only. All that is required is to connect the player's output to either the **Optical** or **Coaxial** input on the rear panel ㉒ ⑩ or front panel ㉗ ㉘.

In order to listen to DVDs encoded with DTS sound tracks, the DVD player must be compatible with the DTS signal as indicated by a DTS logo on the player's front panel. Note that early DVD players may not be able to play DTS- encoded DVDs. This does not indicate a problem with the AVR, as some players cannot pass the DTS signal through to the digital outputs. If you are in doubt as to the capability of your DVD player to handle DTS DVDs, consult the player's owner's manual.

Please note that some DVD players are shipped with their output set for Dolby Digital only. To insure that DTS data is being sent to the AVR, please check the setup menu system on your DVD player to make certain that DTS data output is enabled.

PCM Audio Playback
PCM (Pulse Code Modulation) is the non- compressed digital audio system used for compact discs, Non-Dolby Digital/DTS Laserdiscs and some special PCM encoded DVDs. The digital circuits in the AVR are capable of high quality digital-to-analog decoding, and they may be connected directly to the digital audio output of your CD/DVD or LD player (LD only for PCM or DTS programs, for Dolby Digital laser discs an RF adapter is needed, see "Dolby Digital" above).

Operation

Connections may be made to the **Optical** or **Coaxial** inputs ㉒ ❿ on the rear panel or front panel ㉗ ㉘.

To listen to a PCM digital source, first select the input for the desired source (e.g., CD) to feed its video signal (if any) to the TV monitor and to provide its analog audio signal for recording. Next press the **Digital Select** button ㉓ ⓰ and then use the ▲/▼ buttons ⓭ on the remote, or the **Selector** buttons ❺ on the front panel, until the desired choice appears in the **Main Information Display** ㉔, then press the **Set** button ⓴ ⓯ to confirm the choice.

When a PCM source is playing, a brief message PCM will appear in the **Main Information Display** ㉔. During PCM playback you may select any surround mode as described on pages 21 and 22 except Dolby Digital or DTS.

Selecting a Digital Source

To utilize either digital mode you must have properly connected a digital source to the AVR. Connect the digital outputs from DVD players, HDTV receivers, satellite systems or CD players to the **Optical** or **Coaxial** inputs on the rear or front panel ㉒ ❿ ㉗ ㉘. 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 rear panel (e.g., connect the analog stereo audio output from a DVD to the **DVD** inputs ❻ on the rear panel when you connect the source's digital outputs).

When playing a digital source such as DVD, first select its input using the remote or front panel controls as outlined in this manual in order to feed its video signal (if any) to the TV monitor and to provide its analog audio signal for recording. When the digital input appropriate with the DVD player is not selected automatically (due to the input settings made earlier during the system configuration, see page 15), select the digital source by pressing the **Digital Input Selector** button ⓰ ㉓ and then using the ▲/▼ buttons ⓭ on the remote or the **Selector** buttons ❺ on the front panel to choose any of the O P T I C A L (O P T) or C O A X I A L (C O A X) inputs, as they appear in the **Main Information Display** ㉔. When the digital source is playing, the AVR will automatically detect whether it is a multichannel Dolby Digital, DTS source or a conventional PCM signal, which is the standard output from CD players.

Digital Status Indicators

When a digital source is playing, the AVR senses the type of bitstream data that is present. Using this information, the correct surround mode will automatically be selected. For example, DTS bit-streams will cause the unit to switch to DTS decoding, and Dolby Digital bitstreams will enable Dolby Digital decoding. When the unit senses PCM data, from CDs and LDs and some music DVDs or certain tracks on normal DVDs, it will allow the appropriate surround mode to be selected manually. Since the range of available surround modes depends on the type of digital data that is present, the AVR uses a variety of indicators to let you know what type of signal is present. This will help you to understand the choice of modes and the input channels recorded on the disc.

When a digital source is playing, the AVR will display a variety of messages to indicate the type of bitstream received. These messages will appear shortly after an input or surround mode is changed, and will remain in the **Main Information Display** ㉔ for about five seconds before the display returns to the normal surround mode indication.

Surround Mode Types

For Dolby Digital and DTS sources, a three digit indication will appear, showing the number of channels present in the data. An example of this type of display is 3/2/.1.

The first number indicates how many discrete front channel signals are present.

• A 3 tells you that separate front left, center and front right signals are available. This will be displayed for Dolby Digital 5.1 and DTS 5.1 programs.

• A 2 tells you that separate front left and right signals are available, but there is no discrete center channel signal. This will be displayed for Dolby Digital bit streams that have stereo program material.

• A 1 tells you that there is only a mono channel available in the Dolby Digital bitstream.

The middle number indicates how many discrete surround channel signals are present.

• A 2 tells you that separate surround left and right signals are available. This will be displayed for Dolby Digital 5.1 and DTS 5.1 programs.

• A 1 tells you that there is only a single, surround encoded surround channel. This will appear for Dolby Digital bit streams that have matrix encoding.

• A 0 indicates that there is no surround channel information. This will be displayed for two-channel stereo programs.

The last number indicates if there is a discrete Low Frequency Effects (LFE) channel. This is the ".1" in the common abbreviation of "5.1" sound and it is a special channel that contains only bass frequencies.

• A .1 tells you that an LFE channel is present. This will be displayed for Dolby Digital 5.1 and DTS 5.1 programs, as available.

• A 0 indicates that there is no LFE channel information available. However, even when there is no dedicated LFE channel, low frequency sound will be present at the subwoofer output when the speaker configuration is set to show the presence of subwoofer.

When Dolby Digital 3/2/.1 or DTS 3/2/.1 signals are being played, the AVR will automatically switch to the proper surround mode, and no other processing may be selected. When a Dolby Digital signal with a 3/1/0 or 2/0/0 signal is detected you may select any of the Dolby surround modes.

It is always a good idea to check the readout for the channel data to make certain that it matches the audio logo information shown on the back of a DVD package. In some cases you will see indication for "2/0/0" even when the disc contains a full 5.1, or 3/2/.1 signal. When this happens, check the audio output settings for your DVD player or the audio menu selections for the specific disc being played to make certain that the player is sending the correct signal to the AVR.

In addition to the **Bitstream Indicators**, the AVR features a set of unique channel input indicators that tell you how many channels of digital information are being received and if the digital signal is interrupted.

These indicators are the L/C/R/SL/SR/LFE letters that are inside the center boxes of the **Speaker/Channel Input Indicators** in the front panel ㉚. When a standard analog stereo or matrix surround signal is in use, only the "L" and "R" indicators will light, as analog signals have only left and right channels, respectively, even surround recordings, carry surround information on the left and right channels only.

Digital signals, however, may have one to six separate channels, depending on the program material, the method of transmission and the way in which it was encoded. When a digital signal is playing, the letters in these indicators will light in response to the specific signal being received. It is important to note that although Dolby Digital, for example, is referred to as a "5.1" system, not all Dolby Digital DVD or audio tracks selected on DVD or other Dolby Digital programs are encoded for 5.1. Thus, it is sometimes normal for a DVD with a Dolby Digital soundtrack to trigger e.g. only the "L" and "R" indicators.

Operation

NOTE: Many DVD discs are recorded with both "5.1" and "2.0" versions of the same soundtrack, the "2.0" version often is used with other languages. When playing a DVD, always be certain to check the type of material on the disc. Most discs show this information in the form of a listing or icon on the back of the disc jacket. When a disc does offer multiple soundtrack choices you may have to make some adjustments to your DVD player (usually with the "Audio Select" button or in a menu screen on the disc) to send a full 5.1 feed to the AVR or to select the appropriate audio track and thus language ("2.0" audio tracks can be played with all Pro Logic II or Vmax modes, see "Dolby Digital" on page 26). It is also possible for the type of signal feed to change during the course of a DVD playback. In some cases the previews of special material will only be recorded in 2.0 audio, while the main feature is available in 5.1 audio. As long as your DVD player is set for 6-channel output, the AVR will automatically sense changes to the bitstream and channel count and reflect them in these indicators.

The letters used by the **Speaker/Channel Input Indicators** 🔟 also flash to indicate when a bitstream has been interrupted. This will happen when a digital input source is selected before the playback starts, or when a digital source such as a DVD is put into a Pause mode. The flashing indicators remind you that the playback has stopped due to the absence of a digital signal and not through any fault of the AVR. This is normal, and the digital playback will resume once the playback is started again.

Night Mode

A special feature of Dolby Digital is the Night mode, which enables Dolby Digital input sources to be played back with full digital intelligibilty while reducing the maximum peak level and lifting the low levels 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 mode is selected.

The Night mode may be engaged when a Dolby Digital DVD is playing by pressing the **Night** Button ⑪ on the remote. Next, press the ▲/▼ buttons ⑬ to select either the middle range or full compression versions of the Night mode. To turn the Night mode off, press the ▲/▼ buttons ⑬ until the message in the lower third of the video display and the **Main Information Display** ㉔ reads D-RANGE OFF.

The Night mode may also be selected to always be on at either level of compression as soon as the Dolby Digital mode is turned on using the options in the Night Mode settings. See page 18 for information on using this option.

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, and the channel position letters inside the **Speaker/Channel Indicators** 🔟 will flash. This is normal and does not indicate a problem with either the AVR or the source machine. The AVR 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 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.

3. Note that not all digitally encoded programs and not all audio tracks on a DVD 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 will automatically sense the type of digital surround encoding used and adjust to accommodate it.

4. When a Dolby Digital or DTS source is playing, you normally may not be able to select some of the analog surround modes such as Dolby Pro Logic II, Dolby 3 Stereo, Hall, Theater, 5CH Stereo or Logic 7, except with special audio tracks (see indication "Dolby Digital" on previous page) or data format selected (see "PCM" on previous page).

5. When a Dolby Digital or DTS source is playing, it is not possible to make an analog recording using the **Tape** ❷ or **Video 1** ❺ record outputs, if the source is connected to any digital input of the AVR only. But the analog two channel signal of that source, the "Downmix" to Stereo or Dolby Surround, can be recorded by connecting its analog audio outputs to the appropriate analog inputs (e.g. DVD) of the AVR, even if the digital input of the AVR remains selected. Additionally, the digital signals will be passed through to the **Digital Audio Outputs** ❾.

Tape Recording

In normal operation, the audio or video source selected for listening through the AVR 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 Outputs** ❷ or **Video 1 Outputs** ❺ ⑲ in the record mode.

When a digital audio recorder is connected to any of the **Digital Audio Outputs** ❾, you are able to record the digital signal using a CD-R, MiniDisc or other digital recording system. Note that all digital signals will be passed through to both, coaxial and optical, digital outputs simultanously, no matter which kind of digital input was selected.

NOTES:

• The AVR can convert an analog input to a digital signal. This way the analog or digital signals can be recorded on a CD-R via the digital output. Note that the change of format (eg from Dolby Digital to PCM or vice versa) is not possible.
In additon, the digital recorder must be compatible with the output signal. For example, the PCM digital output from a CD player may be recorded on a CD-R or MiniDisc, but Dolby Digital or DTS signals may not.

• To make an analog recording of a Dolby Digital or DTS source is not possible, if the source is connected to a digital input of the AVR only. But the analog two channel signal of that source can be recorded (see item 5, "Important Notes on Digital Playback" above).

Output Level Trim Adjustment

Normal output level adjustment for the AVR is established using the test tone, as outlined on page 19. 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 select the surround mode for which you want to trim the speakers (see NOTE below) by selecting the appropriate input, associated with the desired surround mode, start your program material source and set the reference volume for the front left and front right channels using the **Volume Control** ⑲ ㉞.

Once the reference level has been set, press the **Channel Select** button ⑬ ㉕ and note that FRONT L LEVEL will appear in the **Main Information Display** ㉔ for five seconds. To change the level, first press the **Set** button ⑮ ⑳, and then use the **Selector** buttons ❺ or the ▲/▼ buttons ⑬ 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 ⑮ ⑳ and then press the **Selector** buttons ❺ or the ▲/▼ buttons ⑬ to select the next output channel location that you wish to adjust. To adjust the subwoofer level, press the **Selector** buttons ❺ or the ▲/▼ buttons ⑬ until WOOFER LEVEL appears in the **Main Information Display** ㉔ (only available if the subwoofer was selected during the speaker configuration, see page 15).

Operation

Press the **Set** button **15** **20** when the name of the desired channel appears in the **Main Information Display 24** and on-screen display, and follow the instructions shown above to adjust the level.

Repeat the procedure as needed until all channels requiring adjustment have been set. When all adjustments have been made press the **Set button 15** **20** twice, the AVR 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 and then follow the instructions in the steps shown above.

Changing the levels by the trim adjustment as described above will automatically change the level settings shown during the Output Level Adjustment (see page 19) correspondingly (and vice versa) and will remain in the AVR's memory system, even when the unit is turned off. With Stereo and Vmax modes the adjustment procedure described above is the only way to trim the output level (e.g. to match the Vmax level with other modes).

6-Channel Direct Input

The AVR is equipped for future expansion through the use of optional, external adapters for formats that the AVR may not be capable of processing. When an adapter is connected to the **6-Channel Direct Input 24**, you may select it by pressing the **6-Ch Direct Input Selector 41**. The 6-Channel Direct Input may also be selected by pressing the **Input Source Selector** button **11** on the front panel until the words ᄂ C H D I R E C T appear in the **Main Information Display 24**, and a blue LED lights next to **6 CH** in the **Input Indicators 21**.

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, and the **Tone 16** **18** and **Balance 17** controls will not be effective.

Display Brightness

The AVR's front panel **Main Information Display 24** is set at a default brightness level that is sufficient for viewing in a normally lit room. However, in some home theater installations, you may wish to occasionally lower the brightness of the display, or turn it off completely.

The display brightness may be changed by pressing and holding the **Set** button **20** on the front for three seconds until the message in the **Main Information Display 24** reads V F D F U L L.

Within five seconds, press the front panel ◄/► buttons **5** until the desired brightness display level is shown. At that point, press the **Set** button **20** again to enter the setting.

You can also adjust the Display Brightness by pressing the **Dim Button 35** on the remote control. Note that the blue lighting inside the volume control and the **Power Indicator 3** will remain lit at normal brightness to remind you that the unit is still turned on.

Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is turned off completely, accidentally unplugged or subjected to a power outage. This memory will last for approximately 1 week, after which time all information must be reentered.

Tuner Operation

The AVR's tuner is capable of tuning AM, FM and FM Stereo broadcast stations and receiving RDS data. 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 Tuner Select** button **7** on the remote to select the tuner as an input. The tuner may be selected from the front panel by either pressing the **Input Source Selector 11** until the tuner is active or by pressing the **Tuner Band Selector 9** at any time.

2. Press the **AM/FM Tuner Select** button **7** or **Tuner Band Selector 9** again to switch between AM and FM so that the desired frequency band is selected.

3. Press the **Tuner Mode** button **18** on the remote or hold the **Band Selector 9** on the front panel pressed for 3 seconds to select manual or automatic tuning.

When the button is pressed so that A U T O appears in the **Main Information Display 24** each press of the **Tuning Selectors 8** **20** will put the tuner in a scan mode that seeks the next higher or lower frequency station with acceptable signal strength. An A U T O S T T U N E D indication will momentarily appear when the station stops at a stereo FM station, and an A U T O T U N E D indication will momentarily appear when an AM or monaural FM station is tuned. Press the Tuning buttons again to scan to the next receivable station.

When the button is pressed so that M A N U A L appears in the **Main Information Display 24** each tap of the Selector will increased or decrease the frequency by one increment. When the tuner receives a strong enough signal for adequate reception, M A N A U L T U N E D will appear in the **Main Information Display 24**.

4. Stations may also be tuned directly by pressing the **Direct** button **19**, and then pressing the **Numeric Keys 17** that correspond to the station's frequency. The desired station will automatically be tuned after the latest number is entered. If you press an incorrect button while entering a direct frequency, press the **Clear** button **28** to start over.

NOTE: When the FM reception of a stereo station is weak, audio quality will be increased by switching to Mono mode by pressing the **Tuner Mode** button **18** on the remote or holding the **Band Selector 9** on the front panel so that M A N U A L appears momentarily in the **Main Information Display 24** and then goes out.

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

To enter a station into the memory, first tune the station using the steps outlined above. Then:

1. Press the **Memory** button **27** on the remote. Note that two underscore lines will appear in the **Main Information Display 24**.

2. Within five seconds, press the **Numeric Keys 17** corresponding to the location where you wish to store this station's frequency. Once entered, the preset number will appear in the **Main Information Display 24**.

3. Repeat the process after tuning any additional stations to be preset.

Recalling Preset Stations
• To manually select a station previously entered in the preset memory, press the **Numeric Keys 17** 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 Stations Selector** buttons **10** **25** on the front panel or remote.

Operation

RDS Operation

The AVR is equipped with RDS (Radio Data System), which brings a wide range of information to FM radio. Now in use in many countries, RDS is a system for transmitting station call signs or network information, a description of station program type, text messages about the station or specifics of a musical selection, and the correct time.

As more FM stations become equipped with RDS capabilities, the AVR will serve as an easy-to-use center for both information and entertainment. This section will help you take maximum advantage of the RDS system.

RDS Tuning
When an FM station is tuned in and it contains RDS data, the AVR will automatically display the station's call sign or other program service in the **Main Information Display 24**.

RDS Display Options
The RDS system is capable of transmitting a wide variety of information in addition to the initial station call sign that appears when a station is first tuned. In normal RDS operation the display will indicate the station name, broadcast network or call letters. Pressing the **RDS** button **12 24** enables you to cycle through the various data types in the following sequence:

• The station's call letters (with some private stations other information too).

• The station's frequency (**FREQ**).

• The Program Type (**PTY**) as shown in the list below.

• A "text" message (Radiotext, **RT**) containing special information from the broadcast station. Note that this message may scroll across the display to permit messages longer than the eight positions in the display. Depending on signal quality, it may take up to 30 seconds for the text message to appear; in that time, the word **TEXT** will flash in the Information Display when RT is selected.

• The current time of day (**CT**). Note that it may take up to two minutes for the time to appear, in that time the word **TIME** will flash in the information display when CT is selected. Please note that the accuracy of the time data is dependent on the radio station, not the AVR.

Some RDS stations may not include some of these additional features. If the data required for the selected mode is not being transmitted, the **Main Information Display 24** will show a **NO TYPE**, **NO TEXT** or **NO TIME** message after the individual time out.

In any FM mode the RDS function requires a strong enough signal for proper operation.

Program Search (PTY)
An important feature of RDS is its capability of encoding broadcasts with Program Type (PTY) codes that indicate the type of material being broadcast. The following list shows the abbreviations used to indicate each PTY, along with an explanation of the PTY:

• (**RDS ONLY**)
• (**TRAFFIC**)
• **NEWS**: News
• **AFFAIRS**: Current Affairs
• **INFO**: Infomation
• **SPORT**: Sports
• **EDUCATE**: Educational
• **DRAMA**: Drama
• **CULTURE**: Culture
• **SCIENCE**: Science
• **VARIED**: Varied Speech Programs
• **POPM**: Popular Music
• **ROCKM**: Rock Music
• **M.O.R.M.**: Middle-of-the-Road Music
• **LIGHTM**: Classical Music
• **CLASSICS**: Serious Classical Music
• **OTHERM**: Other Music
• **WEATHER**: Weather Information
• **FINANCE**: Financial Programs
• **CHILDREN**: Children's Programs
• **SOCIAL A**: Social Affairs Programs
• **RELIGION**: Religious Broadcasts
• **PHONE IN**: Phone-In Programs
• **TRAVEL**: Travel and Touring
• **LEISURE**: Leisure and Hobby
• **JAZZ**: Jazz Music
• **COUNTRY**: Country Music
• **NATIONAL**: National Music
• **OLDIES**: Oldies Music
• **FOLK M**: Folk Music
• **DOCUMENT**: Documentary Programs
• **TEST**: Emergency Test
• **ALARM**: Emergency Broadcast Information

You may search for a specific Program Type (PTY) by following these steps:

1. Press the **RDS** button **12 24** until the current PTY is shown in the **Main Information Display 24**.

2. While the PTY is shown, press the **Preset Up/Down** button **10 25** or hold them pressed to scroll through the list of available PTY types, as shown above. To simply search for the next station transmitting any RDS data, use the **Preset Up/Down** button **10 25** until **RDS ONLY** appears in the display.

3. Press any of the **Tuning Up/Down** buttons **8 20**, the tuner begins to scan the FM band upwards or downwards for the first station that has RDS data that matches the desired selection, and acceptable signal strength for quality reception.

4. The tuner will make up to one complete scan of the entire FM band for the next station that matches the desired PTY type and has acceptable reception quality. If no such station is found, the display will read **NONE** for some seconds and the tuner will return to the last FM station in use before the search.

NOTE: Many stations do not transmit a specific PTY. The display will show **NONE**, when such a station is selected and PTY is active.

NOTE: Some stations transmit constant traffic information. These stations can be found by selecting TRAFFIC, the option in front of NEWS in the list. The AVR will find the appropriate station, even if it is not broadcasting traffic information when the search is made.

Programming the Remote

The AVR is equipped with a powerful remote control that will control not only the receiver's functions, but also most popular brands of audio and video equipment, including CD players, TV sets, cable boxes, VCRs, satellite receivers and other home-theater equipment. Once the AVR's remote is programmed with the codes for the products you own, it is possible to eliminate most other remotes and replace them with the convenience of a single universal remote control.

Programming the Remote with Codes

As shipped from the factory, the remote is fully programmed for all AVR functions, as well as those of most Harman Kardon CD recorders, DVD players, CD 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.

Note: The **Input Selector** button **Video 3** ❺ cannot be programmed with codes as it functions as input selector for the AVR only. Moreover, only the default code "001" can be programmed on the **AVR Selector** button ❻.

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

1. Use the tables in the separate booklet 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 unit you wish to program into the AVR remote.

3. Press and hold both the **Input Selector** ❺ for the type of product to be entered (e.g., VCR, TV) and the **Mute** ⌧ button ❸❹ at the same time. When the **Program Indicator** ❸ turns orange and begins flashing, release the buttons. It is important that you begin the next step within 20 seconds.

4. If the unit you wish to program into the AVR remote has a remotable Power on/off function, follow these steps:

a. Point the AVR 's remote towards the unit to be programmed, and enter the first three-digit code number using the **Numeric** buttons ❶❼. If the unit being programmed turns off, the correct code has been entered. Press the **Input Selector** ❺ again, and note that the red light under the **Input Selector** will flash three times before going dark to confirm the entry.

b. If the product to be programmed does NOT turn off, continue to enter the three-digit code numbers until the equipment turns off. At this point, the correct code has been entered. Press the **Input Selector** ❺ again and note that the red light under the **Input Selector** will flash three times before going dark to confirm the entry.

5. If the Power function of the unit to be programmed cannot be remoted, follow these steps (max. 20 seconds after step 3 above, or else step 3 must be repeated first):

a. Enter the first three-digit code number using the **Numeric** buttons ❶❼ and press the **Input Selector** ❺ again. Press the remote button of any transport function remotable with the unit, e.g. **Pause** or **Play** ► ❷❸. If the unit being programmed starts that function, the correct code has been entered.

b. If the unit does not start the function whose button was pressed, repeat steps 3 and 5a above with the next three-digit code number listed in the setup code table for that brand and product type, until the unit reacts properly on the transport function transmitted.

6. 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.

7. If the unit does not react to any code entered, if the code for your product does not appear in the tables in the booklet, or if not all functions operate properly, try programming the remote with the Auto Search Method.

Note on Using the AVR remote with a Harman Kardon CD Recorder.
As shipped from the factory the remote is programmed for controlling Harman Kardon CD players. But it is able to control most functions of the Harman Kardon CD Recorders (see function list on page 30) too after the code "002" is entered to the **CD Selector** button ❺ as described above. For returning to the CD player control commands the code "001" must be entered.

Auto-Search Method
If the unit you wish to include in the AVR's remote is not listed in the code tables the booklet 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. Note that the Auto Search method works only

with units whose Power functions can be remoted:

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

2. Press and hold both the **Input Selector** ❺ for the type of product to be entered (e.g., VCR, TV) and the **Mute** ⌧ button ❸❹ at the same time. When the **Program Indicator** ❸ turns orange and begins flashing, release the buttons. It is important that you begin the next step within 20 seconds.

3. To find out if the code for your unit is pre-programmed, point the AVR remote towards the unit to be programmed, and press and hold the ▲ button ❶❸. This will send out a series of codes from the remote's built-in data base, with each flash of the red light under the **Input Selector** ❺ indicating that a code has been sent. When the device to be programmed turns off, immediately release the ▲ button ❶❸. Note that it may take one minute or more until the right code is found and the unit turns off.

4. When the ▲ button was not released in time after the unit turned off, the proper code may have been "overrun". That's why a function test should be made: Turn the unit on again and, while the **Input Selector** ❺ still lights red, press the ▲ button ❶❸ once, than the ▼ button ❶❸ once too. When the unit turns off, the right code was found, when not, the code was "overrun". To re-find the correct, while the **Input Selector** ❺ still lights red, press (not hold pressed) the ▼ button ❶❸ repeatedly to step backwards through the codes available and observe the reaction of the unit at each press. As soon as the unit turns off the correct code is found.

5. Press the **Input Selector** ❺ again, and note that the red light will flash three times before going dark to confirm the entry.

6. 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 control works, but the volume, channel and transport controls, 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.

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.

Programming the Remote

1. Press and hold both the **Input Selector ❺** for the device you wish to find the code for and the **Mute** button ❸ at the same time. Note that the **Program/SPL Indicator ❸** will initally turn amber and begin flashing. Release the buttons and begin the next step within 20 seconds.

2. Press the **Set** button ⓰. The **Program Indicator ❸** will then blink green 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. Note that a rapid sequence of three blinks is 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 four blinks indicates that the code has been set to 164.

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

DVD _____ CD _____

VID1/VCR _____ VID2/TV _____

VID3/CBL/SAT _____

VID4 _____

TAPE _____

Programmed Device Functions

Once the AVR's remote has been programmed for the codes of other devices, press the appropriate **Input Selector ❺** to change the remote from control over the AVR to the additional product. When you press any of these buttons, it will briefly flash in red to indicate that you have changed the device being controlled.

When operating a device other than the AVR, the controls may not correspond exactly to the function printed on the remote or button. Some commands, such as the volume control, are the same as they are with the AVR. Other buttons will change their function so that they correspond to a secondary label on the remote. For example, the Sleep and Surround mode selector buttons also function as the Channel Up and Channel Down buttons when operating most TV sets, VCRs or Sat-Receivers.

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 30. To use those tables, first check the type of device being con-

trolled (e.g., TV, VCR). Next, look at the remote control diagram on page 30. 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 51 is the Macro 2 button for the AVR, but it is the "Favorite" button for many cable television boxes and satellite receivers. Button number 30 is the Delay button for the AVR, but the Open/Close button for CD players.

Note that the numbers used to describe the button functions at the left 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 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.

• Depending on the brand and product type used the functions listed in the Function List tables may not correspond with the function the unit reacts on the command. In these cases it's a good idea to edit the reaction of the unit into the corresponding line of the table or to set up a separate list.

• When a button is pressed on the AVR remote, the red light under the **Input Selector ❺** for the product being operated should flash briefly. If the Device Control Selector 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.

• The remote was pre-programmed with codes for units of the latest generation, but some codes may differ from those needed for earlier units.

Macro Programming

Macros enable you to easily repeat frequently used combinations of commands with the press of a single button on the AVR's remote control. Once programmed, a macro will send out up to 19 different remote codes in a pre-determined sequential order enabling you to automate the process of turning on your system, changing devices, or other common tasks. The AVR's remote can store up to five separate macro command sequences, one that is associated with the **Power On** button ❶, and four more that are accessed by pressing the **Macro** buttons ㉑.

1. Press the **Mute** button ㉞ and the **Macro** button ㉑ to be programmed or the **Power-On** button ❶ at the same time. Note that the latest selected **Input Selector** will light red, and the **Program Indicator ❸** will flash orange.

2. Enter the steps for the macro sequence by pressing the button for the actual command step. Although the macro may contain up to 19 steps, each button press, including those used to change devices, counts as a step. The **Program Indicator ❸** will flash green to confirm each button press as you enter commands.

NOTE: While entering commands for Power On of any device during a macro sequence, press the **Mute** button ㉞. DO NOT press the actual Power ON button.

• Remember to press the appropriate **Input Selector** button ❺ before functions are changed to another device. This is also needed for the **AVR Selector** button ❻ itself, as long as it's not lit red and AVR functions shall be programmed.

3. When all the steps have been entered, press the **Sleep** button ❾ to enter the commands. The red light under the **Input Selector ❺ ❻** will blink and then turn off.

Example: To program the **Macro 1** ㉑ button so that it turns on the AVR, TV follow these steps:
• Press the **Macro 1** button ㉑ and **Mute** ㉞ buttons at the same time and then release them.
• Note that the **Program Indicator** will flash orange.
• Press the **AVR Selector** ❻.
• Press the **Mute** ㉞ button to store the AVR's power on command.
• Press the **VID 2 Input Selector** button ❺ to indicate the next command is for "TV Power On."
• Press the **Mute** ㉞ button to store the TV Power On Command.
• Press the **Sleep/Channel Up** button ❾ to complete the process and store the macro sequence.

After following these steps, each time you press the **Macro 1** button ㉑, the remote will send all Power On commands.

Erasing Macro Commands
To remove the commands that have been programmed into one of the Macro buttons, follow these steps:

1. Press the **Mute** button ㉞ and the **Macro** button ㉑ that contains the commands you wish to erase.

2. Note that the **Program Indicator ❸** will flash orange, and the LED under the **AVR Selector** ❻ will turn red.

3. Within ten seconds, press the **Surround Mode Selector/Channel Down** button ❿.

Programming the Remote

4. The red LED under the **AVR Selector** will go out, and the **Program Indicator** ❸ will turn green and flash three times before it goes out.

5. When the **Program Indicator** ❸ goes out, the Macro has been erased.

Volume Punch-Through

The AVR's remote may be programmed to operate the **Volume Control** ❸❷ and the **Mute** ❸❹ from either the TV or the AVR in conjunction with any of the six devices controlled by the remote. For example, since the AVR will likely be used as the sound system for TV viewing, you may wish to have the AVR's volume activated although the remote is set to run the TV.

To program the remote for Volume Punch-Through, follow these steps:

1. Press the **Input Selector** ❺ for the unit you wish to have associated with the volume control and the **Mute** button ❸❹ at the same time until the red light illuminates under the **Input Selector** ❺ and note that the **Program Indicator** ❸ will flash orange.

2. Press the **Volume Up** button ❸❷ and note that the **Program Indicator** ❸ will stop flashing and stay orange.

3. Press either the **AVR Selector** ❻ or the **Input Selector** ❺, depending on which system's volume control you wish to have attached for the punch-through mode. The **Program Indicator** ❸ will blink green three times and then go out to confirm the data entry.

Example: To have the AVR's volume control activated even though the remote is set to control the TV, first press the **Video/TV Input Selector** ❺ and the **Mute** button ❸❹ at the same time. Next, press the **Volume Up** button ❸❷, followed by the **AVR Input Selector** ❻.

NOTE: Should you wish to return the remote to the original configuration after entering a Volume Punch-Through, you will need to repeat the steps shown above. However, in the example above, press the **Video/TV Input Selector** in steps one and three.

Channel Control Punch-Through

The AVR's remote may be programmed to operate so that the channel control function for either the VCR, TV, cable or satellite receiver used in your system may be used in conjunction with one of the other devices controlled by the remote. For example, while using and controlling the VCR, you may wish to change channels on a cable box or satellite receiver without having to change the device selected by the AVR or the remote. To program the remote for Channel Control Punch-Through, follow these steps:

1. Press the **Input Selector** button ❺ for the device you wish to have the channel control associated with and the **Mute** button ❸❹ at the same time until the red light illuminates under the **Input Selector** ❺ and the **Program Indicator** ❸ flashes orange.

2. Press the **Volume Down** button ❸❷. The **Program Indicator** ❸ will stop flashing and stay orange.

3. Press and release the **AVR** ❻ or **Input Selector** button ❺ for the device that will be used to change the channels. The **Program Indicator** ❸ will blink green three times and then go out to confirm the data entry.

Example: To control the channels using your TV while the remote is set to control the VCR, first press the **VID 1/VCR Input Selector** button ❺ and the **Mute** button ❸❹ at the same time. Next, release them and press the **Volume Down** button ❸❷, followed by the **VID 2/TV Input Selector** button ❺.

NOTE: To remove the Channel Control Punch-Through and return the remote to its original configuration, repeat the steps shown in the example above. However, press the **VID 1/VCR Input Selector** in Steps 1 and 3.

Transport Control Punch-Through

The AVR's remote may be programmed to operate so that the Transport Control Functions ❷❷ (Play, Stop, Fast Forward, Rewind, Pause and Record) for a VCR, DVD or CD will operate in conjunction with one of the other devices controlled by the remote. For example, while using and controlling the TV, you may wish to start or stop your VCR or DVD without having to change the device selected by the AVR or the remote. To program the remote for Transport Control Punch-Through, follow these steps:

1. Press the **Input Selector** ❺ for the device you wish to have the transport control associated with and the **Mute** button ❸❹ at the same time until the red light illuminates, under the **Input Selector** ❺ and the **Program Indicator** ❸ flashes orange.

2. Press the **Play** button ❷❷. The **Program Indicator** ❸ will stop flashing and stay orange.

3. Press and release the **AVR** ❻ or **Input Selector** button ❺ for the device that will be used to change the transport function. The **Program Indicator** ❸ will blink green three times and then go out to confirm the data entry.

Example: To control the transport of a CD player while the remote is set to control the TV, press the **VID 2/TV Input Selector** button ❺ and the **Mute** button ❸❹ at the same time. Next, release them and press the **Play** button ❷❷, followed by the **CD Input Selector** button ❺.

NOTE: To remove the Transport Control Punch-Through and return the remote to its original configuration, repeat the steps shown in the example above. However, press the **VID 2/TV Input Selector** in Steps 1 and 3.

NOTE: Before programming the remote for Volume, Channel or Transport Punch-Through, make certain that any programming needed for the specific TV, CD, DVD, Cable or Satellite Receivers has been completed.

Resetting the Remote Memory

As you add components to your home-theater system, occasionally you may wish to totally reprogram the remote control without the confusion of any commands, macros or "Punch-Through" programming that you may have done. To do this, it is possible to reset the remote to the original factory defaults and command codes by following these steps. Note, however, that once the remote is reset, all commands or codes that you have entered will be erased and will need to be re-entered:

1. Press any of the **Input Selector** buttons ❺ and the **"0"** button ❿ at the same time until the **Program Indicator** ❸ begins to flash orange.

2. Press the **"3"** button ❿ three times.

3. The red LED under the **Input Selector** ❺ will go out and the **Program Indicator** ❸ will stop flashing and turn green.

4. The **Program Indicator** ❸ will remain green until the remote is reset. Note that this may take a while, depending on how many commands are in the memory and need to be erased.

5. When the **Program Indicator** ❸ goes out, the remote has been reset to the factory settings.

Function List
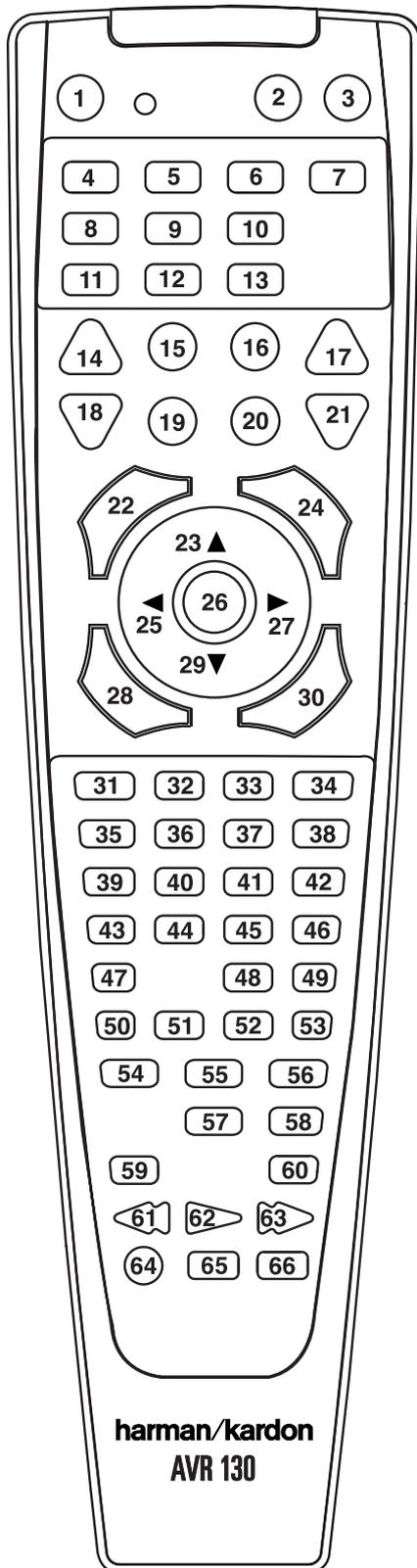
No.	Button Name	AVR Function	DVD	CD/CDR
1	**Power On**	Power On	Power On	Power On
2	**Power Off**	Power Off	Power Off	Power Off
3	**Mute**	Mute		
4	**AVR**	AVR Select		
5	**DVD**	DVD Input Select	DVD Select	
6	**CD**	CD Input Select		CD Select
7	**Tape**	Tape Input Select		
8	**VID 1**	Video 1 Select		
9	**VID 2**	Video 2 Select		
10	**VID 3**	Video 3 Select		
11	**DIM**	DIM		
12	**AM/FM**	Tuner Select		
13	**6 CH Input Select**	6 CH Input Selector		
14	**Sleep**	Sleep		
15	**Test**	Test Tone		-/Input Select
16	**TV**		TV/DVD	-/CDP Select
17	**Volume Up**	Volume Up	Volume Up	
18	**Surround Select**	Surround Mode Select		-/CDR Select
19	**Night**	Night Mode Select	Subtitle on/off	
20	**Spare**			
21	**Volume Down**	Volume Down	Volume Down	
22	**Channel/Guide**	Channel Trim	Title	
23	**▲**	Move/Adjust Up	Up	
24	**Speaker/Menu**	Speaker Adjust	Menu	Intro/-
25	**◄**		Left	
26	**Set**	Set	Enter	
27	**►**		Right	
28	**Digital/Exit**	Digital Input Select	Open/Close	
29	**▼**	Move/Adjust Down	Down	
30	**Delay/Prev. Ch.**	Delay Adjust	Return	Open/Close
31	**1**	1	1	1
32	**2**	2	2	2
33	**3**	3	3	3
34	**4**	4	4	4
35	**5**	5	5	5
36	**6**	6	6	6
37	**7**	7	7	7
38	**8**	8	8	8
39	**Tun-M**	Tuner Mode	Chapter	Repeat
40	**9**	9	9	9
41	**0**	0	0	0
42	**Memory**	Memory	Audio	Time/CDR Display
43	**Tune Up**	Tune Up		
44	**Direct**	Direct Tuner Entry	Angle	Random
45	**Clear**	Clear	Clear	Clear
46	**Preset Up**	Preset Tune Up	Slow Forward	+10/-
47	**Tune Down**	Tune Down		-/Track Increment
48	**RDS**	RDS Select	Disc Skip	Disc Skip
49	**Preset Down**	Preset Tune Down	Slow Rev	
50	**M1**			
51	**M2**			
52	**M3**			
53	**M4**			
54	**Dolby**	Dolby Mode Select		
55	**DTS Sur**	DTS 5.1 Select		
56	**DTS Neo:6**	DTS Neo:6 Select		
57	**Logic 7**	Logic 7 Select		
58	**Stereo**	Stereo Select		
59	**Skip Down**		Skip –	Skip –
60	**Skip Up**		Skip +	Skip +
61	**Rewind**		R. Search	R. Search
62	**Play**		Play	Play
63	**Fast Forward**		F. Search	F. Search
64	**Record**			-/Record
65	**Stop**		Stop	Stop
66	**Pause**		Pause	Pause

harman/kardon

AVR 130

Function List

No.	Button Name	Tape	VCR (VID 1)	TV (VID 2)	CBL (VID 3)	SAT (VID 3)
1	**Power On**	Power On	Power On	Power On	Power On	Power On
2	**Power Off**	Power Off	Power Off	Power Off	Power Off	Power Off
3	**Mute**			Mute		
4	**AVR**					
5	**DVD**					
6	**CD**					
7	**Tape**	Tape Select				
8	**VID 1**		VCR Select			
9	**VID 2**			TV Select		
10	**VID 3**				Video 3 Select	CBL/SAT Select
11	**DIM**					
12	**AM/FM**					
12	**6 CH Input Select**					
14	**Sleep**		Channel +	Channel +	Channel +	Channel +
15	**Test**					
16	**TV**		TV/VCR	TV/VCR	TV/Cable	TV/Sat
17	**Volume Up**		Volume Up	Volume Up		
18	**Surround Select**		Channel –		Channel –	Channel –
19	**Night**					
20	**Spare**					
21	**Volume Down**			Volume Down		
22	**Channel/Guide**				Info/Guide	Info/Guide
23	**▲**		Up	Up	Up	Up
24	**Speaker/Menu**		Menu	Menu	Menu	Menu
25	**◄**		Left	Left	Left	Left
26	**Set**		Enter	Enter	Enter	Enter
27	**►**		Right	Right	Right	Right
28	**Digital/Exit**		Exit	Exit	Exit	Exit
29	**▼**		Down	Down	Down	Down
30	**Delay/Prev. Ch.**			Prev Channel	Prev Channel	Prev Channel
31	**1**		1	1	1	1
32	**2**		2	2	2	2
33	**3**		3	3	3	3
34	**4**		4	4	4	4
35	**5**		5	5	5	5
36	**6**		6	6	6	6
37	**7**		7	7	7	7
38	**8**		8	8	8	8
39	**Tun-M**					
40	**9**		9	9	9	9
41	**0**		0	0	0	0
42	**Memory**					
43	**Tune Up**					
44	**Direct**					
45	**Clear**		Clear	Clear	Clear	Clear
46	**Preset Up**					
47	**Tune Down**					
48	**RDS**					
49	**Preset Down**					
50	**M1**		Cancel	Sleep	PPV	Cancel
51	**M2**				Fav	Fav
52	**M3**				Bypass	Next
53	**M4**				Music	Alt
54	**Dolby**				Music	Alt
55	**DTS Sur**				Music	Alt
56	**DTS Neo:6**				Music	Alt
57	**Logic 7**				Music	Alt
58	**Stereo**				Music	Alt
59	**Skip Down**		Scan –		Page –	Page –
60	**Skip Up**		Scan +		Page +	Page +
61	**Rewind**	Rewind	Rewind		Day –	Say –
62	**Play**	Play	Play			
63	**Fast Forward**	Fast Fwd	Fast Fwd		Day +	Day +
64	**Record**	Record/Rec.Pause	Record			
65	**Stop**	Stop	Stop			
66	**Pause**		Pause			

Troubleshooting Guide

SYMPTOM	CAUSE	SOLUTION
Unit does not function when **Main Power Switch** 1 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 34 • Turn up volume control
Sound is heard, but Front-Panel Display does not light	• Display brightness is turned off	• Follow the instructions in the Display Brightness section on page 25 so that the display is set to VFD FULL
No sound from any speaker; light around **Power switch** 2 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 • Incorrect configuration • Stereo or Mono program material • Speakers not properly connected	• Select a mode other than Stereo • Check speaker mode • With (analog or digital) Dolby surround modes, the surround decoder may not create rear-channel information from non-encoded programs • Check speaker-wire connections or use test tone to verify connections (see page 19)
Unit does not respond to remote commands	• Weak batteries in remote • Wrong device selected • **Remote sensor** 15 is obscured	• Change remote batteries • Press the **AVR selector** 6 • 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
Letters flash in the **Channel Indicator Display** 30 and Digital Audio stops	• Digital audio feed paused	• Resume play for DVD • Check that Digital Signal is fed to the Digital Input selected

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's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first put the unit in Standby by pressing the **System Power Control** button 2. Next, press the **Tone Mode** 6.

The unit will turn on automatically. 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,
> @ < 0.07% THD, both channels driven into 8 ohms

Five-Channel Surround Modes
Power Per Individual Channel

> Front L&R channels:
> 40 Watts per channel,
> @ < 0.07% THD, 20Hz–20kHz into 8 ohms

> Center channel:
> 40 Watts, @ < 0.07% THD, 20Hz–20kHz into 8 ohms

> Surround channels:
> 40 Watts per channel,
> @ < 0.07% THD, 20Hz–20kHz into 8 ohms

Input Sensitivity/Impedance	
Linear (High Level)	200mV/47kohms
Signal-to-Noise Ratio (IHF-A)	95dB
Surround System Adjacent Channel Separation	
Analog Decoding	40dB
(Pro Logic, etc.)	
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, −3dB)	10Hz–100kHz
High Instantaneous Current Capability (HCC)	±25 Amps
Transient Intermodulation Distortion (TIM)	Unmeasurable
Rise Time	16 μsec
Slew Rate	40V/μsec

FM Tuner Section

Frequency Range	87.5–108MHz
Usable Sensitivity	IHF 1.3 μV/13.2dBf
Signal-to-Noise Ratio	Mono/Stereo: 70/65dB (DIN)
Distortion	Mono/Stereo: 0.15/0.3%
Stereo Separation	35dB @ 1kHz
Selectivity	±400kHz: 70dB
Image Rejection	80dB
IF Rejection	90dB

AM Tuner Section

Frequency Range	522–1720kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop: 500μV
Distortion	1kHz, 50% Mod: 0.8%
Selectivity	±10kHz: 30dB

Video Section

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

General

Power Requirement	AC 220-240V/50Hz
Power Consumption	72W idle, 580W maximum (2 channels driven)
Dimensions (Max)	
Width	440mm
Height	168mm
Depth	390mm
Weight	10.9 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.

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