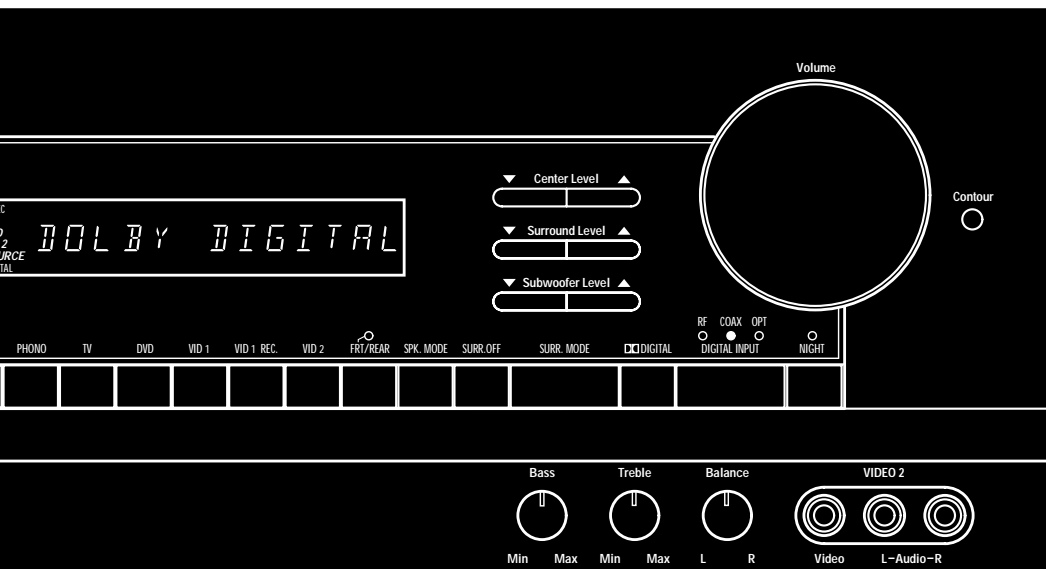


Harman Kardon AVR55 Audio/Video Receiver



Owner's Manual

harman/kardon

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AVR55 Audio/Video Receiver

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Introduction

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Congratulations! With the purchase of a Harman Kardon AVR55 you are about to begin many years of listening enjoyment. The AVR55 has been custom designed to provide all the excitement and detail of movie sound tracks and every subtle nuance of musical selections. With on-board Dolby* Digital Decoding, the AVR55 delivers six discrete channels of audio that take advantage of the digital sound tracks from the latest DVD and LV releases as well as future HDTV broadcasts.

While complex digital systems are hard at work within the AVR55 to make all of this happen, hookup and operation are simple. Color-keyed connections and a comprehensive learning remote control make the AVR55 easy to use. To obtain the maximum enjoyment from your new receiver we urge you to take a few minutes to read through this manual. This will ensure that connections to speakers, source playback units and other external devices are made properly. In addition, a few minutes spent learning the functions of the various controls will enable you to take advantage of all the power the AVR55 is able to deliver.

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

Description and Features

The AVR55 is a full-featured A/V receiver, incorporating a wide variety of listening options. In addition to Dolby Digital decoding, Dolby Pro Logic* and Dolby 3 Stereo are available for compatibility with the tens of thousands of movies and television programs encoded with analog surround information. A choice of Hall, Theater, Church and Stadium modes is also available for use with both encoded sources and traditional two-channel stereo recordings.

A total of four audio/video inputs, as well as four additional audio only inputs including a phono input and an FM stereo/FM/AM tuner are available for the utmost flexibility. Front panel AV inputs simplify connections to video games or camcorders.

The AVR55's powerful amplifier uses traditional Harman Kardon High-Current design philosophies to meet the wide dynamic range of any program selection.

Harman Kardon invented the high-fidelity receiver over forty-five years ago. With state-of-the-art features and time-honored circuit designs, the AVR55 is one of the finest receivers ever offered by Harman Kardon.

- On-Board Dolby Digital Decoding
- Coax, Optical or RF Digital Inputs
- Six Analog Surround Modes
- Learning Remote Control
- Composite Video Switching
- Preamp Output for ALL Channels
Permits Ease of Expansion
- Phono Input

Safety Information

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Important Safety Information

Verify Line Voltage Before Use

Your AVR55 has been designed for use with 120-volt AC current. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard, and may damage the unit.

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

Do Not Use Extension Cords

To avoid safety hazards, use only the power cord attached to your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately with cords meeting factory specifications.

Handle the AC Power Cord Gently

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

Do Not Open The Cabinet

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

CATV or Antenna Grounding





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

NOTE TO CATV SYSTEM INSTALLER:

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

Installation Location

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

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		
 The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.		 The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.		
CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.		
ATTENTION: POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.		

Safety Information

Cleaning

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

Moving The Unit

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

Important information for the user

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

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

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

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

Unpacking

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

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

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

Typographic Conventions

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

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

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

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

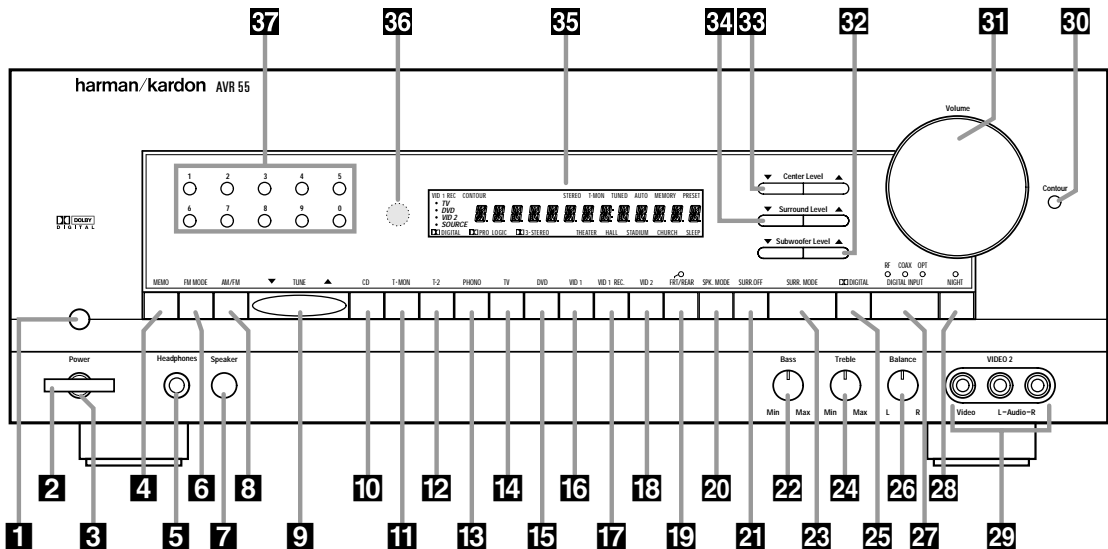
1 – (number in an oval) indicates a button or indicator on the remote

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

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

Front Panel Controls

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- 1** Main Power Switch
- 2** System Power Control
- 3** Power Indicator
- 4** Memo Button
- 5** Headphone Jack
- 6** FM Mode
- 7** Speaker Switch
- 8** AM/FM
- 9** Tuning Button
- 10** CD
- 11** Tape 1/Monitor
- 12** Tape 2
- 13** Phono

- 14** TV
- 15** DVD Input
- 16** Vid 1
- 17** Vid 1 Rec
- 18** Vid 2
- 19** Vid 2 Front/Rear
- 20** Speaker Mode Selector
- 21** Surround Off
- 22** Bass Control
- 23** Surround Mode
- 24** Treble Control
- 25** Digital Mode Selector
- 26** Balance Control

- 27** Digital Input Selector
- 28** Night Mode
- 29** Video 2 Inputs
- 30** Contour
- 31** Volume Control
- 32** Subwoofer Level Adjust
- 33** Center Level Adjust
- 34** Surround Level Adjust
- 35** Information Display
- 36** Remote Sensor Window
- 37** Numeric Keys

Front Panel Controls

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1 Main Power Switch: Press this button to apply power to the AVR55. When the switch is pressed the unit is placed in a Standby mode, as indicated by the amber LED **3** surrounding the **System Power** control **2**. This button **MUST** be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out to extend from the front panel so that the word "OFF" may be read at the top of the switch.

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

2 System Power Control: When the **Main Power Switch 1** is "ON," press this button to turn on the AVR55, press it again to turn the unit off. Note that the **Power Indicator** surrounding the switch **3** will turn green when the unit is on.

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

4 Memo Button: This button is used to enter settings for speaker modes and tuner presets after making the appropriate selection.

5 Headphone Jack: This jack may be used to listen to the AVR55's output through a pair of headphones. Be certain that the headphones have a standard 1/4" stereo phone plug.

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

7 Speaker Switch: For normal operation this switch is pressed in and sound is heard through all speakers. To silence the speakers, push the button once until it is in the "out" position. When the speakers are turned off, sound will continue to be heard through the headphone jack.

8 AM/FM: Press this button to select the tuner as the AVR55's input source. When it is first pressed the last station tuned will appear. Press it again to change between AM and FM bands.

9 Tuning Button: Press the left side of the button to tune lower frequency stations and the right side of the button to tune higher frequency stations. When a station with a strong frequency is tuned, the **TUNED** indicator will illuminate in the **Information Display 35**. A brief (1/2 second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception.

10 CD: Press this button to select the device connected to the **CD Input** jacks **23** as the listening source.

11 Tape1/Monitor: Press this button to select the device connected to the **Tape 1 Play** jacks **11** as the listening source. The **T-Mon** indicator **K** will illuminate to indicate that the Tape Monitor has been selected, while the name of the input being monitored will be displayed in the **Main Information Display E**.

12 Tape 2: Press this button to select the device connected to the **Tape 2 Play** jacks **9** as the listening source.

13 Phono: Press this button to select the **Phono Input 24** as the listening source.

14 TV: Press this button to select the device connected to the **TV/Aux** jacks **1** as the listening and viewing source.

15 DVD Input: Press this button to select the device connected to the **DVD Play** jacks **18** as the listening and viewing source.

16 Vid 1: Press this button to select the device connected to the **Video 1 In** jacks **18** as the listening and viewing source.

17 Vid 1 Rec: Press this button to select the device that will be recorded by the device connected to the **Video 1 Out** jacks **14**. The selected source is shown in the **Vid 1 Source** indicators **A** in the **Information Display 35**. Note that this recording will take place even if another source is selected for listening through the system.

Front Panel Controls

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18 Vid 2: Press this button to select the device connected to the **Video 2 Play** jacks **19** as the listening and viewing source.

19 Vid 2 Front/Rear: Press this button to choose either the rear panel **Video 2 Play** jacks **19** or the front panel **Video 2 Inputs** **29** as the input source. When the red light above the button is illuminated, the front panel jacks are selected.

20 Speaker Mode Selector: Press this button to configure the AVR55 for the type of speakers used in your system. See page 18 for details on using this button.

21 Surround Off: Press this button to turn the surround modes off to listen to a source in traditional two-channel stereo from the front left/right speakers only.

22 Bass Control: Turn this control to modify the low frequency output of the left/right channels by as much as $\pm 10\text{dB}$. Set this control to a suitable position for your taste and room acoustics.

23 Surround Mode: Press this button to select one of the analog surround processing modes (Dolby Pro Logic, Dolby 3 Stereo, Theater, Hall, Stadium and Church) for a listening session.

24 Treble Control: Turn this control to modify the high frequency output of the left/right channels by as much as $\pm 10\text{dB}$. Set this control to a suitable position for your taste and room acoustics.

25 Digital Mode Selector: Press this button to listen to a source when a Dolby Digital (AC-3*) signal is present.

NOTE: Dolby Digital may only be used with the **TV, DVD, Vid 1** and **Vid 2** inputs.

26 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.

27 Digital Input Selector: When the **Digital Mode Selector** **25** has been pressed, this button is used to select the type of digital input to be used.

NOTE: The coax or optical inputs may be selected with the **CD, TV, DVD, Vid 1** and **Vid 2** inputs. The RF input may be used in conjunction with the **Vid 1** or **Vid 2** input only.

28 Night Mode: Press this button to activate the "Night" mode, preventing a loud playback when the digital modes are in use.

29 Video 2 Inputs: These jacks may be used to temporarily connect an audio/video source such as a video game or camcorder to the AVR55. To select these jacks as the input, press the **Vid 2 Front/Rear** button **19** until the red LED above that button is illuminated.

30 Contour: Press this button when listening at low levels to activate special circuits that compensate for the response of the human ear at lower volumes. The **Contour Indicator** **M** will illuminate to remind you when this circuit is ON. In the OFF position the AVR55 will provide flat frequency response.

31 Volume Control: Turn the knob clockwise to increase volume, counterclockwise to decrease the volume.

32 Subwoofer Level Adjust: Press these buttons to raise or lower the output to the subwoofer channel. These buttons should be used during normal listening sessions for touch-up adjustments, not when the test signal is being used for major system alignment.

33 Center Level Adjust: Press these buttons to raise or lower the output to the center channel. These buttons should be used during normal listening sessions for touch-up adjustments, not when the test signal is being used for major system alignment.

34 Surround Level Adjust: Press these buttons to raise or lower the output to the surround channels. These buttons should be used during normal listening sessions for touch-up adjustments, not when the test signal is being used for major system alignment.

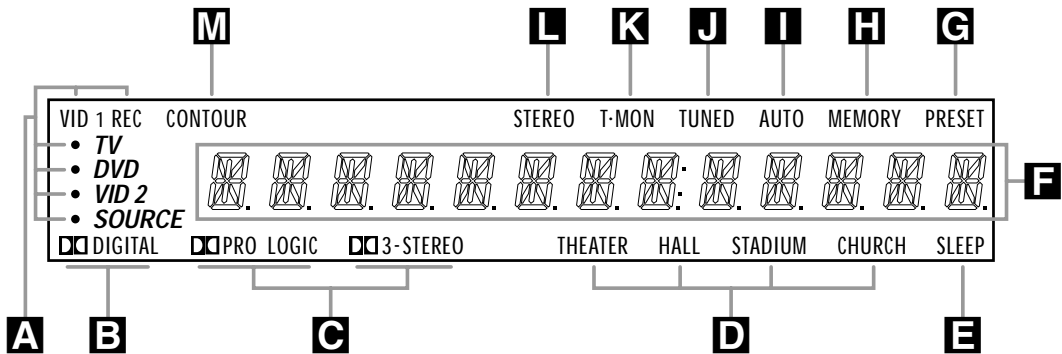
35 Information Display: This display delivers messages and status indications to help you operate the receiver. See page 7 for a complete explanation of the display.

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

37 Numeric Keys: Press these buttons to enter or recall stations entered to the tuner's preset memory. See page 25 for complete information on using the tuner and the preset memories.

Front Panel Information Display

10



- A** Vid 1 Record Indicators
- B** Dolby Digital Indicator
- C** Analog Dolby Surround Mode Indicators
- D** Analog Surround Mode Indicators
- E** Sleep Indicator
- F** Main Information Display
- G** Preset Indicator
- H** Memory Indicator
- I** Auto Mode In Indicator
- J** Tuned Indicator
- K** T-Mon Indicator
- L** Stereo Indicator
- M** Contour Indicator

A Vid 1 Record Indicators: A dot appears next to one of the sources shown in this indicator to tell you which input has been selected as the output to the device connected to the **Video 1 Out** jacks **10**. Press the **Vid 1 Rec** button **17** to change the source.

B Dolby Digital Indicator: This indicator illuminates when a Dolby Digital source has been selected.

C Analog Dolby Surround Mode Indicators: These indicators illuminate when one of the analog (matrix) dolby Surround modes is in use.

D Analog Surround Mode Indicators: These indicators illuminate when one of the DSP generated analog surround modes is in use.

E Sleep Indicator: This indicator is illuminated when the Sleep function is in use. The number that appears above the indicator is the number of minutes remaining before the AVR55 will return to the Standby mode.

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

G Preset Indicator: This indicator illuminates when one of the stations entered into the preset memory is tuned. The number that appears below the indicator is the preset station's memory.

H Memory Indicator: This flashes after the **Memo** button **4** **21** has been pressed to indicate that you have five seconds to select and enter a preset memory location for a specific radio station.

I Auto Mode In Indicator: This indicator illuminates when the "Auto" mode is in use for FM tuning.

J Tuned Indicator: This indicator illuminates when a station is being received with sufficient signal strength to allow for acceptable listening quality.

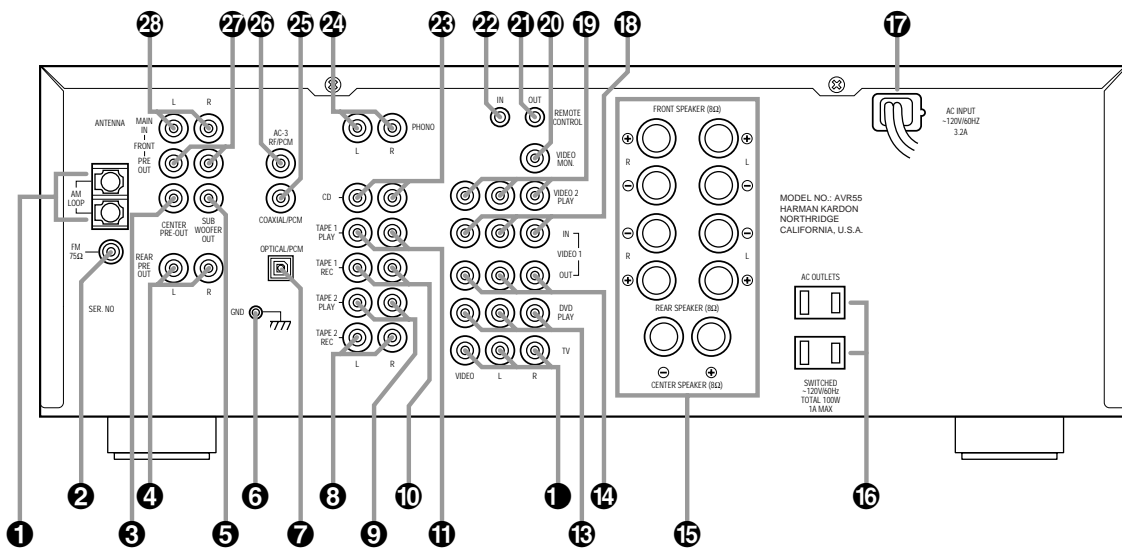
K T-Mon Indicator: This indicator illuminates when the Tape Monitor function is in use to remind you that you are listening to the record output of the device connected to the **Tape 1 Record** jacks **10**, not to the actual input source shown in the **Information Display**.

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

M Contour Indicator: This indicator illuminates when the Contour circuits have been engaged by pressing the **Contour** button **30**.

Rear Panel Connections

11



- 1 AM Antenna
- 2 FM Antenna
- 3 Center Channel Preamp Output
- 4 Rear Preamp Outputs
- 5 Subwoofer Output
- 6 Ground Terminal
- 7 Optical/PCM Digital Input
- 8 Tape 2 Rec
- 9 Tape 2 Play
- 10 Tape 1 Rec

- 11 Tape 1 Play
- 12 TV Inputs
- 13 DVD Input
- 14 Video 1 Outputs
- 15 Speaker Outputs
- 16 Switched Outlets
- 17 AC Power Cord
- 18 Video 1 Inputs
- 19 Video 2 Play Inputs
- 20 Video Monitor Output

- 21 Remote Control Extension Output
- 22 Remote Control Extension Input
- 23 CD Input
- 24 Phono Input
- 25 Coax Digital Input
- 26 AC-3 RF Input
- 27 Front Channel Preamp Outputs
- 28 Front Channel Main In Amp Inputs

1 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.

2 FM Antenna: Connect an indoor or external FM antenna to this terminal.

3 Center Channel Preamp Output: These jacks may be used to connect the center channel to an optional, external power amplifier.

4 Rear Preamp Outputs: These jacks may be used to connect the surround channels to an optional, external power amplifier.

5 Subwoofer Output: Connect this jack to the mono line level input of an optional powered subwoofer, or your optional external subwoofer amplifier.

6 Ground Terminal: Connect the ground wire from a turntable to this terminal to reduce system hum.

7 Optical/PCM Digital Input: Connect the optical digital output of a CD, LV or DVD player or HDTV product to this jack.

8 Tape 2 Rec: Connect the RECORD/INPUT jacks of an audio tape recorder to these jacks.

Rear Panel Connections

12

9 Tape 2 Play: Connect the PLAY/OUT jacks of an audio tape recorder to these jacks.

10 Tape 1 Rec: Connect the RECORD/INPUT jacks of an audio tape recorder to these jacks.

11 Tape 1 Play: Connect the PLAY/OUT jacks of an audio tape recorder to these jacks.

NOTE: The recorder connected to the **Tape 1/Mon** jacks may be monitored during a recording session by pressing the **Tape 1/Mon** button **11 4** on the front panel or remote.

1 TV Inputs: Connect the audio and video outputs from a TV, Satellite receiver or other A/V source to these jacks. The signal sent to the video jack may also be used to trigger the TV Auto On function. (See page 23 for more information on TV Auto On.)

13 DVD Input: Connect the composite video and analog audio outputs of a DVD player to these jacks.

14 Video 1 Outputs: Connect the audio and video REC/IN jacks of your main VCR to these jacks.

NOTE: The **Video 1** jacks may be used for any video source, but when used with a VCR they will permit dubbing from one source to another while a separate source is being listened to by selecting the **VID 1 Rec** button **17**.

15 Speaker Outputs: Connect these terminals to the input terminals on your front left/right, center and surround speakers.

16 Switched Outlets: These outlets provide AC power only when the AVR55 is turned on. Note that the total power draw of the products connected may not exceed 100 watts.

17 AC Power Cord: Connect this plug to an unswitched 115 volt AC outlet.

18 Video 1 Inputs: Connect the audio and video PLAY/OUT jacks of your main VCR to these jacks.

19 Video 2 Play Inputs: Connect the audio and video PLAY/OUT jacks of a VCR, DVD, LD, Satellite system or other video source to these jacks.

20 Video Monitor Output: Connect this jack to the video input of a TV or video projector to view the selected source.

21 Remote Control Extension Output: This jack may be connected to other compatible Harman Kardon products so that they will receive infrared commands captured by the AVR55's remote sensor.

22 Remote Control Extension Input: If the AVR55's front panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

23 CD Input: Connect the output of your CD player or D/A converter to these jacks.

24 Phono Input: Connect the output of your turntable or tone arm to these jacks. Note that only Moving Magnet (MM) type cartridges may be used.

25 Coax Digital Input: Connect the coax digital output from a DVD player, HDTV receiver, LV player or CD player to this jack. The signal may be either a Dolby Digital (AC-3) signal or a standard PCM digital source.

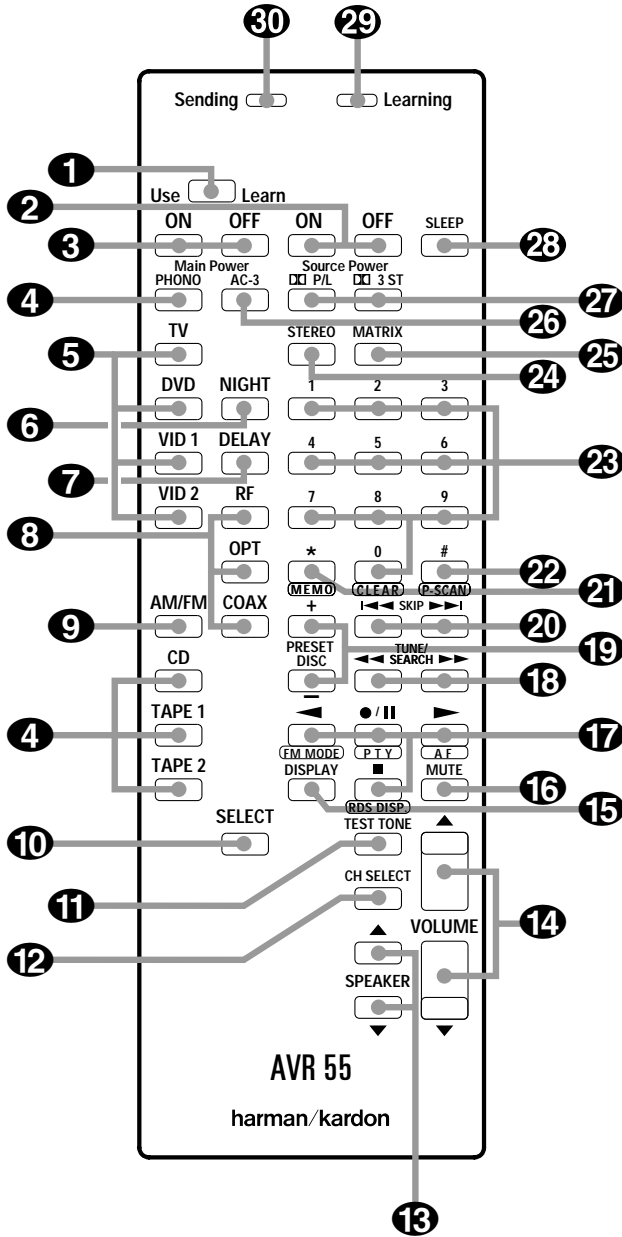
26 AC-3 RF Input: Connect the AC-3 RF output of an LV player equipped for digital audio to this jack.

NOTE: Do not connect standard analog audio sources to these jacks **25 26**.

27 Front Channel Preamp Outputs: These jacks provide the output for the front left and right channels to an external amplifier or processor. In normal operation, unless an external power amplifier is used, the jumper pins should remain connected to the **Front Main In** jacks **28**.

28 Front Channel Main In Amp Inputs: These jacks are the input to the AVR55's front left/right channel power amplifier. Unless an external power amplifier is used for the left/right channels, the jumper pins should remain connected to the **Front Pre Out** jacks **27**.

Remote Control Functions



- 1 Use/Learn
- 2 Source Power
- 3 Main Power
- 4 Audio Source Selectors
- 5 Video Source Selectors
- 6 Night Mode
- 7 Delay
- 8 Digital Audio Input Selectors
- 9 AM/FM
- 10 Select
- 11 Test Tone
- 12 Channel Select
- 13 Speaker Level Adjust
- 14 Main Volume
- 15 Display
- 16 Mute
- 17 Transport Controls
- 18 Tune/Search and Fast Forward
- 19 Preset/Disc
- 20 Channel/Skip
- 21 Memo
- 22 P-Scan
- 23 Number Keys
- 24 Stereo Selector
- 25 Matrix Surround Modes
- 26 AC-3 Select
- 27 Dolby Surround Modes
- 28 Sleep
- 29 Learning LED
- 30 Sending LED

Remote Control Functions

14

1 Use/Learn: This switch selects the operation mode of the remote control. Slide it to the left for normal operation. Slide it to the right when the remote is being programmed.

2 Source Power: Press these buttons to control power for the last source device selected when power on/off commands have been programmed into the remote's memory.

3 Main Power: Press these buttons to turn the unit on or off.

4 Audio Source Selectors: Press these buttons to select any of the audio only sources (**CD, Phono, Tape 1, Tape 2**) as the AVR55's input.

5 Video Source Selectors: Press these buttons to select any of the audio/video sources (**TV, DVD, Vid 1, Vid 2**) as the AVR55's input.

6 Night Mode: Press this button to activate the "Night" mode, preventing loud playback when the digital modes are in use without altering the dynamic range of the output signal.

7 Delay: Press this button to change the delay time, after the Delay function has been initiated by first pressing the **Select** button **10**.

8 Digital Audio Input Selectors: Press one of these buttons to select a digital audio input.

9 AM/FM: Press this button to select the AVR55's tuner as an input source. Pressing this button when the tuner is in use will switch between the AM and FM bands.

10 Select: Press this button to initiate the process that changes the delay time (see page 20).

11 Test Tone: Press this button to begin the adjustment of the output levels. A test tone will circulate among the speakers. Press this button to select the individual channels for output-level adjustments (see page 19).

12 Channel Select: Press this button to view the output level for the surround or center channels. When the **Test Tone** button **11** has been pressed so that the Tone is audible, pressing this button will change the channel available for adjustment (see page 19).

13 Speaker Level Adjust: When setting the system output levels, press these buttons to increase or decrease the output level.

14 Main Volume: These buttons control the unit's volume. Note

that all channels are controlled simultaneously.



15 Display: Press this button to reduce the brightness of the front panel display, or to turn it off completely.

16 Mute: Press this button to temporarily cut the audio output of the receiver. Press it again to return to the previous volume level.

17 Transport Controls: These buttons may be programmed to control the tape or disc motion of the last playback source selected with the **Source Selection** buttons **4**. Use them as you would the Play, Stop, Pause, Record, Reverse Play and Forward Play buttons on any VCR, CD, cassette, DVD or LD remote control. The Reverse Play button  also operates the FM Mode function of the AVR55's tuner.

18 Tune/Search and Fast Forward: These buttons may be programmed to have multiple functions, which vary according to the input device selected.

a. When the **TUNER** has been selected, these buttons are used to tune stations.

b. When **CD, Tape, DVD, LD** or **VCR** is the input source, these buttons act as the Fast Scan Forward  or Fast Scan Reverse  controls.

Remote Control Functions

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19 Preset/Disc: These buttons have multiple functions, which vary according to the input device selected.

- a. When the **TUNER** has been selected, these buttons will scroll up **▶|** or down **|◀** through the stations that have been programmed in the preset memory.
- b. When **CD** is selected and the unit is a CD changer, these buttons will change to the next disc **+** or previous disc **-**.
- c. When **Tape 1** or **Tape 2** is the input source, and the tape machine is a compatible Harman Kardon dual cassette deck, these buttons will switch between the "A" and "B" sides.

20 Channel/Skip: These buttons have multiple functions, which vary according to the input device selected and the codes programmed from another remote.

- a. When **TV**, **Vid 1** or **Vid 2** are selected, they may function as the channel up **▶|** or channel down **|◀** tuning buttons when programmed with the codes from another unit's remote.
- b. When **CD** is selected these buttons act as forward and reverse "Skip" buttons to move to the next track or chapter on the disc.

c. When a compatible Harman Kardon cassette player has been selected as **Tape 1** or **Tape 2**, these buttons move the tape forward **▶|** or backwards **|◀** to the next selection using the Music Scan feature.

21 Memo: The memo button is used to enter settings for the tuner's preset memory and when entering speaker types. It is also used when clearing the memory.

22 P-Scan: Press this button to automatically scan through the stations preset into the tuner memory. Press the button again to end the scan when the tuner stops at the desired station.

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

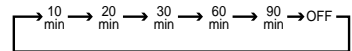
24 Stereo Selector: Press this button to turn the surround processing off and listen to an input in traditional two-channel (front left/right) audio.

25 Matrix Surround Modes: Press this button to select the Theater, Hall, Stadium or Church surround modes. Each press of the button cycles through the four modes (see page 23).

26 AC-3 Select: Press this button to activate the Dolby Digital mode when an appropriate digital audio source is present and the correct digital input is selected (see page 24).

27 Dolby Surround Modes: Press these buttons to select the Dolby Pro Logic or Dolby 3 Stereo modes. Use Pro Logic when surround speakers are installed, and Dolby 3 Stereo when only front speakers are available.

28 Sleep: Press this button to activate the sleep timer. Each press of the button will increase the time increment before the AVR55 goes into the Standby mode in the following order:



Note that the front panel display will dim when the Sleep function is active.

29 Learning LED: This indicator will illuminate when a button on the remote is being programmed with signals from another remote during the "learning" mode. The light will go out when the signal is received and memorized.

30 Sending LED: This indicator should flash any time a button is pressed to confirm that a command is being sent to the receiver or another unit. If the light is dim or does not illuminate when a button is pressed the batteries in the remote should be replaced.

Installation and Setup

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System Installation

After unpacking the unit, and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your audio and video equipment. These steps need to be done only when the receiver is first installed, or when a change is made to the input source equipment.

Audio Input and Output Connections

We recommend that you use high-quality cables when making connections to source equipment and recorders to preserve the quality 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 plug. This prevents any possibility of accidentally sending audio or transient signals to the speakers that may damage them.

1. For playback-only audio sources, such as a CD player, CD changer, tape deck or phono cartridge, connect the output jacks of the player to the appropriately labeled inputs on the rear panel ⑳㉑.

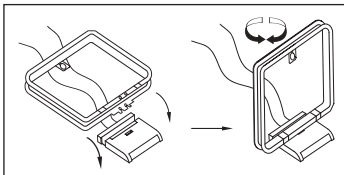
NOTE: When the source device has both fixed and variable audio outputs it is best to use the fixed output unless you find that the input to the receiver is so low that the sound is noisy, or high that the signal is distorted.

2. If a turntable is connected to the **Phono** input ㉒, connect the ground wire from the cartridge or tone arm to the **Ground** terminal ㉓.

3. When connecting audio recording devices such as cassette recorders, open reel audio tape decks, DAT or MD, connect the PLAY/OUT jacks of the recorder to the **Play** jacks ㉔ ㉕ on the AVR55. Connect the RECORD/IN jacks on the recorder to the **Tape Rec** jacks ㉖ ㉗ on the AVR55.

4. Connect the output of any digital sources to be used to the appropriate connections on the AVR55 rear panel. The **Optical** and **Coaxial** digital inputs ㉘ ㉙ may be used with either a Dolby Digital (AC-3) source or the output of a conventional CD or LV player's PCM (S/P-DIF) output. The **AC-3 RF** input ㉚ may **ONLY** be connected to the special AC-3 RF output of a laser disc player.

5. Assemble the AM Loop Antenna supplied with the unit as shown below. Connect it to the **AM** and **GND** screw terminals ㉛.



6. Connect an FM antenna to the **FM (75 ohm)** connection ㉜. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna, or a connection from a cable TV system. Note that if the antenna or connection uses 300-ohm twin lead cable, you must use the 300-ohm to 75-ohm adapter supplied with the unit to make the connection.

7. Connect the front, center and surround speaker outputs ㉝ 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 this receiver, the type of speakers you use, personal preferences and other factors. Your dealer or installer is a valuable resource to consult in selecting the proper cable.

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

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

Installation and Setup

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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 the receiver and the speaker. Similarly, the “positive” or “red” wire should be connected to the like terminal on the AVR55 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.

8. Connections to a subwoofer are made via an audio connection from the **Subwoofer Output 5** to the line level input of a subwoofer with a built-in amplifier. If a passive subwoofer is used, the connection first goes to a power amplifier, which will be connected to one or more subwoofer speakers.

Video Input and Output Connections

Video connections are made in a similar fashion as those for audio components. Again, the use of high-quality interconnect cables is recommended to preserve signal quality.

1. Connect your VCR’s audio and video OUT jacks to the **Video 1 In** jacks **18** on the rear panel. The audio and video IN jacks on the VCR should be connected to the **Video 1 Out** jacks **14** on the AVR55.

2. Connect the audio and video outputs of a satellite receiver, cable TV converter or television set or any other video source to the **TV** jacks **1**.

3. Connect the audio and video outputs of a DVD or laser disc player to the **DVD** jacks **13**.

4. Connect the **Video Mon 20** jack on the receiver to the video input of your television monitor or video projector.

System and Power Connections

The AVR55 is designed for flexible use with external control components and power amplifiers. These connections are easy to make during an initial installation, or at a later date should you choose to upgrade your system.

Remote Control Extension

If the receiver is placed behind a solid or smoked glass cabinet door, the obstruction may prevent the internal remote sensor from receiving commands. In this event, an optional remote sensor may be used. Connect the output of the remote sensor to the **Remote Cont. In** jack **22**.

If other components are also prevented from receiving remote commands, only one sensor is needed. They may use the AVR55’s sensor or a remote eye to send commands to other products by running a connection from the **Remote Cont. Out** jack **21** to the Remote In jack on Harman Kardon or other compatible equipment.

External Audio Power Amplifier Connections

If desired, optional, external power audio power amplifiers may be used with the AVR55. Connections may be made by connecting the **Preamp Outputs 3 4 27** of the AVR55 to the inputs of the external amplifier. Before connecting the front channels to an external amplifier, remove the jumper pins connecting the **Front Channel Inputs** and **Outputs 27 23** and save them for future use.

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. Their total power draw may not exceed 100 watts.

These **Outlets 16** will receive power only when the unit is on. These recommended for devices that have no power switch, or a mechanical power switch that may be left in the “ON” position.

NOTE: Devices with electronic power switches may only go into a Standby mode when plugged in here.


Finally, when all connections are complete, plug the **AC Power Cord 17** into a non-switched 120-volt AC wall outlet. You’re almost ready to enjoy the AVR55!

Remote Control Programming and Operation

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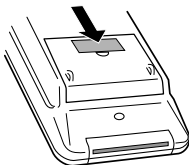
This product is equipped with a powerful remote control. As supplied, it will operate the receiver, as well as most CD players and tape decks manufactured by Harman Kardon. If your equipment requires different codes, it may be programmed to copy the codes from most infrared remotes.

Loading Batteries

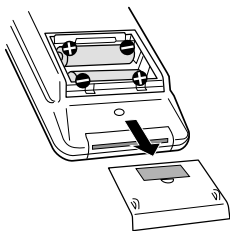
The life of the batteries for the remote control is about one year in normal operation. If the amber **Sending**  indicator does not flash when remote buttons are pushed, that is an indication that the batteries need to be replaced.

To change the batteries:

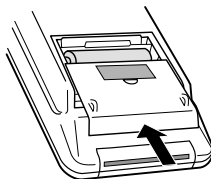
1. Remove the back cover by sliding it in the direction of the arrows.



2. Remove the old batteries and insert fresh AAA type cells. Be certain to observe the correct polarity by noting the (+) and (-) marks on both the inside of the case and on the battery cells. It is recommended that both batteries be changed at the same time.



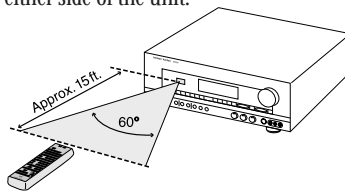
3. Close the cover until it clicks shut.



NOTE: It is important that the batteries be replaced within ten minutes after the old batteries are removed to avoid losing any remote codes that have been programmed into the remote's memory.

Remote Control Range

The remote will operate at a range of up to 15 feet from the unit, when the batteries are fully charged. The remote will also operate at an angle of up to 30° to either side of the unit.



Always point the remote transmitter at the front of the unit when issuing commands. If you find that remote commands are not being received by the remote, it may be necessary to use a remote IR sensor.

Remote Programming

Programmable Keys

Many of the buttons on the remote control may be user programmed to new functions to operate virtually any component in your system. Eleven CANNOT be programmed with a new code, as they control high-level functions of the AVR55. These keys are **Main Power ON**, **Main Power OFF**, and the source input keys: **TV**, **DVD**, **VID 1**, **VID 2**, **Phono**, **CD**, **Tape 1**, **Tape 2**.

Programmable keys are divided into two groups. Some keys may be programmed with a separate function for each of the inputs. Thus, these keys may change their code when the input source is changed. (e.g., The **Play** key may transmit a different code when **CD** is selected as opposed to when **VCR** is selected.) The keys that may be programmed with multiple codes are the following:

All Numeric Keys (**0 - 9**)

Forward Play 

Source Power On

Reverse Play 

Source Power Off

Stop 

Preset Disc 

Record 

Preset Disc 


Pause 

Channel/Skip 

Channel/Skip 

Tune/Search 

Memo

Tune/Search 

P-Scan

Remote Control Programming and Operation

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All other keys may only be programmed with one remote code. The code contained in these keys remains the same regardless of the source selection.

WARNING: These keys transmit codes that are vital to the operation of the product. It is not recommended that they be programmed with alternative codes, as it may then be impossible to operate certain functions of the receiver.

Night
Delay
RF
Opt
Coax
Select
All Mode Selectors
★

Display
Speaker ▲▼
CH Select
Volume ▲▼
Test Tone
Mute

To program the remote, follow these steps. Note that it is not necessary to program all keys, only those that are required to operate the subject device. Keys not programmed will retain the codes preprogrammed at the factory.

1. Slide **Use/Learn** ❶ switch at the top left corner of the remote to the right so that it is next to **Learn**.
2. If one of the multifunction buttons is being programmed press the source button (e.g. **CD, VID 1**) you wish to have this function associated with. If you are programming a single function key, proceed to the next step.
3. Press the button on the remote that is to be programmed. Note that the **Learning LED** ❷ will illuminate.
4. Place the remote head to head with the remote control whose function is being learned. The two remotes should be no more than 8 inches apart.
5. Press and hold the button on the remote corresponding to the function to be memorized until the **Learning LED** starts to blink. When the LED goes out, release the button on the transmitting remote. The function code has been successfully captured by the remote.

NOTE: If both LEDs flash during a programming operation, it indicates that the remote's memory is full or that the remote codes from the transmitting remote are not compatible with the unit's signal format.

6. Continue to program any additional remote commands required using steps 2 through 5. When you have finished programming the remote, slide the **Use/Learn** switch to the left so that it is in the **Use** position.

Clearing the Remote Memory

In normal operation, codes for a new device may be programmed "over" the codes that have been previously programmed into the remote. It is also possible to clear the memory for individual keys, or for the entire remote. When a memory position is cleared, the remote will return to the original factory preset command.

To clear the memory for a specific individual key location, put the **Use/Learn** switch in the **Learn** position. Press the **Main Power Off** ❸ button and the button to be cleared at the same time. Both the **Sending** and **Learning** indicators will light momentarily. When the lights go out, the memory has been cleared of the user programmed code and returned to the factory preset. Return the **Use/Learn** ❶ switch to the **Use** position when you are finished.

To clear the remote's entire memory and return all keys to their factory preset commands, first put the **Use/Learn** ❶ switch in the **Learn** position. Then press the **Main Power On** button ❹ and confirm that the **Learning** indicator ❷ has illuminated. While continuing to press the **Main Power On** button, press and hold the **Main Power Off** ❸ button until the **Learn** indicator goes off for about 3 seconds. It will then blink twice. Then release the two buttons. This indicates that the memory has been cleared of any user programmed commands and that the original commands have been restored. Slide the **Use/Learn** switch ❶ back to the **Use** position to return the remote to normal operation.

System Configuration

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

Speaker Selection

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

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

Speaker Placement

Depending on the type of center channel speaker in use and your viewing device, place the center speaker 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 and right front speakers so that they are as far away from one another as the center channel speaker is from the preferred listening position. Ideally, the front channel speakers should be placed so that their tweeters are no more than 24" off center from the tweeter in the center channel speaker.

Depending on the specifics of your room acoustics and the type of speakers in use, you may find that imaging is improved by moving the front left and

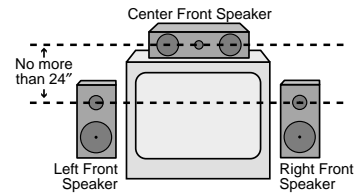
right speakers slightly forward of the center channel speaker. If possible, adjust all front loudspeakers so that they are aimed at ear height when you are seated in the listening position.

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 pans across the front of the room sound smooth, and that sounds from all speakers appear to arrive at the listening position at the same time without delay from the center speaker as opposed to the left and right speakers.

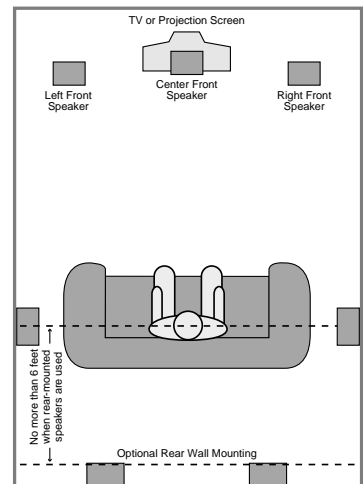
Surround speakers should be placed on the side walls of the room, at or slightly behind the listening position. The center of the speaker should face into the room. The speakers should be located so that the bottom of the cabinet is at least two feet higher than the listeners' ears when in the desired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

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

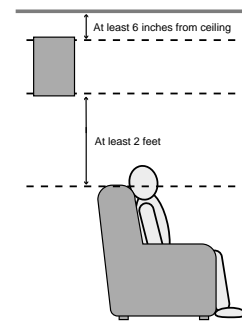
Subwoofers produce non-directional sound, so they may be placed almost anywhere in a room. Subwoofer placement is highly influenced by room size and shape, and the type of subwoofer used. Follow the instructions of the subwoofer's manufacturer, or experiment with the best location for a subwoofer in 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

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System Configuration

Once the speakers have been placed in their proper positions and connected to the AVR55, the final steps in the installation process involve configuration of the unit for the specific speaker types in use and the balancing of speaker output levels.

Before proceeding, check to make certain that all connections are secure and follow these steps:

1. Plug the unit into an unswitched AC outlet and press the **Main Power** button **1** until it is flush with the front panel. Note that the **Power Indicator** **3** will turn amber.
2. Install the supplied AAA batteries in the remote control, as shown on page 15.
3. Press the **System Power Control** **2** on the front panel or the **Main Power On** button **3** on the remote and note that the **Power Indicator** **3** will turn green.

Bass Management

The settings made during the speaker configuration process will determine which speakers receive low-frequency information, which are those sounds below 100Hz. If a subwoofer is installed, it will receive low-frequency information, and none will be sent to the front left/right speakers. If you do NOT have full-range front speakers, it is important that "YES" be selected as the subwoofer setting option to prevent damage to your front speakers.

Speaker Configuration

The next few steps tell the AVR55 which type of speakers are installed. This, in turn, configures the bass management system so that low-frequency sounds are directed to the proper speaker location.

1. Press the front panel **Surround Mode** button **23** until DOLBY PRO LOGIC appears as the Surround mode.
2. Press and hold the **Speaker Mode Selector** **20** until the word CENTER appears in the **Information Display** **6**. The word LARGE, SMALL or NONE will also appear, and blink to indicate the current setting. Release the button for a second, and while the current choice is still blinking in the display, press the **Speaker Mode Selector** **20** again until the word describing the type of center speaker installed in your system appears.

- Select LARGE if your center channel speaker is a traditional full-range speaker capable of reproducing frequencies below 100Hz.
- Select SMALL if your center channel speaker is a smaller "satellite" type speaker not capable of extended bass response or reproducing frequencies below 100Hz.
- Select NONE if no center channel speaker is installed.

3. Once you have made your selection, immediately press the **Memo** button **4** while the display is still blinking. Note that the speaker selection will change to SUBWOOFER. The word Yes or NO will blink indicating the current setting.

4. Press the **Speaker Mode Selector** **20** again until the appropriate selection is made.

- Select YES if a subwoofer is installed. When YES is selected all low-frequency information will be sent to the subwoofer, and the front, center and surround speakers will only receive audio information above 100Hz.
- Select NO if no subwoofer is present. When NO is selected the front left/right and surround speakers will receive a full-range signal, and the feed to the center speaker will be based on the selection mode in the previous step.

5. While your choice is blinking in the display, press the **Memo** button **4** to enter the selection. The display will stop blinking to indicate that the setting is entered and then return to normal.

NOTES:

- In order to enter the speaker configuration, the **Speaker Switch** **7** must be in the "in" position.
- In order to enter information for the center speaker, the AVR55 must be in the Dolby Pro Logic or Dolby 3 Stereo mode. To select either of these modes, press the front panel **Surround Mode Selector** **23** or one of the **Dolby Surround Mode** buttons **27** on the remote.

System Configuration

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Speaker Output Adjustments

Adjustments and calibration of the speaker output levels is important to proper surround operation. During this process, the unit is adjusted so that the output levels from each channel have a reference level that is as close to one another as possible. A small amount of time spent to properly calibrate the AVR55's output levels will enable the unit to deliver all the performance it is capable of within the environment of your specific listening room.

IMPORTANT NOTE: Many listeners are often confused about the operation of the rear (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, an 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 rear/surround speakers to operate only occasionally. Artificially increasing the volume to the rear speakers may destroy the illusion of an enveloping sound field that duplicates the way you hear sound in a movie theater or concert hall.

Before beginning the adjustment process make certain that all speaker connections have been properly made. The system volume should be set to the level that you will use during a typical listening session. Finally, make certain that the **Balance Control** 26 is set to the center "12 o'clock" position.

1. Press the **Test Tone** button 11 on the remote to begin the adjustment process. A test noise will circulate from one speaker channel to the next, as indicated in the **Information Display** 17.

2. Take a minute to listen to the test noise from each speaker as the location indicated in the display changes. Check to make certain that, for example, when the display reads **TEST - FRONT L**, that the test noise is coming from the front left speaker. If the test tone's location does not match the display for any channel, press the **Test Tone** button 11 to end the adjustment and turn the unit off using the **Main Power Switch** 1. Check all connections to make certain the **Speaker Outputs** 15 are connected to the proper speaker.

Installation Hint: While the test tone is circulating among the channels, make a note if it sounds reasonably equal in volume, or if one channel or more channels seems significantly louder than the others.

3. When you have verified that all channels are properly connected, press the **Channel Select** button 12 to begin the adjustment process.

4. When the **Channel Select** button 12 is pressed, the test tone will stop circulating and will be heard in the front left channel only. Use the **Volume Controls** 31 14 to adjust the test noise so that it approximates a normal listening level. If you are using a sound pressure level meter to calibrate the system, set the volume level so that the meter reads 75dB, C-Weighting, Slow.

5. Press the **Channel Select** button 12 again, and note that the test tone will move to the center channel, as indicated by the **TEST - CENTER** indication in the Information Display. Use the **Speaker Level Adjust** buttons 18 to raise or lower the sound level so that it is equal to the level just established in the front left channel. **DO NOT** use the **Volume Controls** 31 14 for this adjustment, as they control the main system level, not the individual channel outputs. As the adjustments are made, the display will indicate the positive or negative offset from the reference level set in the previous step as **CENTER : +2 DB**. When the adjustment is complete, press the **Channel Select** button 12 again to move to the next channel.

System Configuration

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6. The test tone will now be heard through the front right speaker. Once again, first listen to the test noise to determine if it is louder or softer than the previous two channels. If an adjustment is required, use the **Speaker Level Adjust** buttons **13** until the level is matched. In this case, the offset level for both front channels will be shown in the display, such as FL 0 FR +0. Only the FR indication will change, as only the front right channel is being adjusted at this time. When the level is equal to the front left and center channels, press the **Channel Select** button **12** to move to the next channel.

7. The test tone will now be heard from the right rear (surround) channel. Follow the instructions shown in the previous step until the volume level for this channel is equal to the others. Press the **Channel Select** button **12** after you have finished with the right rear to move to the final channel.

8. Adjust the output from the left rear (surround) channel as shown in the previous steps. Remember, the goal is to have the sound level equal to all previous channels, using the **Speaker Level Adjust** buttons **13** to make any needed changes.

9. At this point, you should make a final check on the adjustments. Press the **Channel Select** button **12** quickly so that you circulate the test noise among all the channels. Make a note of which channels need fine adjustments to raise or lower their level so that they are brought into line with the others. When an adjustment is needed, simply stop pressing the button and make the level change using the **Speaker Level Adjust** buttons **13**.

10. When you are satisfied that all channels have the same output level, press the **Test Tone** button **9** to return the AVR55 to normal operation.

Delay Settings

One aspect of the surround modes is the delay of audio signals between the front speakers and the rear speakers. Each surround mode is factory preset with a specific delay time, but it is possible to individually adjust the delay timing to custom tailor the sound to your individual taste and the acoustic conditions in your listening room or home theater.

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

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

1. Measure the distance from the listening/viewing position to the front speakers.
2. Measure the distance from the listening/viewing position to the surround speakers.
3. Subtract the distance to the surround speakers from the distance to the front speakers.
 - a. When setting the delay time for the Dolby Digital surround mode, the optimal delay time is the resulting figure. For example, if the front speakers are ten feet away and the surround speakers are five feet away, the optimal delay time is figured as $10-5=5$. Thus, in this example, the delay should be set at five milliseconds.
 - b. When setting the delay time for the analog Pro Logic mode, take the result of the subtraction and add 15 to obtain the optimal delay time. For example, if the front speakers are ten feet away and the surround speakers are five feet away, the optimal delay time is figured as $10-5+15=20$. Thus in this example, the delay should be set at twenty milliseconds.

System Configuration

With the correct delay time figures for your listening room calculated, first make certain that the unit is in the Dolby Pro Logic mode by pressing the **Surround Mode** button **23** or **Dolby Surround Mode** buttons **27** until the **Pro Logic** indicator **C** is illuminated.

Press the **Select** button **10** to begin the adjustment process. The **Information Display** **F** will show the current delay setting, such as **REAR - 15mS**. If adjustment is required, immediately press the **Delay** button **7** on the remote to change the setting until it is closest to the desired time. Within five seconds the display will return to normal readout and the setting will be entered.

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

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

If repositioning of the speakers is not possible, adjust the center delay time so that you add one millisecond of center channel delay for each foot that the distance to the center speaker lags behind the front speakers. For example, if the front left/right speakers are each 10 feet from the listening position and the center channel speaker is 8 feet away, the delay is figured as $10-8=2$, suggesting an optimal center delay of 2 milliseconds.

To change the delay settings for Dolby Digital operation, first calculate the correct timings as outlined above. Next, make certain that the AVR55 is in the Dolby Digital mode by pressing the **Dolby Digital/AC-3** button **25** **26** on the front panel or remote. Make certain that the **Dolby Digital Indicator** **E** is illuminated.

Press the **Select** button **10** and note that the **Information Display** **F** will show the settings for both the center and rear/surround delay as

C - 0 mS R - 10 mS.

The center channel delay figure will blink, indicating that you may change the setting.

Press the **Delay** button **7** to change the center delay time to the desired setting. When the appropriate number is shown press the **Select** button **10** once so that the number for rear/surround delay time on the right side of the display blinks.

Use the **Delay** button **7** to change the rear/surround delay to the desired setting.

When both settings are correct, press the **Select** button **10** again and note that the display will stop blinking. After a few seconds the display will return to normal operation and the settings will be entered to memory.

Operation

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Basic Operation

Once you have completed the setup and configuration of your new receiver, it is simple to operate and enjoy. The following instructions will provide the steps needed to enjoy the AVR55:

- When using the AVR55 for the first time, it is necessary to press the **Main Power** button **1** on the front panel to turn the unit on. This places the unit in a standby mode, as indicated by the amber color of the **Power Indicator** **3**. Once the unit is in standby, you may begin a listening session by pressing the **System Power Control** **2** on the front panel or the **Main Power** button **3** on the remote. Note that the **Power Indicator** **3** will turn green. This will turn the unit on and return it to the input source that was last used. The unit may also be turned on from standby by pressing any of the **Source Selector** buttons on the remote **4 5 9** or front panel **8 10 11 12 13 14 15 16 18**.

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 **Main Power Off** button **3** on the remote. Power to any equipment plugged into the rear panel **Switched Outlet** **16** will be shut off and the **Power Indicator** **3** will turn amber.

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

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

Power Switch **1**. Note that all preset memories are lost if the unit is left turned off with the **Main Power Switch** **1** for more than two weeks.

Source Selection

- To select a source at any time, press any of the **Source Selector** buttons on the remote **4 5 9** or front panel **8 10 11 12 13 14 15 16 18**.
- The front panel **Audio/Video 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. To listen to and view the output of the playback unit connected to these inputs, first press the **Vid 2 Input Selector** **18 5**, and then press the **Vid 2 Front/Rear** button **19**. When the front panel inputs are selected, a red LED will illuminate above the selector button.
- When an audio source is selected the last video input used remains routed to the **Video 1 and Monitor Outputs** **14 20**. This permits simultaneous viewing and listening to different sources.
- During a listening session you may wish to adjust the **Bass** **22** and **Treble** **24** controls to suit your listening tastes.
- At lower volume levels you may wish to engage the **Contour** button **30**. This boosts the low- and high-frequency sounds in accordance with what are known as the Fletcher-Munson hearing curves to compensate for the response of human hearing at low sound levels.

- Adjust the volume to a comfortable level using the front panel **Volume Control** **31** or remote **Volume Up/Down** **14** buttons.

- To temporarily silence all speaker outputs press the **Mute** button **16**. This will cut the output to all speakers, but it will not effect any recording or dubbing that may be in progress. When the system is muted the word MUTE will flash in the information display. Press the **Mute** **16** button again to return to normal operation.

- For private listening, plug the 1/4" stereo phone plug from a pair of stereo headphones into the front panel **Headphone** jack **5**. To cut the speaker output when using headphones, press the **Speaker** button **7** so that it is in the extended position from the front panel.

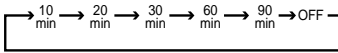
- When one of the **Video** inputs **14 15 16 18 5** is selected the video signal for that input will be routed to the **Video Monitor** output jack **20** and will be viewable on a TV monitor connected to the AVR55. Make certain that your TV is set to the proper input to view the signal.

- In some installations it may be desirable to dim or extinguish the front panel lights. This may be done by pressing and holding the **Display** button **15** on the remote. The first press will dim the lights to one half normal brightness, and a second press will turn them totally off. Press the button again to return the lights to normal brightness. Note that the **Power Indicator** **3** will remain lit at all times as a reminder that the unit is turned on.

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- To program the AVR55 for automatic turn off, press the **Sleep** button **23** on the remote. Each press of the button will increase the time before shut down in the following sequence:



After a **GOOD NIGHT** message the sleep time will be displayed on the right side of the **Information Display** **15**, and it will count down until the time has elapsed.

When the programmed time has elapsed the unit will automatically turn off. Note that the front panel display will dim to one half brightness when the Sleep function is programmed. To cancel the Sleep function, press the **Sleep** button **23** until the information display returns to normal brightness and the Sleep indicator numbers disappear.

TV Auto-On

The AVR55 is capable of automatic operation that turns it on in response to the operation of a video source such as the TV. This eliminates the need to manually turn on the AVR55 with a separate remote command. While this feature is most commonly used with a TV, it may be used with any video source such as a satellite receiver or VCR. To use the TV Auto-On feature follow these steps:

1. Connect the video source that will be used to trigger the Auto-On feature to the **TV Inputs** **1**.
2. Activate the feature by pressing and holding the **TV Input** button **14** **5** on the front panel or remote until the words **AUTO-OFF** appear in the **Information Display** **15**.

3. Release the button, and then press it again within 2.5 seconds until the display changes to read **AUTO-ON** and then release the button.

4. The TV Auto-On feature is now engaged. Whenever a video source is present at the **TV Inputs** **1** and the AVR55 is in the Standby mode the unit will automatically turn on and switch to the TV input.

5. Unless another input source is selected, the unit will automatically return to the Standby mode approximately five minutes after the audio source connected to the TV input is turned off.

NOTE: Remember that when the TV Auto feature is engaged, the AVR55 will turn off whenever the TV input has been selected and the video source feeding that input is not active. To disable this feature follow steps 2 and 3 above, but toggle the buttons so that the words **AUTO-OFF** appear in the **Information Display** **15**.

Surround Mode Selection

One of the most important features of the AVR55 is its ability to reproduce a full multichannel surround sound field from Dolby Digital sources, analog matrix surround encoded programs, and standard stereo programs. In all a total of seven listening modes are available on the AVR55.

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

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

Surround modes for conventional analog audio inputs are selected by pressing the **Surround Mode** button **23** on the front panel or the **Matrix** and **Dolby Mode** buttons **25** **27** on the remote. As described above, when a "Surround Sound" logo is associated with the program you are listening to, it is always best to start with Dolby Pro Logic, or Dolby 3-Stereo when there are no surround speakers. However, you may wish to experiment with the Theater, Hall, Church or Stadium modes to see if you find that sound more pleasing. Remember, you can't break anything by trying a different surround mode.

When a program is not listed as carrying intentional surround information, you may find that Pro Logic or Dolby 3-Stereo often delivers enveloping surround presentations through the use of the natural information present in all stereo recordings.

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To listen to a program in traditional two-channel stereo, with only the front left and right speakers plus the subwoofer, if installed, press the **Stereo** button **24** on the remote or the **Surround Off** button **21** on the front panel.

Dolby Digital

Dolby Digital (also known as AC-3) is the latest advancement in surround sound technology, delivering up to five full-range surround channels (left, center, right, left surround and right surround) plus a special dedicated Low-Frequency Effects (LFE) channel. This represents a major advancement over traditional analog surround in that each surround channel is fully discrete and capable of full bandwidth reproduction. Dolby Digital is available on DVD and LV discs, and it will be a part of the new high-definition television (HDTV) system when digital broadcasting begins in late 1998. Dolby Digital for the home is based on the same system used to deliver digital audio sound tracks in movie theaters, enabling true cinema reproduction in your home.

To utilize the Dolby Digital mode you must have a digital source properly connected to the AVR55. The RF digital output of a laser disc player should be connected to the **AC-3 RF** jack **25** on the rear panel. Note that this jack is for use *only* with the AC-3 RF output from an LV player and should not be connected to any other audio, video or digital device. Digital datastream outputs from DVD players, HDTV receivers and CD players should be connected to the **AC-3/PCM Optical** or **Coaxial** inputs **7** **25** on the rear panel. In order to provide a backup signal and a source for recording, the

analog outputs provided on digital source equipment should also be connected to their appropriate rear panel inputs (e.g., connect the analog stereo audio output from a DVD to the **DVD** inputs **16** on the rear panel when you connect the digital outputs).

Dolby Digital sources must be used in conjunction with one of the video related inputs: DVD, TV, Vid 1 or Vid 2. Make sure that the source is on and video is playing before selecting a digital audio source. Next, press the **Digital Input** button **27** **8** that corresponds to the type of digital input used. A red LED will light above the data type selected, and a message will scroll across the **Information Display** **F** to confirm your choice.

Finally, press the **AC-3/Dolby Digital** button **26** **25** to select Dolby Digital. The mode name will briefly scroll in the **Information Display** **F**, and the **Dolby Digital** indicator **B** will illuminate.

NOTE: If a Dolby Digital signal that matches the selected input type is not present, the red LED indicator above the **Digital Input** button **27** will flash to remind you of the input error. Remember, with digital sources such as a DVD player, the data input stops when a disc is in Pause or a Search mode. It is normal for the light to flash in those conditions.

Night Mode

A special feature of Dolby Digital is the Night mode, which enables AC-3 input sources to be played back with their full range while reducing the minimum peak level by 1/4 to 1/3. This prevents abruptly

loud transitions from causing disturbances without reducing the impact of the digital source. The Night mode is available only when AC-3 signals with special data are being played.

To engage the Night mode, press the **Night** button **28** **6** and note that the indicator will illuminate above the **Night** button on the front panel.

IMPORTANT NOTES ON DOLBY DIGITAL PLAYBACK:

1. The AVR55 will decode digital audio sources with a sampling frequency of 32kHz, 44.1 kHz and 48kHz. Although this will enable it to decode virtually all DVD movies and HDTV sources, it is possible that some digital sources may not be compatible with the AVR55.
2. The AVR55 will automatically detect most Dolby Digital sources. It is possible, however, that future source equipment that could not be anticipated at this time, may require manual surround mode selection or analog playback.
3. Note that not all programs recorded in Dolby Digital 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 AVR55 will automatically sense the type of digital surround encoding used on an AC-3 program source and adjust to accommodate it.
4. When a Dolby Digital source is playing, you may not select one of the analog surround modes.
5. It is not possible to record the output of a Dolby Digital program.

Operation

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6. **NOTE:** The design of some early DVD players is such that you may occasionally hear a click or pop when the player starts after being paused or after a Search mode is used. This is a function of the format and does not indicate any problem with your AVR55.

PCM Audio Playback

PCM (Pulse Code Modulation) is the non-compressed digital audio system used for compact discs and non-AC-3 laser discs. The digital circuits in the AVR55 are capable of high-quality digital-to-analog decoding, and they may be connected directly to the digital audio output of your CD or LV player.

Connections should be made to the **AC-3/PCM Optical** or **Coaxial** inputs **7** **25** on the rear panel, using whichever input is not occupied by an AC-3 source such as a DVD player.

To play a PCM source, first select the desired input using the **Input Selectors** **10** **14** **15** **16** **18** **4** **5**. Next, choose either an Optical or Coaxial digital source using the **Digital Input Selector** **8** **27**. Finally, select any Surround mode *other* than Dolby Digital.

Tuner Operation

The AVR55's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually, or they may be stored as favorite station presets and recalled from a 30 position memory.

Station Selection

1. Press the **AM/FM** button **8** **9** to select the tuner as an input.
2. Press the **AM/FM** button **8** **9** again to switch between AM and FM so that the desired frequency band is selected.
3. Press the **Tuning Mode** button **6** **17** to select manual or automatic tuning.

When the **AUTO** indicator is illuminated in the main information display the tuner will only stop at those stations that have a strong enough signal to be received with acceptable quality.

If the **AUTO** indicator is NOT illuminated, the tuner is in a manual mode and will stop at each frequency increment in the selected band.

4. To manually tune stations, press the right side of the **Tune** button **9** to tune a station with a higher frequency, or the left side to tune a station with a lower frequency. When the **TUNED** indicator illuminates, the station is properly tuned and should be heard with clarity. To automatically search for the next station with acceptable signal strength, press and hold the **Tune** button **9** until the **AUTO** indicator lights. Release it and the tuner will stop when it finds a station. When a station is weak, audio quality will be improved by pressing the **FM Mode** button **6** until the **STEREO** indicator **L** goes out.

5. To select stations using the remote, press the **Manual Tune** **◀◀** / **▶▶** buttons **18** to select stations one at a time. Alternatively, the **Automatic Tune** **◀◀** / **▶▶** buttons **20** may be used to scan only those stations with sufficient strength for proper reception. Each press of these buttons will advance the tuner to the next station. For FM stereo reception press the **FM Mode** button **17** until the **STEREO** indicator is illuminated.

NOTE: When the FM reception of a station is weak, audio quality will be increased by switching to mono mode by pressing the **Tuning Mode** button **6** **17** until the **STEREO** indicator goes out.

Preset Tuning

Up to 30 stations may be stored in the AVR55's memory for easy recall using the front panel controls or the remote.

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

1. Press the **Memo** button **4** **21** on the front panel or remote. Note that the **MEMORY** indicator will illuminate and flash in the information display.
2. Within five seconds, press the **Numeric Buttons** **37** **23** corresponding to the location where you wish to store this station's frequency. To enter a station to memory location "30," press only the **0** button.
3. Repeat the process after tuning any additional stations to be preset.

Operation

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Recalling Preset Stations

- To manually select a station previously entered in the preset memory, press the **Numeric Buttons** **37** **23** corresponding to the desired station's location. To select the station in location "30," press the **0** button only.
- To manually tune through the list of stored preset stations one by one, press the **Preset/Disc Skip** buttons **19** on the remote.
- To automatically scan through the stations entered in the preset memory, press the **P-Scan** button **22** on the remote. The tuner will run through the list of preset stations, stopping for five seconds at each one. Press the **P-Scan** button again to stop the scan at your desired station.

Tape Recording

In normal operation, the audio or video source selected for listening through the AVR55 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 1** or **Tape 2** **10** **8** in the record mode.

When a tape recorder with separate record and playback heads is used, you may monitor the output of the recording by selecting the **Tape 1/Monitor** input **11** **4**. Note that the **T-MON** indicator **13** will illuminate in the front panel display to remind you that you are listening to the record playback instead of the actual input source being recorded.

NOTE: When a Dolby Digital source is playing, the output may not be recorded.

Video Recording

The AVR55 permits you to make a video recording from one of the input sources while another source is being listened to through the unit's main amplifiers.

To make a video recording, press the **Video 1 Record** button **17** and observe the indicator dot at the far left side of the front panel **Information Display** **35**. As you press the **Record** button, the **Video 1 Record** indicator **A** will change to show which output is being sent to the **Video 1 Out** jacks **14**. The output may be either the current listening source, or one of the other video inputs (TV, DVD, Video 2).

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

Output Level Trim Adjustment

Normal output level adjustment for the AVR55 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.

To adjust the output levels using program material, first set the reference volume for the front left/right channels using the **Volume Control** **31** **14**. If you wish to vary the difference between the left and right channels, use the **Balance Control** **25**.

To change the level for the channels you wish to adjust use the appropriate front panel level adjust control for the **Subwoofer**, **Center** or **Surround** channels **32** **33** **34**.

Memory Backup

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

Troubleshooting Guide

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Troubleshooting Guide

<i>SYMPTOM</i>	<i>CAUSE</i>	<i>SOLUTION</i>
No front panel lights when power switch is pressed	<ul style="list-style-type: none">• No AC Power	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Intermittent input connections• Mute is on• Volume control is down	<ul style="list-style-type: none">• Make certain that all input and speaker connections are secure• Press Mute button• Turn up volume control
No sound from any speaker. Light around power switch is red	<ul style="list-style-type: none">• Amplifier is in protection mode due to possible short• Amplifier is in protection mode due to internal problems	<ul style="list-style-type: none">• Check speaker-wire connections at receiver and speaker ends for shorts• Contact your local Harman Kardon service depot
No sound from surround or center speakers	<ul style="list-style-type: none">• Incorrect surround mode• Input is monaural• Incorrect configuration• Stereo or Mono program material	<ul style="list-style-type: none">• Select a mode other than Stereo• There is no surround information from mono sources• Check speaker mode• The surround decoder may not create center or rear channel information from non-encoded programs
Unit does not respond to remote commands	<ul style="list-style-type: none">• Weak batteries in remote• Remote is in Learn position• Remote sensor is obscured	<ul style="list-style-type: none">• Change remote batteries• Slide Use/Learn switch to Use• Make certain front panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	<ul style="list-style-type: none">• Local interference	<ul style="list-style-type: none">• Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances

Technical Specifications

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Audio Section

Stereo Mode

Continuous Average Power (FTC)

65 Watts per channel 20Hz–20kHz:
@ < 0.07% THD, both channels driven into 8 Ohms

Five-Channel Surround Mode

Power Per Individual Channel

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

Center channel:
55 Watts, 20Hz–20kHz into 8 ohms

Surround channels:
55 Watts per channel, 40Hz–20kHz into 8 ohms

Input Sensitivity/Impedance

Linear (High Level) 200mV/32 Kohms
Phono 3mV/47 Kohms

Signal-to-Noise Ratio (IHF-A)

Linear (CD) 95dB
Phono 73dB

Surround System Adjacent Channel Separation

Analog Decoding (Pro Logic, etc.) 40dB

Dolby Digital (AC-3) 55dB

Frequency Response

@ 1W (+0, –3dB) 8Hz–100kHz

High Instantaneous

Current Capability (HCC) ±35 Amps

Transient Intermodulation

Distortion (TIM) Unmeasurable

Rise Time 16 µsec

Slew Rate 40 V/µsec

FM Tuner Section

Frequency Range	87.5–108 MHz
Usable Sensitivity	IHF 1.3 µV/14.2dBf
Signal-to-Noise Ratio	Mono/Stereo 70/68dB
Distortion	Mono/Stereo 0.3/0.5%
Stereo Separation	1kHz, 40dB
Selectivity	±400kHz 65dB
Image Rejection	98MHz 65dB
Tuner Output Level	1kHz, ±75kHz Dev 500mV

AM Tuner Section

Frequency Range	520–1710kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop 500 µV
Distortion	1kHz, 50% Mod 0.8%
Selectivity	±9kHz, 25dB

General

Power Requirement	AC 120V 60Hz
Power Consumption	60W idle, 325W maximum (2 channels driven)

Dimension (Max)

Width	17.4 inches (440 mm)
Height	6.3 inches (160 mm)
Depth	16.0 inches (406 mm)
Weight	32.6 lbs. (14.8 kg)

Depth measurement includes knobs, buttons and terminal connections.

All features and specifications are subject to change without notice.

*Trademarks of Dolby Laboratories.

†DTS is a trademark of Digital Theater Systems.

††UltraStereo is a trademark of UltraStereo Corp.

Staple or clip original invoice here. ▼

