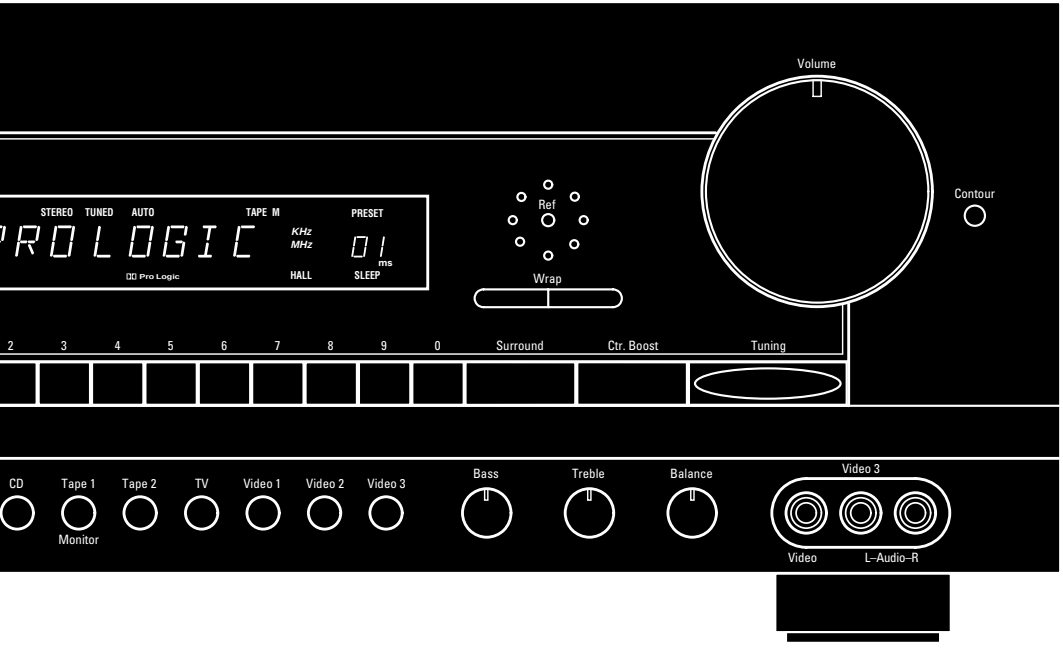
Harman Kardon
AVR40
Audio/Video Receiver



Owner's Manual

harman/kardon

Owner's Manual
AVR40 Audio/Video Receiver

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www.harmankardon.com

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Introduction

Congratulations! With the purchase of a Harman Kardon AVR40 you are about to begin many years of listening enjoyment. The AVR40 has been custom designed to provide all the excitement and detail of movie soundtracks and every subtle nuance of musical selections.

While complex systems are hard at work within the AVR40 to make all of this happen, hookup and operation are simple. Color keyed connections, and a unique remote control make the AVR40 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. A few minutes spent learning the functions of the various controls will enable you to take advantage of all the power the AVR40 is able to deliver.

If you have any questions about this product, its installation or operation, please contact your dealer. They are your best local source of information. You may also contact Harman Kardon directly via the Internet at www.harmankardon.com

Description and Features

The AVR40 is a full featured A/V receiver, incorporating a wide variety of listening options. Four audio inputs, three audio/video inputs and the AVR40's 30 preset tuner enable it to serve as the control center for a complete audio/video system. A system remote control operates the AVR40 and compatible Harman Kardon source equipment.

- Dolby* Pro Logic* Surround Decoding
- Exclusive Harman Kardon Wrap Circuitry
- System Remote Control
- Direct Video Dubbing
- Front Panel A/V Inputs for Games or Camcorder Connection
- System Memory for Surround Modes

Important Safety Information

Verify Line Voltage Before Use

Your AVR 40 has been designed for use in North America 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 amplifier.

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

Do Not Use Extension Cords

To avoid safety hazards, use only the power cord supplied with your unit. If a replacement cord is used, make certain that it is of similar gauge. 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 amplifier 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, INRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

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, 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 tuning 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 and Installation

The carton and shipping materials used to protect your new AVR40 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 removing any staples that attach the carton flaps to one another, and then slitting the tape covering the seams. Fold the carton down to a more two dimensional appearance. 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.

When positioning your AVR40 in its final location, make certain that any shelf or stand is capable of supporting its weight, and that there is adequate ventilation on all sides, as well as on the top and bottom. Do not place CDs, record jackets, owner's manuals, or other paper on top of, or beneath the unit. This will block air flow, causing degraded performance and a possible fire hazard. If the unit is to be enclosed in a cabinet or rack, make certain that there is adequate air circulation, with a means provided for hot air to exit, and for cool air to be brought in.

Conventions

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

BOLD TYPE – will be used to indicate a front or rear panel control. It will typically be followed with a reference number to the specific control being described.

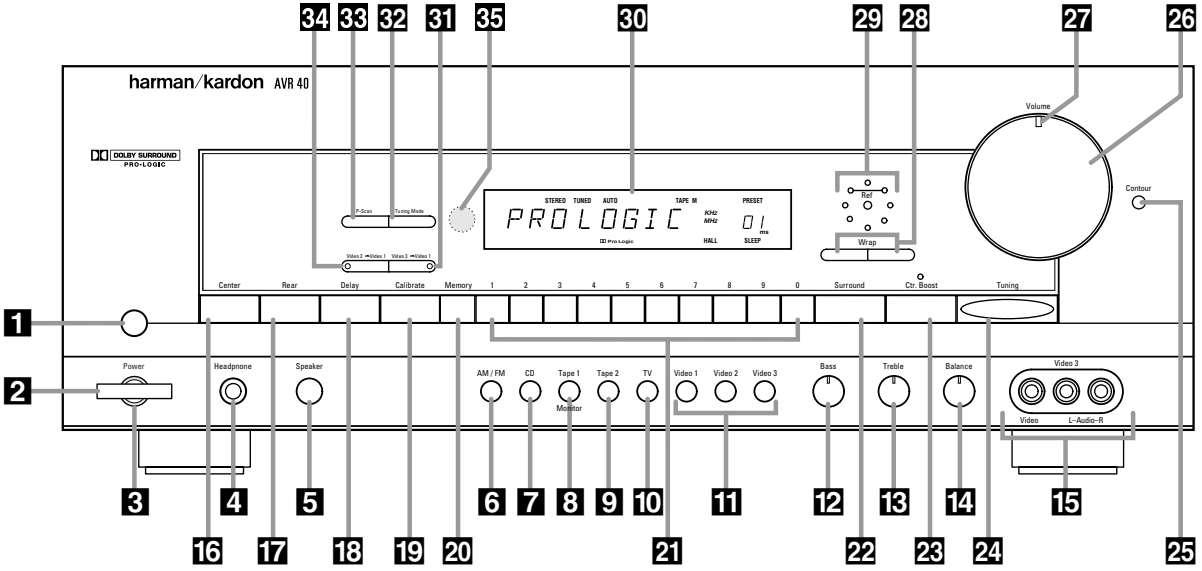
DISPLAY TYPE – will be used to indicate messages that appear in the information display window.

1 – A number within a Square references a front panel control.

1 – A number within a Circle references a connection point on the rear panel.

1 – A number within an Oval references a button on the remote control.

Front Panel Controls



1 Main Power Switch
2 System Power Control
3 Power Indicator
4 Headphone Jack
5 Speaker Switch
6 AM/FM Selector
7 CD
8 Tape 1/Tape Monitor
9 Tape 2
10 TV
11 Video Sources
12 Bass Control
13 Treble Control
14 Balance Control
15 Video 3
16 Center Channel
17 Rear Channel
18 Delay Time Adjust
19 Calibrate
20 Tuner Memory Button
21 Numeric Buttons
22 Surround Mode
23 Center Boost
24 Tuning Button
25 Contour
26 Volume Control
27 Mute/Volume Indicator
28 Wrap
29 Wrap Indicator
30 Information Display
31 Video 3 → Video 1 Dubbing
32 FM Mode
33 P.Scan Button
34 Video 2 → Video 1 Dubbing
35 Remote Sensor

Front Panel Controls

1 Main Power Switch: Press this button to apply power to the AVR40. 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 regardless of the status of the Power Switch at the bottom of the front panel. 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 pressed in, press this button to turn on the AVR40, press it again to turn the unit off. Note that the **Power Indicator** surrounding the switch **3** will turn green when the unit is on.

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

4 Headphone Jack: This jack may be used to listen to the AVR40's output through a pair of headphones. Be certain that the headphones have a standard ¼″ stereo phone plug.

5 Speaker Switch: This switch controls the front left/right speakers. For normal operation it is pressed in and sound is heard through the front speakers. To silence the front left/right speakers, push the button once until it is in the "out" position. When the front speakers are turned off sound will continue to be heard through the center and rear speakers and the headphone jack.

6 AM/FM Selector: Press this button to select the tuner as your listening source. Press it again to change between AM and FM frequency bands.

7 CD: Press this button to select your CD player as the listening source.

8 Tape 1/Tape Monitor: Press this button to select the recorder connected to the **Tape 1 Inputs** ❺ as the listening source, or to monitor a recording of another selected source.

9 Tape 2: Press this button to select the recorder connected to the **Tape 2 Inputs** ❸ as your listening source.

10 TV: Press this button to select the device connected to the TV Inputs ❷ on the rear panel as your listening source.

11 Video Sources: Press these buttons to select any of the sources connected to an audio video input ❼ ❽ **15** as your listening source. The selected input will also be routed to the device connected to the **Video Monitor Output** ❿ on the rear panel.

NOTE: When the AVR40 is in the Standby mode, as indicated by the **Power Indicator 3** illuminating in amber, the unit may be turned on by pressing any of the **Source Selection** buttons **6 7 8 9 10 11** ❹.

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

13 Treble Control: Turn this control to modify the high frequency output of the left/right channels by as much as ±10dB. Set this control to a suitable position for your taste and room acoustics.

14 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.

15 Video 3: This alternate set of Audio/Video inputs may be used for the connection of a camcorder or video game. Select this input by pressing the **Video 3** button **11** on the front panel.

16 Center Channel: Press this button to select the type of center channel speaker used. If there is no center channel speaker, press the button until the **Information Display 30** reads NO CENTR.

17 Rear Channel: Press this button to configure the AVR40 for the presence or absence of rear speakers.

18 Delay Time Adjust: Press this button to adjust the delay time between the front and rear channels.

19 Calibrate: Press this button to turn on the calibration circuits that are used to adjust the output levels of the AVR40. Once the button is pressed you may adjust the levels of the center and rear channels using the **Level –**/**Level +** buttons ⓴ on the remote control while listening to the current input source. To calibrate the system using the internal test tone, press this button first, and then press the **Calibrate** button ⓱ on the remote.

20 Tuner Memory Button: Press this button to store an AM or FM frequency in the unit's memory. The MEM indicator will flash in the display to remind you to choose a numeric location using **Numeric Buttons 21** on the front panel. Storing a station in a memory location that has already been used will overwrite the existing data.

21 Numeric Buttons: Use these buttons to enter or recall stations from the tuner memory.

22 Surround Mode: Press this button to select the desired surround listening mode.

23 Center Boost: Press this button to increase the level of the center channel output ±4 dB above that of the left/right channels for increased dialog intelligibility. A red LED will illuminate above the button when the circuit is engaged.

24 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**.

25 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. In the off position the unit will provide flat frequency response.

26 Volume Control: Rotate this control to raise or lower the volume. Note that this is a motorized control, and when the volume is changed using the remote control ⓬ it will move in response to remote commands.

27 Mute/Volume Indicator: In normal operation this green LED provides a relative indication of the unit's volume level. When the AVR40 is in the MUTE mode, this indicator flashes to remind you that output to the speakers has momentarily been silenced.

28 Wrap: When the Dolby Pro Logic or Hall modes are in use, press these buttons to increase or decrease the amount of effect for the Wrap circuit.

29 Wrap Indicator: These LEDs indicate the degree of Wrap that has been selected.

30 Information Display: The indicators in this display illuminate to provide visual display of the unit's operation.

31 Video 3 → Video 1 Dubbing: Press this button to make a recording from the device connected to the front panel **Video 3** input **15** to the unit connected to **Video 1 9**. The copy may be made while another input is the listening source for the main system outputs.

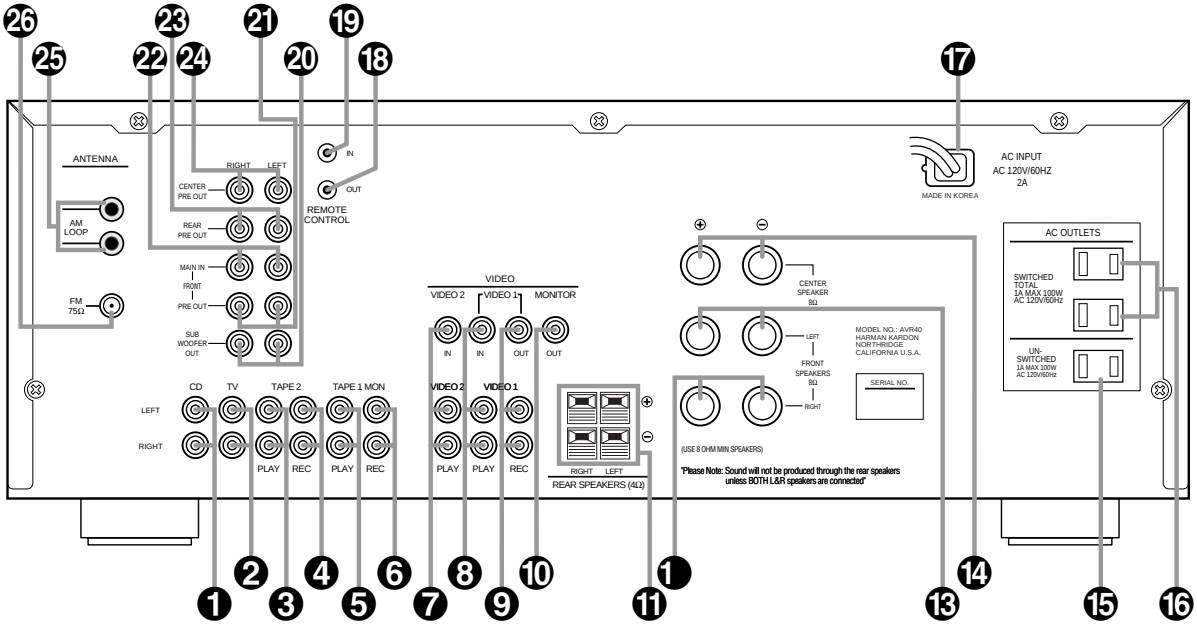
32 FM Mode: Press this button to select the stereo or mono mode for FM tuning. In the STEREO mode a STEREO indicator will illuminate in the information display, and stereo reception will be provided when stations are transmitting stereo signals. In the MONO mode the left and right signals from stereo broadcasts will be mixed together and reproduced through all channels. Select MONO for better reception of weak signals. This button is also used to select AUTO or MANUAL tuning. In the AUTO mode the tuner will stop only at stations with a strong signal.

33 P·Scan Button: Press this button to scan the stations entered in the unit's memory. When the desired station is reached, press the button again to stop the scan.

34 Video 2 → Video 1 Dubbing: Press this button to make a recording from the device connected to the Video 2 Input ❼ to the unit connected to **Video 1 9**. The copy may be made while another input is the listening source for the main system outputs.

35 Remote Sensor: This sensor receives the signals from the remote control to operate the unit. Do not block this area.

Rear Panel Connections



❶ CD Input
❷ TV Input
❸ Tape 2 Input
❹ Tape 2 Output
❺ Tape 1 Monitor Input
❻ Tape 1 Monitor Output
❼ Video 2 A/V Inputs
❽ Video 1 A/V Inputs
❾ Video 1 A/V Outputs
❿ Video Monitor Output
⓫ Rear Speaker Outputs
⓬ Front Right Speaker
⓭ Front Left Speaker
⓮ Center Speaker
⓯ Unswitched Accessory AC Power Outlet
⓰ Switched Accessory AC Power Outlets
⓱ AC Power Cord
⓲ Remote Control Extension Output
⓳ Remote Control Extension Input
⓴ Subwoofer Outputs
㉑ Front Preamp Outputs
㉒ Main In
㉓ Rear (Surround) Outputs
㉔ Center Preamp Outputs
㉕ AM Antenna Input
㉖ FM Antenna Input

Rear Panel Connections

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

❷ **TV Input:** Connect the audio outputs of a TV, satellite receiver or any audio source to these jacks.

❸ **Tape 2 Input:** Connect the PLAY/OUT jacks of an audio tape recorder to these jacks.

❹ **Tape 2 Output:** Connect the RECORD/INPUT jacks of an audio tape recorder to these jacks.

❺ **Tape 1 Monitor Input:** Connect the PLAY/OUT jacks of an audio tape recorder to these jacks.

❻ **Tape 1 Monitor Output:** Connect the RECORD/INPUT 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 8❹ on the front panel or remote.

❼ **Video 2 A/V Inputs:** Connect the audio and video PLAY/OUT jacks of a VCR, DVD, LV, Satellite system or other video source to these jacks.

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

❾ **Video 1 A/V 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 **VCR Dubbing** switch 31 34.

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

⓫ **Rear Speaker Outputs:** Connect these terminals to the input terminals on your rear/surround speakers.

IMPORTANT NOTE: A speaker must be connected to both of these outputs in order for the unit to function properly. If only one speaker is connected there will be no rear channel output.

⓬ **Front Right Speaker:** Connect the front right channel speaker to these terminals.

⓭ **Front Left Speaker:** Connect the front left channel speaker to these terminals.

⓮ **Center Speaker:** Connect the center channel speaker to these terminals.

⓯ **Unswitched Accessory AC Power Outlet:** This outlet provides AC power that may be used for any AC device up to 100 watts. The power will remain on at this outlet regardless of whether the AVR40 is on or off.

⓰ **Switched Accessory AC Power Outlets:** These outlets provide AC power only when the AVR40 is turned on. Note that the total current draw of the products may not exceed 100 watts.

⓱ **AC Power Cord:** Connect this plug to an unswitched, wall mounted AC outlet.

⓲ **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 AVR40's remote sensor.

⓳ **Remote Control Extension Input:** If the AVR40'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.

⓴ **Subwoofer Outputs:** Connect these jacks to the line level input of a powered subwoofer, or to the inputs of a subwoofer amplifier.

NOTE: This output is a full range left/right signal. For proper operation BOTH jacks must be connected to the left/right inputs of a powered subwoofer, or a "Y" cable must be used to connect the two outputs together if a single input mono subwoofer is used.

WARNING: Since this is a full range output, the signal must be sent through a crossover or low pass filter before being used with a passive subwoofer or other speaker that does not contain a built in crossover.

㉑ **Front Preamp Outputs:** These jacks provide the output for the front left and right channels to an amplifier. In normal operation, unless an external power amplifier is used, the jumper pins should remain connected to the **Front Main In** jacks ㉒.

㉒ **Main In:** These jacks are the input to the AVR40'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 ㉑.

㉓ **Rear (Surround) Outputs:** These jacks may be used to connect the rear/surround channels to an external power amplifier or to the inputs of the AVR40's main left/right channel amplifier.

㉔ **Center Preamp Outputs:** These jacks may be used to connect the center channel output to an external power amplifier.

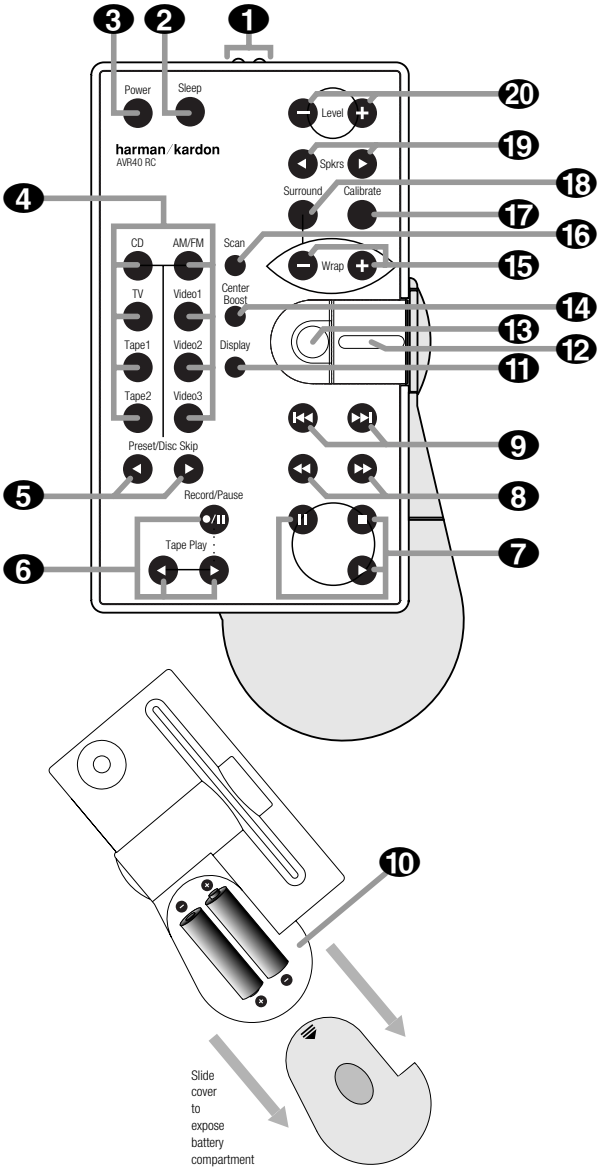
NOTE: In most applications only one center channel connection will be required. The output of both jacks is identical, and either jack may be used for system connections.

㉕ **AM Antenna Input:** Connect the AM loop antenna supplied with the AVR40 to these terminals. An external AM antenna may also be connected here.

㉖ **FM Antenna Input:** Connect an FM antenna to these terminals. Note that a 300 ohm to 75 ohm adapter is required for connections from twin lead dipole antennas.

Remote Control Functions

1. Infrared Transmitters
2. Sleep
3. Power Button
4. Input Select Buttons
5. Preset Scan/Disc Skip
6. Cassette Control
7. Transport Control
8. Manual Tune/Fast Forward/Reverse
9. Automatic Tune/Track Change
10. Battery Compartment
11. Display
12. Master Volume Control
13. Mute
14. Center Boost
15. Wrap
16. Scan
17. Calibrate
18. Surround Mode
19. Calibrate Speaker Select
20. Calibrate Level Adjust



Remote Control Functions

❶ **Infrared Transmitters:** An infrared beam is transmitted from these emitters when you press any button on the remote. For best operation, always point the front of the remote towards the sensor on the AVR40 35 and do not obstruct this area.

❷ **Sleep:** Press this button to place the unit in the sleep mode. The display will dim and the unit will turn off after the number of minutes shown in the information display.

❸ **Power Button:** Press this button to turn the AVR40 on or off.

NOTE: In order for this button to work, the AVR40 must first be placed in the standby mode by pressing the front panel **Main Power Switch** 1 until it is engaged and the ring surrounding the switch turns amber.

❹ **Input Select Buttons:** Press one of these buttons to choose an input source.

NOTE: Automatic Power On: When you press an **Input Select Button** while the unit is in the Standby Mode, the system will automatically be turned on.

❺ **Preset Scan/Disc Skip:** Press these buttons to scan up or down through the stations entered in the tuner memory. The ▶ button will also advance the disc being played in compatible Harman Kardon CD changers.

❻ **Cassette Control:** These buttons control some transport functions of compatible Harman Kardon cassette decks. The ◀ ▶ buttons put the deck or primary transport in play or change the direction during play. The ●/❙❙ button will pause the deck during play or record. Press it again to continue playback or recording.

❼ **Transport Control:** These buttons control the play ▶, Pause ❙❙ and Stop ■ functions of compatible Harman Kardon CD or cassette players.

❽ **Manual Tune/Fast Forward/Reverse:** Press these buttons to manually tune higher or lower frequency stations. They may also be used to put a compatible Harman Kardon CD player or cassette deck in the fast forward ▶▶ or fast reverse ◀◀ mode.

❾ **Automatic Tune/Track Change:** Press these buttons to tune to stations with a strong enough signal for acceptable listening. These buttons will also change the disc track on compatible Harman Kardon CD players.

NOTE: In order for the transport controls ❼❽❾ to function, you must first press the Source Select Button ❹ for the device to be controlled.

❿ **Battery Compartment:** Install two "AA" batteries as shown to power the remote control.

⓫ **Display:** Press this button to change the display brightness. One press dims the display and a second press turns the display completely off. Press it again to return to normal brightness.

⓬ **Master Volume Control:** Push the bar away from you to raise the unit's volume, and press it towards you to lower the volume.

⓭ **Mute:** Press this button to momentarily silence the speakers. Note that the word MUTE will flash in the information display along with the **Mute/Volume Indicator** 27 to remind you that the Mute function is engaged. Press the button again to return to the previously selected listening level.

⓮ **Center Boost:** Press this button to increase the level of the Center Channel for improved dialogue intelligibility, or to turn the Center Boost circuit off. Note that a Red LED will illuminate above the **CTR. Boost** button 23 on the front panel when Center Boost is activated.

⓯ **Wrap:** Press these buttons to increase or decrease the amount of Wrap signal that is applied when the unit is in a surround mode and the rear channel speakers are engaged.

⓰ **Scan:** Press this button to automatically scan through the list of stations programmed into the tuner memory. The tuner will stop for five seconds at each station. To stop the scan on a desired station press the button again.

⓱ **Calibrate:** Press this button to begin the calibration process that establishes the proper output levels for each channel.

⓲ **Surround Mode:** Press this button to select a surround processing mode. Each press will cycle through the list of available modes. Select SURR OFF to turn all surround processing off and listen in a two channel stereo mode.

⓳ **Calibrate Speaker Select:** Press these buttons to select the speaker being adjusted when using the Calibrate function.

⓴ **Calibrate Level Adjust:** Press these buttons to adjust the center or rear channel level when using the Calibrate function.

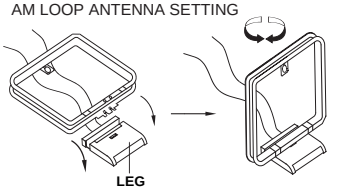
Your new Harman Kardon receiver is designed to provide the best reproduction from both movies and musical programs. To assure that the unit operates to its fullest capability, it is important that you spend a few minutes to properly install and configure all of the elements in your new system. Some, or all of the following steps will apply to your system, depending on the equipment in use. If you have any questions concerning the installation of this product consult your local dealer, or contact the Harman Kardon web site at www.harmankardon.com

System Component Connections

IMPORTANT SAFETY NOTE: Many products feature automatic turn on circuitry which may accidentally be activated when making connections. For your own safety and to prevent damage to speakers, amplifiers and other components we strongly recommend that all equipment power be turned off at the **Main Power Switch** 1, or that AC power cords be unplugged when any system connections are made or changed.

Using high-quality interconnect cables, connect all source components to the appropriate input jacks on the rear panel. When connecting audio recorders and VCRs it is important to make certain that the PLAY/OUT jacks on the recorders are connected to the **PLAY** jacks on the AVR40, and that the RECORD/IN jacks of the recorders are connected to the **REC** jacks on the AVR40.

Assemble the supplied AM loop antenna as shown below and connect it to the **AM ANTENNA Terminals** 25.



Stand and place it on a shelf, or hang it on a wall.

It may be necessary to rotate the antenna or change its position to achieve the best AM reception. Connect an FM antenna to the **FM ANTENNA Terminal** 26. A 300-ohm to 75-ohm adapter may be required for some antennae.

If you are using the AVR40 to switch video inputs, connect the **Monitor** output 10 to a video input on your TV or projector.

The rear panel accessory outlets on the AVR40 may be used to power low current devices such as CD players or tape decks. The **SWITCHED Accessory AC Power Outlets** 16 are activated only when the AVR40 is turned on. The **UNSWITCHED Accessory AC Power Outlets** 15 may be used with VCRs, as the power to these outlets is live as long as the AVR40 remains connected to an AC power source.

CAUTION: The total power load for all products connected to the accessory outlets must not exceed 100 watts. Do not use them for high current devices such as power amplifiers.

If the AVR40's front panel remote sensor 35 is blocked by cabinet doors you may still operate the unit via remote control with the use of an optional external remote sensor. Connect the output of the sensor to the rear panel **REMOTE CONTROL Extension Input** 19. This jack may also be used as the IR input from compatible multiroom control systems. The AVR40's remote sensor may be looped to other components by connecting the **REMOTE CONTROL Extension Output** 18 to the IR remote input jack of other compatible components.

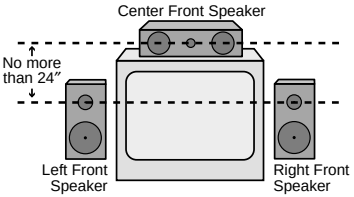
Speaker Selection and Placement

Depending on the type of center channel speaker in use and your viewing device, place the center speaker directly above or below your TV.

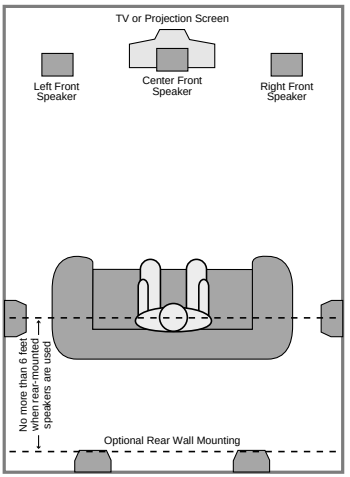
Once the center channel speaker is installed, position the left and right front speakers so that they are as far away from one another as the center channel speaker is from the preferred listening position. Ideally, the front channel speakers should be placed so that their tweeters are no more than 24″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

Depending on the specifics of your room acoustics and the type of speakers in use, imaging may be 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.

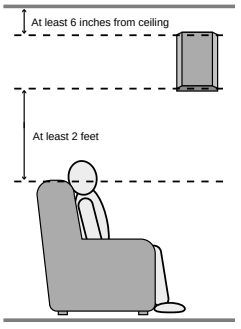
Using these guidelines, you may find that it takes some experimentation to find the correct location for the front speakers in your particular installation. Don't be afraid to move things around until the system sounds correct. Optimize speaker locations so that pans across the front of the room sound 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.



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.



Surround speakers should be placed on the side walls of the room, at or slightly behind the listening position. The speakers should be located so that the bottom of the cabinet is at least 24″ 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 24″ higher than the listeners' ears. The speakers should be no more than 6′ 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.

Speaker Connections

Once the speakers are positioned in the room connect them to the rear panel output terminals. For optimal reproduction we recommend the use of high quality speaker wire. Wire of AWG 16 or greater is recommended for short runs (under 15′) and wire of AWG 14 or greater is recommended for longer runs. Be certain to observe polarity when connecting speakers by connecting the positive (+) and negative (-) terminals on the AVR40 to like terminals on the speakers.

To connect the front left, right and center channel speakers twist the red or black terminal ❶❸❹ counterclockwise until the V-shaped notch at the rear of the terminal is exposed. Insert the stripped end of the speaker wire through the notch and tighten the terminal until it is tight.

NOTE: Be certain to match positive (+) terminals on the AVR40 to the positive terminals on the speakers. While most speaker manufacturers observe the same red/black color code as the AVR40, some reverse the pattern.

IMPORTANT NOTE: To avoid a short circuit that will cause the receiver to shut down, make sure that the wires for one speaker do not touch any other.

For proper operation, it is essential that a speaker be connected to **BOTH** Rear Speaker ⓫ terminals. If only one rear speaker is connected, no sound will be heard. It is also important that the impedance of the rear speakers be no less than 4-ohms each, although 6-ohm or 8-ohm speakers may also be used.

To connect the rear speakers ⓫, hold the spring clips down and push the wire through the hole, making certain that the inner copper conductors do not separate. Release the clip to secure the connection. Again, make certain that you observe proper polarity by connecting the (+) terminals on the receiver to (+) terminals on the speakers, and likewise for the negative (-) terminals.

Subwoofer connections are made using the **Subwoofer Outputs ⓴**. When using a powered subwoofer, connect **BOTH** the left and right output subwoofer outputs to the respective left and right line level inputs on your subwoofer. The AVR40 subwoofer outputs are full range, so it may be necessary to adjust the crossover frequency on the subwoofer's control panel to properly match the subwoofer to your other speakers.

Consult the subwoofer instructions or consult your dealer for additional information.

When using a single subwoofer and a separate mono power amplifier, the AVR40 subwoofer outputs must be combined using an optional "Y" adapter. If there is no crossover in the subwoofer an optional, external low pass filter or crossover system must be used.

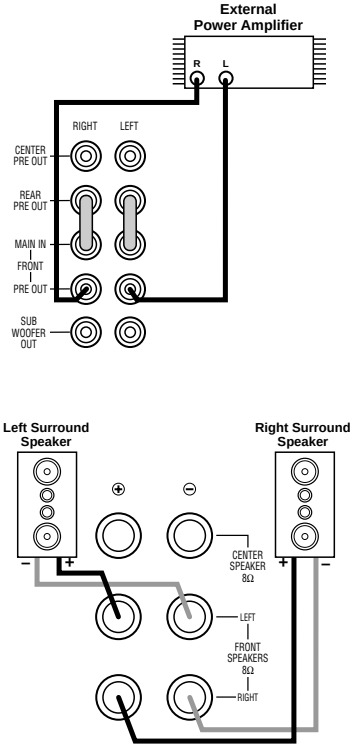
External Amplifier Connections
The flexibility of the AVR40 permits you to use external power amplifiers in place of the unit's built in circuits. If a five channel amplifier is used, simply remove the jumper pins connecting the front left/right outputs ㉑ and the main amplifier inputs ㉒. Connect the preamp outputs for all channels ㉑㉓㉔ to the appropriate input connections of your power amplifier. Remove the speaker wire connections from the receiver and connect them to the external amplifier. All other operation of the receiver remains normal.

NOTE: Although there are two outputs for the center channel, both are identical. In most installations only one center channel connection is necessary.

It is also possible to use a higher power external amplifier for the front channels and use the AVR40's internal amplifier to power the surround channels. For this installation remove the jumper pin connecting the front left right outputs ㉑ and the main amp inputs ㉒. Flip the pins so that the rear outputs ㉓ are connected to the main inputs.

Connect the front channel outputs to the appropriate inputs of the external amplifier, and move the front channel speaker wire connections from the AVR40 to the power amplifier.

Finally, connect the rear channel speaker wires to the front left and right speaker outputs on the AVR40 ❶⓭, as shown on the accompanying diagram.



NOTE: When using an external amplifier for the front channels it is highly recommended that the same power be used for the left, center and right channels.

Output Level Calibration
For proper operation in the surround modes it is important that the level from all channels be as close to one another as possible. A small amount of time spent to properly calibrate the AVR40's output levels will enable the unit to deliver all the performance it is capable of within the specific environment of your 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 rear 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 them 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.

It is also important to note that the Dolby Pro Logic surround processing used in the AVR40 rear channel is a single monaural feed, even though there are two speakers. The position of the speakers and the relationship of the level of sound in the rear channel and the front left or right channels creates the effect of directional sounds for the rear channels. Thus, when adjusting the rear channel there is only one, as opposed to two adjustments.

To begin the adjustment process, first set the system volume to the level that you will use during a typical listening session. Next, press the **Calibrate** button ⓳⓱ on the front panel or remote. Note that the front panel display will change to read `LF` although there will be no change to the system output.

NOTE: The **Balance** control 14 should be at the midpoint, or "12 O'clock" position when calibrating the system.

Press the **Calibrate** button 17 on the remote again and note that a test tone will be heard from the left front speaker. Press the **Speaker ▶** button 19 and observe that the test noise will move first to the center speaker, then to the front right speaker and then to the rear speakers as you press the button. This is a good opportunity to check for proper speaker connections by listening to the test noise and checking to see that it is coming from the speaker location indicated in the front panel display.

Press the **Speaker ◀** or **▶** buttons 19 on the remote to return the test tone to the front left speaker and make any fine tuning to the volume setting using the **Volume** control 26 12. Next, press the **Speaker ▶** button 19 to move the test noise to the center channel. Use the **Level + or Level -** buttons 20 so that the sound level appears identical to the left front channel.

Press the **Speaker ▶** button 19 again to listen to the front right channel for reference purposes, and then press the **Speaker ▶** button 19 so that the test noise moves to the rear channel. Use the **Level + or Level -** buttons 20 to adjust the volume level so that it appears identical to the other channels.

After making initial adjustments to the system it is a good idea to repeat the procedure again, switching the channels more quickly in order to hear and adjust for any differences between the channels. When the procedure is concluded the sound from all channels should be as equal as possible.

To conclude the adjustment press the **Calibrate** button 17 on the remote, or any input source selection button on the remote or front panel.

NOTE: It is also possible to adjust the channel levels while listening to any input source by pressing the **Calibrate** button 19 and then adjusting the levels using the main **Volume** control 26 12 and the **Level +** or **-** buttons 20 to change the levels and the **SPKRS ◀ ▶** buttons 19 to change the channel being adjusted. During this procedure, however, all channels will be heard simultaneously.

Delay Setting
Delay time adjustment enables you to adjust the timing between signals at the front and surround channels.

The factory setting is appropriate for most rooms, but in some instances the presence of an abundance of hard (reflective) room surfaces such as windows and wood floors, or soft (absorbent) surfaces such as thick carpeting, acoustical tiles and some furnishings may create an unpleasant effect. These surfaces, in conjunction with the size of the room, the height of the ceiling and other design aspects may cause the arrival of surround channel sounds to become disconnected from front channel sounds.

To adjust the delay time press the **Delay** button 18 on the front panel. The time shown in the **Information Display** 30 should be as close as possible to the result of the following formula or to your personal preference.

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 rear speakers from the distance to the front speakers and add 15. The resulting number is the ideal delay time for your room. For example, if the front speakers are 10 feet away and the rear speakers are 5 feet away, the formula will be "10-5+15=20." Thus, the correct delay time in this room would be 20 ms.

Center Channel Mode
This setting enables you to tailor the output of the AVR40 to the type of center channel speaker in use. Press the **Center** button 16 until the front panel display indicates the type of center speaker used in your listening environment.

LG CENTR: Choose this setting if your center channel speaker is a traditional full range speaker capable of extended bass response.

SM CENTR: Choose this setting if your center channel speaker is a smaller satellite type speakers with limited bass response.

NO CENTR: Choose this setting if no center speaker is installed.

Rear Channel Setting
This setting tells the AVR40 if rear channel speakers are in use. Press the **Rear** button 17 until the front panel display indicates the appropriate condition for your listening system.

REAR: Choose this setting if rear channel speakers are installed.

NO REAR: Choose this setting if rear speakers are not in use.

Once you have completed the setup and installation of your new receiver, it is simple to operate and enjoy. The following instructions will provide the steps needed to enjoy the advanced features of the AVR40

• When using the AVR40 for the first time, it is necessary to press the **Main Power Switch** 1 on the front panel to turn the unit on. This places the unit in a standby mode, as indicated by the amber color of the **System Power Indicator** 3 surrounding the power switch. Once the unit is in the standby mode, you may begin a listening session by pressing the **System Power Control** 2 on the front panel or the **Power** button ❸ on the remote. Note that the **System 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 by pressing any of the **Input Selector** buttons on the remote ❹ or front panel 6 7 8 9 10 11.

To turn the unit off at the end of a listening session simply press the **System Power Control** 2 on the front panel or the **Power** button ❸ on the remote. The unit will shut down, power to any equipment plugged into the rear panel **Switched Outlets** 16 will be shut off and the **System 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 switch ring.

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.

• To select a source at any time, press any of the **Input Selector** buttons on the remote ❹ or front panel 6 7 8 9 10 11.

• During a listening session you may wish to adjust the **Bass** 12 and **Treble** 13 controls to suit your listening tastes.

• At lower volume levels you may wish to engage the **Contour** button 25. 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** 26 or remote **Volume Up/Down** ⓬ buttons .

• When both a center channel speaker and the Pro Logic mode are in use, pressing the **Ctr. Boost** button 23 will increase the level to the center channel speaker for improved dialogue intelligibility. If the soundtrack of a movie or broadcast seems to have a music track that overwhelms the dialogue, the Center Boost circuit may compensate for the problem.

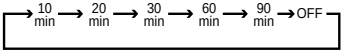
• To temporarily silence the speaker output press the **Mute** button ⓭. This will cut the output to the main speakers, but it will not effect any recording or dubbing that may be in progress. When the system is muted the word MUTE will flash in the information display, and the **Mute/Volume Indicator** 27 will flash to remind you that the system is muted. Press the **Mute** button ⓭ again to return to normal operation.

• For private listening, plug the ¼" stereo phone plug from a pair of stereo headphones into the front panel **Headphone** jack 4. To cut the output to the front left/right speakers when using the headphones press the **Speaker** button 5 on the front panel so that the button is in the extended position.

• When one of the **Video** inputs 11 ❹ is selected the video signal for that input will be routed to the **Monitor** output jacks and will be viewable on a TV monitor connected to the AVR40. Make certain that your TV is set to the proper "VIDEO" 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 the **Display** button ⓫ 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** and **Mute/Volume Indicator** will remain lit at all times as a reminder that the unit is turned on.

• To program the AVR40 for automatic turn off, press the **Sleep** button ❷ on the remote. Each press of the button will increase the time before shut down in the following sequence:



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 ❷ until the information display returns to normal brightness and the Sleep indicator numbers disappear.

Surround Mode Options
The AVR40 offers a choice of surround modes. To select a surround mode press the **Surround** button 22 18 on the front panel or remote. The choice of which surround mode to use is influenced by the type of program material being played and the specifics of your listening room setup.

True surround sound processing enables four separate audio signals to be transmitted within the left and right channels of a videocassette, radio or TV broadcast, or video disc. Through a process known as matrix encoding a separate center channel signal for dialogue and a surround channel for effects are encoded into the stereo signal. When you see the Dolby Surround, Dolby Stereo, DTS Stereo or other similar logos on a movie or broadcast this indicates that the program has surround information.

When the program you are listening to has encoded surround information, as shown by one of the logos or brand names described above, select the **Pro Logic** mode using the **Surround** button 22 18.

If you are listening to a conventional two channel stereo program or recording you may wish to experiment by using the **Hall** mode. Although these programs do not have any intentional surround encoding information, they do contain natural ambiance information that the AVR40 can process to create rear channel information. The Hall mode uses the left and right front speakers, but not the center channel, while a specially processed and retrieved sound is sent to the rear channels. Depending on the specific program the Pro Logic mode may often provide a pleasing sound presentation from stereo programs.

An additional surround option is the "Phantom" mode, which uses the Pro Logic decoding circuits, but does not send any information to the center channel.

For true two-channel stereo operation, press the **Surround** button 22 18 to use only the front left and right speakers.

Note that the surround modes available will vary according to speaker selection. When `NO CNTR` is selected, only Hall and Phantom modes may be used, as Pro Logic requires a center channel speaker. When `NO REAR` is selected only the Pro Logic mode is available.

- For true two-channel stereo listening press the **Surround** button 22 18 until `SURR OFF` appears in the information display.

- The AVR40 is equipped with a memory system that permits a different surround mode to be used with each of the input sources. You may select the mode that is most appropriate to each source, such as Pro Logic for a VCR or disc player connected to a Video input, Hall for the CD input and Surround Off for the Tuner. When you select an input again for a subsequent listening session the system will automatically change to your preferred surround mode for that input.

Wrap Circuitry

The AVR40 contains Harman Kardon's exclusive Wrap circuits, which may be used to increase the feeling of spaciousness in a listening room. A simple explanation of the wrap circuits is to think of them as moving your listening position closer to or further from the stage or screen. The more Wrap you add the further away you "move" the sense of your seat position from the screen. The less Wrap you add, the closer you appear to be to the screen or performance.

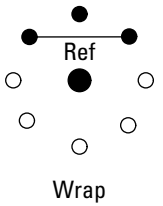
Based on Harman International's years of research into surround sound technology, the Wrap circuits are based on the advances developed by noted surround sound designer Jim Fosgate. Wrap functions by blending carefully controlled amounts of the front channel signal into the rear channel to achieve the desired impact on the listening environment.

To use the Wrap circuits, the AVR40 must first be placed in the Pro Logic or Phantom mode by pressing the **Surround** button 22 18 until the correct mode name appears in the front panel display. Note that in these modes the **Wrap Indicator** 29 on the front panel will illuminate.

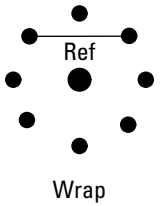
To adjust the degree of Wrap in use, press the **Wrap** buttons 28 15 to increase or decrease the degree of Wrap until the sound is to your liking. The changes in the **Wrap Indicator** provide a visual reference of the amount of Wrap that is applied.

Note that there is no "right" or "wrong" setting for the Wrap circuits. Experiment and find the setting that sounds best. Since the Wrap circuits function in conjunction with the surround decoder you may also find that the Wrap setting will differ with different types of music and program material. For example, you may want to increase the wrap for a sporting event or concert recorded in a large concert hall, while you may wish to decrease it for intimate chamber music presentations.

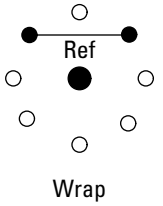
To some ears the impact of the wrap circuit may seem subtle, and this is normal. Remember that how audible the wrap effect will be varies with the acoustics of your listening room, the output settings established during the calibration process, the system volume and the type of program material in use.



A) When the Wrap indicator appears in the "Reference" position, the special Wrap circuits are not being used and the unit is in the pure Pro Logic mode.



B) This display appears when the maximum Wrap is applied.



C) This display appears in the "Phantom" mode or when a center channel speaker is not installed.

Note that the Wrap circuit is not in use when the **Wrap Indicator** 29 displays the two lights connected by the REF bar along with the center, front and middle LED.

When the **Wrap** buttons 28 15 are pressed when the AVR40 is in the **Hall** mode, the circuits are adjusting a controlled amount of level into the rear channels. The amount of this change will be indicated in the **Information Display**. Note that the range of control for the Wrap circuit in the **Hall** mode will vary depending on other system settings, and you may find that the setting cannot be adjusted below a "+4dB" indication.

Tuner Operation

The AVR40'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 6 4 to select the tuner as an input.

2. Press the **AM/FM** button 6 4 again to switch between AM and FM so that the desired frequency band is selected.

3. Press the **Tuning Mode** button 32 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 select stations from the front panel press the **Tuning** button 24. When AUTO indicator is illuminated each press will cause the tuner to search for the next highest or lowest frequency station that has an acceptable signal. When tuning FM stations in the auto mode, the tuner will only select Stereo stations. To tune to the next station, press the button again. If the AUTO indicator is NOT illuminated, tap the **Tuning** button 24 to advance one frequency increment at a time, or press and hold it to locate a specific station. When the TUNED indicator illuminates the station is properly tuned and should be heard with clarity. To listen to the station in stereo, press the **Tuning Mode** button 32 until the red STEREO indicator illuminates in the front panel display.

5. To select stations using the remote, press the **Manual Tune** ▶▶/◀◀ buttons 8 to select stations one at a time. After an FM station is selected, the **Tuning Mode** button must be pressed to receive the station in stereo, when available. Alternatively, the **Automatic Tune** ▶▶I / I◀◀ buttons 9 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 stereo reception press the **Tuning Mode** button 32 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 32 until the STEREO indicator goes out.

Preset Tuning
Up to 30 stations may be stored in the AVR40's memory for easy recall using the front panel controls or the remote.

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

1. Press the **Memory** button 20 on the front panel. Note that the MEM indicator will illuminate and flash in the information display.

2. Within five seconds, press the **Numeric Buttons** 21 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.

Recalling Preset Stations
• To manually select a station previously entered in the preset memory, press the **Numeric Buttons** 21 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 ❺ on the remote.

• To automatically scan through the stations entered in the preset memory, press the **P•Scan** button 33 on the front panel or **Scan** button ⓰ on the remote. The tuner will run through the list of preset stations, stopping for five seconds at each one. Press the **P•Scan** or **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 AVR40 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** ❻, **Tape 2** ❹ or **Video 1** ❾ 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 8❹. Note that the word MONITOR will briefly appear in the front panel display to remind you that you are listening to the record playback instead of the actual input source being recorded. After three seconds the display will once again display the selected input source, but the red TAPE M indicator will remain illuminated to remind you that you are listening to the record playback rather than the direct input source.

Video Dubbing

Special circuits in the AVR40 make it possible to copy the program from one video source to another while you are listening to a separate and different input. When making a video dub note that the VCR connected to **Video 1** ❾ will always be the record machine, and the playback source will be either the equipment connected to the **Video 2** input ❼ or the front panel **Video 3** 15.

To make a video copy, simply press the front panel **Video Dubbing** button 31 34 corresponding to the video source being played back. It is not necessary to press the **Input Selection** buttons when making a direct video dub. The information display will briefly show VID2 > 1 or VID3 > 1 to confirm the dubbing operation. After the display returns to show the current input source for the main system, a red indicator will illuminate inside the **Video Dubbing** button to remind you that a Video Dub is in process.

NOTE: Federal law prohibits copying of copyrighted materials.

Troubleshooting

This unit is designed for trouble-free operation. Most problems users encounter are due to operating errors. So, if you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Harman Kardon Service Center.

If the problem is...	**Make sure that the...**
No lights illuminate when POWER button is pressed	Unit is plugged into a live outlet Main power switch is pressed in
No sound is heard	Unit has not been muted Correct input function selector button has been pressed Volume is turned up
Dolby Surround does not work on center and rear channels	Correct surround mode is selected Center and/or rear speakers are selected Rear and center levels are turned up You are using a surround encoded source
Selecting a Video source produces sound but no picture	Monitor output is connected to the video input on TV
The TV picture does not match the sound	Video sources are properly connected to receiver Video/Antenna Switch on TV is set to Video
No output from one or more channels	Cables are not defective: Check/replace speaker cables
No center channel output	Center channel speaker is selected Phantom mode is not active Unit is in the Pro Logic mode Center channel level is properly adjusted Center speaker is selected
Tuner sound has a large amount of interference, or The "Stereo" display is not illuminated, or Tuner sound distorts and/or volume level is too low	The antenna is properly connected The antenna is properly located The antenna is set in the proper direction The antenna is adequate to receive the desired station
Tuner is intermittent or continuously buzzing or hissing	The unit is away from fluorescent lights, TVs, motors and other electrical appliances

Technical Specifications

Stereo Mode

Continuous Average Power (FTC)

65 Watts from 20Hz-20kHz:	@<0.09% THD both channels driven into 8 ohms

Five Channel Surround Mode

Continuous average power per channel (FTC)

Front L&R channels: 55 Watts from 20Hz-20kHz	@<0.3% THD both channels driven into 8 ohms
Center channel: 55 Watts at 1kHz	@<0.3% THD driven into 8 ohms
Rear channels: 2 x 25 Watts at 1kHz:	@<0.7% THD both channels driven into 4 ohms

Amplifier Section

High-Instantaneous Current Capability (HCC):	±35Amps
Negative Feedback:	21dB
Slew Rate:	60Volts/µSec
Frequency Response @1W (+0/-3dB):	0.5-150Hz-kHz
Rise Time:	3.0µSec
Transient Intermodulation Distortion (TIM):	Unmeasurable

Preamplifier Section

Signal-to-Noise Ratio (ref. 1 Volt, A-Wtd)	
Video, CD:	95dB
Input Sensitivity/Impedance	
Video, CD, Tape:	200mV/32kΩ
Tone Control Range	
Bass @ 50Hz:	±10dB
Treble @ 10kHz:	±10dB

Tuner Section: FM

Usable Sensitivity, Mono (dBf):	11.2µV/75Ω
50dB Quieting Sensitivity, Stereo (dbf):	41dBf/75Ω
Signal-to-Noise Ratio (IHF-A) @ 65dBf, mono/stereo:	79dB/73dB
Capture Ratio:	1.5dB
Selectivity, Adjacent/Alternate Channel:	5dB/65dB
IF Rejection:	110dB
AM Rejection @ 45dBf:	55dB
Stereo Separation @ 1kHz, 65dBf:	42dB
THD @ 1kHz, 65dBf, mono/stereo (%):	0.2/0.04

Tuner Section: AM

Sensitivity, External Antenna:	500µV/m
Alternate Channel Selectivity:	55dB
Image Rejection:	30dB
IF Rejection:	55dB

General

Dimensions (WxHxD):	
inches:	17-5/16 x 6-3/16 x 15
mm:	440 x 157 x 425
Weight (lbs/kgs):	27 lbs/12.3 kg
Power Requirement:	AC 120V-60Hz
Power Consumption:	2 Amps

Depth measurement includes knobs, buttons and antennas.

All features and specifications are subject to change without notice.

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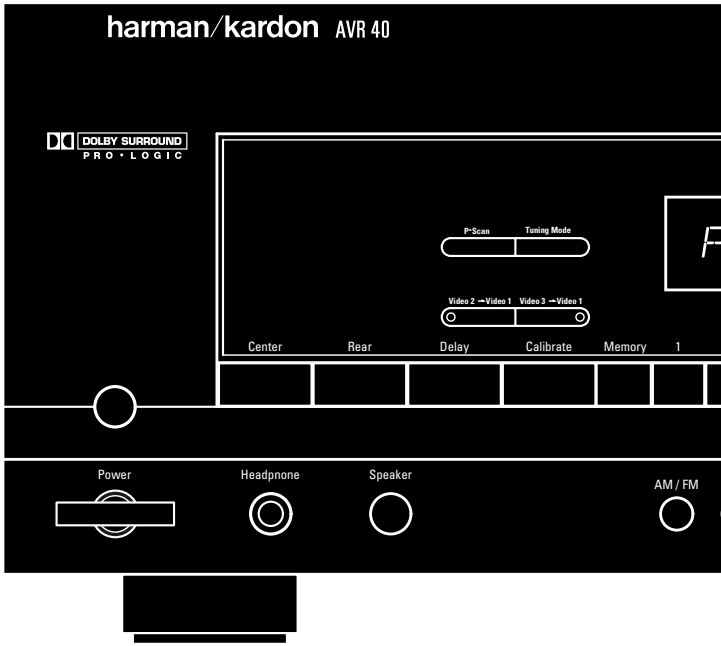

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