

harman / kardon®
Designed to Entertain.™

HK 3490

STEREO RECEIVER
OWNER'S MANUAL



SAFETY INFORMATION

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. The A/V receiver's cabinet may be cleaned by gently wiping with a soft cotton or microfiber cloth. Do not use water or any liquid cleaners.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use the attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. 
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Wet Location Marking

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

Service Instructions

CAUTION – These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

Outdoor Use Marking

WARNING – To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

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.

Important Safety Information

Verify Line Voltage Before Use

Your HK 3490 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 by an authorized service center with a cord meeting factory specifications.

Handle the AC Power Cord Gently

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

Do Not Open the Cabinet

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

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, which 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 ensure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product.
- Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. 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 in 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.
- Due to the weight of the HK 3490 and the heat generated by the amplifiers, there is the remote possibility that the rubber padding on the bottom of the unit's feet may leave marks on certain wood or veneer materials. Use caution

when placing the unit on soft woods or other materials that may be damaged by heat or heavy objects. Some surface finishes may be particularly sensitive to absorbing such marks, due to a variety of factors beyond our control, including the nature of the finish, cleaning materials used, and normal heat and vibration caused by the use of the product, or other factors. We recommend that caution be exercised in choosing an installation location for the component and in normal maintenance practices, as your warranty will not cover this type of damage to furniture.

Cleaning

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

Moving the Unit

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

Important Information for the User

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

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

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

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

Unpacking

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

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

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

It is important that you remove the protective plastic film from the front-panel lens. Leaving the film in place will affect the performance of your remote control.

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WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

For Canadian model

This Class B digital apparatus complies with Canadian ICES-003.
For models having a power cord with a polarized plug:
CAUTION: To prevent electric shock, match wide blade of plug to wide slot, fully insert.

Modèle pour les Canadien

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
Sur les modèles dont la fiche est polarisée:
ATTENTION: Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

INTRODUCTION

Please register your product at www.harmankardon.com.

Note: You'll need the product's serial number. At the same time, you can choose to be notified about new products and/or special promotions.

WWW.HARMANKARDON.COM

Thank you for choosing Harman Kardon!

In the years since Harman Kardon invented the high-fidelity receiver, we have taken to heart the philosophy of bringing the joy of home entertainment to as many people as possible, all the while improving performance and adding features. The HK 3490 offers the best in traditional analog two-channel audio, including a 30-preset AM/FM tuner, an integrated phono preamplifier and a tape monitor loop that lets you listen to your tape recordings as they're being made, while adding digital audio inputs, an XM Ready® tuner and a connection for The Bridge II docking station, which delivers audio playback and control for iPod, iPod touch and iPhone models (not included).

If high-performance audio reproduction weren't enough, we've added composite video switching. Use the included audio/video cable to connect

your iPod or other portable player to the HK 3490, or just enjoy your favorite television programs in stereo without firing up your main home theater. Whether listening to an LP record pressed in the last century or watching a movie you downloaded to your digital media player last night, your new HK 3490 delivers the powerful, detailed performance you've come to expect from Harman Kardon.

To obtain the maximum enjoyment from your new receiver, we urge you to read this manual and refer back to it as you become more familiar with its features and their operation.

If you have any questions about this product, its installation or its operation, please contact your retailer or customer installer, or visit our Web site at www.harmankardon.com.



Harman Kardon® HK 3490 Stereo Receiver Audio Section

- 120 Watts x 2, both channels driven at full power at 8 ohms, 20Hz – 20kHz, <0.07% THD; 240 watts total
- 150 Watts x 2, both channels driven at full power at 4 ohms, 20Hz – 20kHz, <0.2% THD; 300 watts total
- High-current capability, ultrawide-bandwidth amplifier design with low negative feedback
- All-discrete amplifier circuitry

Audio Inputs

- AM/FM/XM Ready* Tuner
- Phono
- CD
- Tape-Monitor/CDR
- Main-Amp Inputs
- The Bridge II-Ready** Connector
- Coaxial and Optical Digital Audio Inputs

* XM antenna module and subscription to XM service required. Hardware and service sold separately. XM service is not available in Alaska or Hawaii.

** Compatible with all iPod models equipped with a dock connector. Not compatible with iPod shuffle models. No still-image or video playback.

Audio/Video Inputs (Composite Video)

- Video 1
- Video 2/DVD
- Video 3 (use front- or rear-panel connections)

Outputs

- Dual Subwoofer Outputs
- Tape/CDR
- Video 1 (Audio and Video)
- Video Monitor
- Preamp Outputs
- Headphone
- Two sets of Speaker Outputs for dual-room use
- Dual Subwoofer Trigger Outputs

Ease of Use

- Dot-matrix front-panel display
- Color-coded connections
- Seven-device system remote control
- Speaker 1/2 switching
- Rotary front-panel Tone Controls
- Remote IR Input and Output
- Energy-saving Subwoofer Link Switches

Supplied Accessories

The following accessory items are supplied with the HK 3490. If any of these items are missing, please contact Harman Kardon customer service at www.harmankardon.com.

- System remote control
- AM loop antenna
- FM wire antenna
- Four AAA batteries
- One 1/8" mini-plug-to-analog-audio/composite-video cable

FRONT-PANEL CONTROLS

Power Indicator: This LED has two modes. When power is turned off, the LED is amber to indicate that the receiver is plugged in and ready to be turned on. When the receiver is turned on, the LED turns white.

Power Switch: This electrical switch turns the receiver on for playback, or leaves it in Standby mode for quick turn-on using the remote control.

Phono/The Bridge Source Selector: Press this button to select a turntable connected to the Phono Inputs as the source. Press it again to select an iPod docked in the optional Harman Kardon The Bridge II docking station as the source. Each additional press switches between these two sources.

CD Source Selector: Press this button to select the device connected to the CD Inputs as the source.

Video Source Selectors: Press any of these buttons to select the device connected to the corresponding Audio and Video Inputs for playback. Remember to turn on the source device, to connect the Video Monitor Output to your video display and to turn on your video display and select the correct Video Input.

NOTE: The Video 3 source device may be connected to either the front- or rear-panel connectors. To select the desired device, press the Video 3 Source Selector repeatedly to toggle between the front and rear inputs.

Tape Source Selector: Press this button to select the device connected to the Tape/CDR Audio Inputs as the source. If you are making a recording using a three-head tape deck or another unit with off-head playback, you will be able to monitor the recording as it is being made.

Speaker 1/2: Press the left side of this button to enable the HK 3490 to output audio to the speakers connected to the Speaker 1 Outputs, and press the right side of the button to enable the Speaker 2 Outputs. You may enable or disable both sets of speaker outputs simultaneously. This feature is a convenient way of hearing audio in more than one room at a time, although the same source material will be played through both sets of speakers.

Tuning: Press either side of this button to tune a radio station. Tap the button briefly to tune one frequency step at a time, or press and hold the button to seek the next frequency with an acceptably strong signal.

Preset Scan: Press this button once to scan through the stations you have previously programmed as presets. Each station will play for five seconds before the tuner skips to the next preset station. Press the button a second time to select the current station. If no presets have been programmed, the 0 PRESET message will be displayed. When listening to XM® Radio, each press displays the current playback information: channel name and number, category, artist and song title.

Preset Stations: Press this button to select a preset radio station. If no presets have been programmed, the 0 PRESET message will be displayed. When listening to XM Radio, each press changes the preset number within the current lettered bank.

Tuner Band: Press this button to select the tuner as the source, or to select the AM (left side of button) or FM (right side of button) band. Each press of the FM side of the button toggles between the FM and XM bands.

FM Mode: This button toggles between Stereo and Mono modes when an FM station is tuned. Mono mode may improve reception of weaker signals. When listening to XM radio, each press of this button changes the channel search mode as follows:

- **All Channel Search:** The Tuning Buttons and the ◀/▶ Buttons on the remote may be used to tune any channel.
- **Preset Search:** The ◀/▶ Buttons on the remote may be used to change the lettered bank of presets.
- **Category Search:** The Tuning Buttons and the ◀/▶ Buttons on the remote may be used to tune a channel within the current category.

Sleep: Press this button to activate the sleep timer, which shuts off the receiver after a programmed period of time up to 90 minutes.

DSP Mode: Each press of this button switches the digital signal processing mode as follows: Dolby® Virtual Speaker Wide, Dolby Virtual Speaker Reference, Stereo.

Mute: Press this button to mute the HK 3490's speaker and headphone outputs temporarily. To end the muting, press this button or adjust the volume. Muting is also canceled when the receiver is turned off.

Volume Control: Turn this knob to raise or lower the volume, which will be shown in decibels (dB) in the Message Display.

Headphone Jack: Plug a 1/4" headphone plug into this jack for private listening.

Bass Control: Turn the knob clockwise to boost low-frequency output by up to 10dB, or counterclockwise to cut low-frequency output by up to 10dB. Set the control to suit your taste and room acoustics.

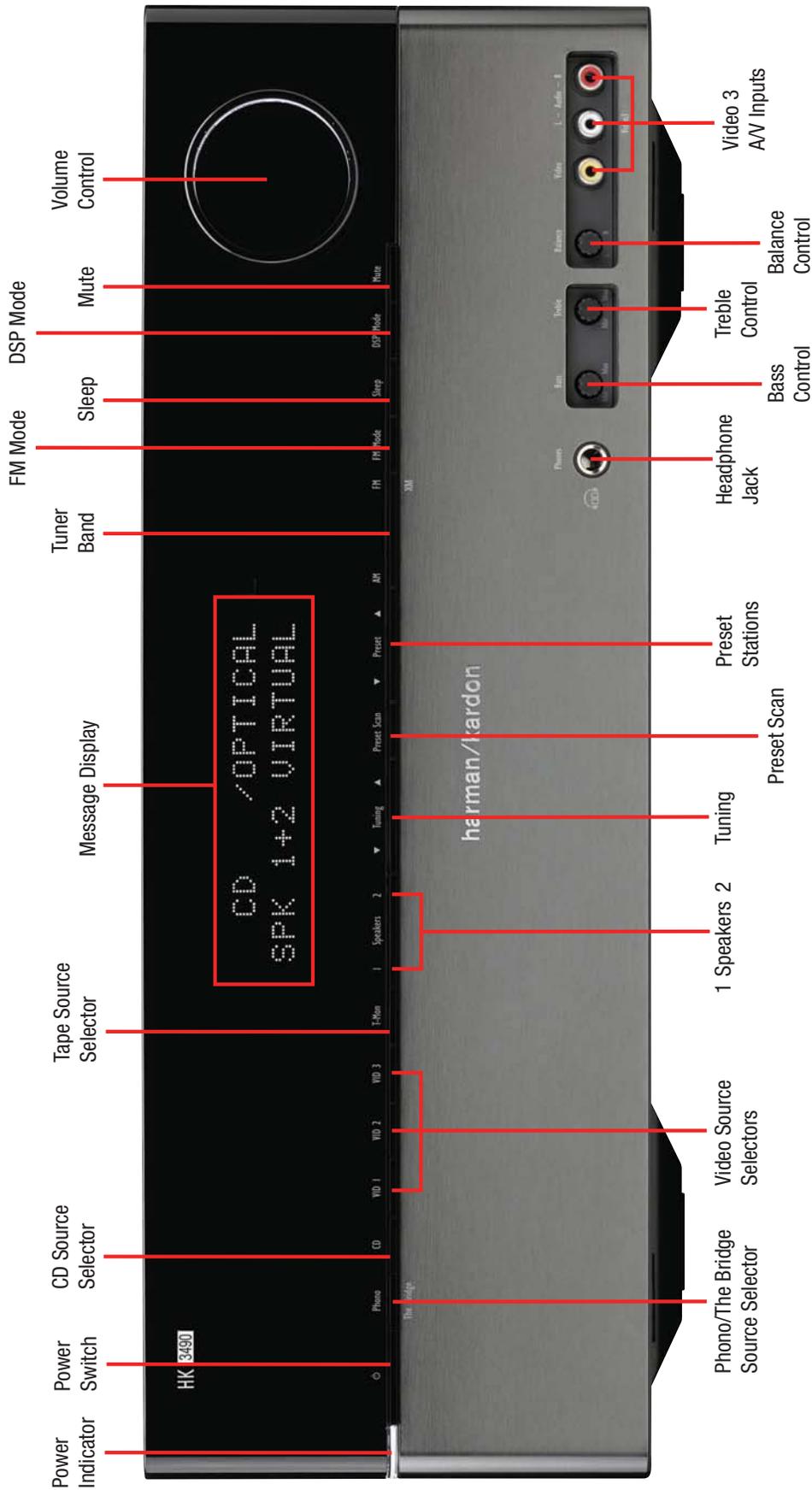
Treble Control: Turn the knob clockwise to boost high-frequency output by up to 10dB, or counterclockwise to cut high-frequency output by up to 10dB. Set the control to suit your taste and room acoustics.

Balance Control: Turn the knob to adjust the relative volume of the left and right channels, which affects imaging and can compensate for room characteristics.

NOTE: To use the Bass, Treble or Balance Controls, gently press the knob until it unlatches. When finished, press the knob again to lock it.

Video 3 A/V Inputs: Connect a source component that will only be used temporarily to these jacks, such as a camera or game console, or connect an iPod using the supplied audio/video cable.

Message Display: Various messages appear in this display in response to commands. In normal use, the Upper Line will display the current source and audio input (analog or one of the digital audio inputs). The Lower Line displays the current speaker group (if any are active) and the DSP mode. Other messages may appear for some sources, such as The Bridge docking station and the tuner.



NOTE: To make it easier to follow the instructions throughout the manual that refer to this illustration, a copy of this page may be downloaded from the Product Support section at www.harmankardon.com.

REAR-PANEL CONNECTIONS

AM and FM Antenna Terminals: Connect the included AM and FM antennas to their respective terminals for radio reception.

Video 1, Video 2 and Video 3 Audio/Video Inputs: These jacks may be used to connect your video-capable source components (e.g., VCR, DVD player, cable TV box) to the receiver.

NOTE: The Video 3 source has inputs on both the front and rear panels of the HK 3490, and you may connect different devices to each set of inputs. To select between the two sets of inputs, press the Video 3 Source Selector repeatedly.

Video 1 Audio/Video Outputs: These jacks may be used to connect your VCR or another recorder.

Video Monitor Output: If some of your sources use video connections, connect the Video Monitor Output to the corresponding input on your television or video display to view the sources. No video signal will be available when an audio-only source input, such as CD or Tape, is selected.

Remote Infrared (IR) Input and Output: When the remote IR receiver on the front panel is blocked, such as when the HK 3490 is placed inside a cabinet, connect an optional IR receiver to the Remote IR Input jack for use with the remote control. The Remote IR Output may be connected to the Remote IR Input of a compatible source device (or other product) to enable remote control through the HK 3490. When several source devices are used, connect them in “daisy chain” fashion.

Update Port: This connection is for authorized service personnel only. It is used with a proprietary device in the event that a software update for the HK 3490 becomes available in the future. Do not make any connections to it.

Reset Button: In the event that the HK 3490 operates erratically, a system reset may restore proper functionality. Place the unit in Standby mode by pressing the Power Switch so that the Power Indicator turns amber. Then use a fine-point pen or other similar object to press the Reset Button.

The Bridge/DMP Input: Connect the optional Harman Kardon  or  docking station to this input for use with your iPod, iPod touch or iPhone (not included). Make sure the receiver is turned off (in Standby mode) when connecting The Bridge or The Bridge II docking station.

XM Antenna Jack: Plug in an XM antenna module here. The XM antenna module is purchased separately, and should specify that it is for home use with an XM Ready product. You will need to subscribe to the XM service, which is available separately, and activate the service for your antenna module. (XM service is not available in Alaska and Hawaii.)

Coaxial and Optical Digital Audio Inputs: If a source has a compatible digital audio output, connect it to one of these jacks for improved audio performance. Use only one type of digital audio connection for each source.

AC Power Cord: After you have made all other connections, plug the AC power cord into an unswitched outlet.

Switched AC Accessory Outlets: You may plug the AC power cord of one source device into each of these outlets, and it will turn on whenever you turn on the receiver. Do not use sources that consume more than 100 watts of power per outlet.

Speaker 1 and 2 Outputs: Use two-conductor speaker wire to connect each set of terminals to the correct speaker. Observe the correct polarity (positive and negative connections). Always connect the positive lead to the red or white terminal on the receiver and the red terminal on the speaker. Connect the negative lead to the black terminal on both the receiver and the speaker. Use the Speaker 1/2 Selectors on the front panel or remote to select either or both pairs of speakers for playback.

Subwoofer Outputs: If you have a powered subwoofer, connect these jacks to the line-level inputs on the subwoofer. The same full-range signal is output through both jacks. Thus, you have the option of connecting each jack to the line-level input on a separate subwoofer or to use the full-range outputs to feed a remote room in a distributed-audio application. If you have only one subwoofer with a single line-level input, connect it to the right Subwoofer Output on the HK 3490.

Subwoofer Trigger Outputs: Connect these outputs to a compatible trigger input on the subwoofer connected to the Subwoofer Output immediately to the right of the Trigger Output. Consult the owner's manual for the subwoofer to set its trigger input correctly, and the subwoofer will automatically turn on or off when the HK 3490 is turned on or off. In addition, the Trigger Outputs are used with the Subwoofer Link Switches to conserve energy by powering off the subwoofer's amplifier when it is not needed. The Subwoofer Trigger Outputs send a signal of 15 volts DC.

Subwoofer Link Switches: Each switch affects the subwoofer connected to the jack immediately to the left of the switch. To use the switch, first connect the corresponding Subwoofer Trigger Output to a compatible trigger input on the subwoofer, and make sure the subwoofer's instructions are followed to activate its trigger input. When the Link Switch is on, the HK 3490 will remove the trigger signal whenever the corresponding pair of main speakers is not in use, thereby conserving energy that would otherwise be used to maintain the subwoofer's amplifier in Standby mode. This feature is activated any time no signal is present at the main speaker outputs, including when the Speaker 1/2 Switch turns off both speaker pairs, when the HK 3490's output is muted, or when the headphones are plugged in. See Table A2 in the appendix for details.

Main-Amp Inputs and Preamp Outputs: These jacks are normally connected directly to each other with an included jumper. Some devices, such as equalizers and some loudspeaker systems, require connection between the Preamp Outputs and Main-Amp Inputs, in which case the jumpers should be removed and stored in a safe place for future use. You may also remove the jumpers if you wish to connect the Preamp Outputs to an external amplifier, or if you wish to connect another device's line-level output directly to the HK 3490's power amplifier for a special application.

Tape Outputs: These jacks may be used to connect your CDR or another audio-only recorder.

REAR-PANEL CONNECTIONS

CD and Tape Inputs: These jacks may be used to connect your audio-only source components (e.g., CD player, tape deck). Do not connect a turntable to these jacks unless you are using the turntable with a phono preamp. When your recorder features three-head or off-head playback, you may monitor a recording as it is being made.

Phono Inputs and Ground: Connect the outputs of your turntable or tonearm to these jacks, and connect the ground wire from the turntable to this Ground Connector to reduce system hum. Only moving-magnet (MM-type) cartridges are compatible with the Phono Inputs. If your turntable is equipped with its own onboard phono preamp, you may connect it to any of the HK 3490's other audio inputs.

Main Power Switch: This mechanical switch turns the power supply on or off. It is usually left turned on (push the rocker in at the top), and cannot be turned on using the remote control. Turn this switch off when connecting or disconnecting source devices or loudspeakers to prevent any possibility of damage to components resulting from an unexpected power surge.

REMOTE CONTROL FUNCTIONS

The HK 3490 remote is capable of controlling six devices, including the HK 3490 itself. The remote is preprogrammed at the factory to operate most Harman Kardon DVD, CD and CDR players. Each time you wish to use the codes for any component, first press its Selector Button. This changes the button functions to the appropriate codes.

Phono: Controls only the HK 3490 when a turntable is in use.

Video 1: Controls the Harman Kardon DMC 1000 digital media server.

Video 2 and 3: Controls DVD players. Each source uses a slightly different code set. Test the remote on your Harman Kardon DVD player, and refer to Table A3 in the appendix. Connect the DVD player to the source inputs corresponding to the code set that correctly operates the device.

Tape: Controls CD recorders.

CD: Controls CD players.

AM/FM: Controls the HK 3490 and its internal tuner only.

XM: Controls the HK 3490 and its internal tuner only.

The Bridge: When an optional Harman Kardon The Bridge or The Bridge II docking station is connected and an iPod (not included) is docked, this mode controls navigation and playback of materials stored on the iPod.

The functions specific to the HK 3490 are always available: Main Power On and Off, Speaker 1/2, source selection, Mute, Sleep, Dimmer and the Volume Controls.

Any given button may have different functions, depending on which component is being controlled. Some buttons are labeled with these functions. For example, the Track Skip Buttons are labeled with the transport control icons printed on the buttons themselves, and these functions are active when a CD or DVD player is in use. The Preset indications appear above these buttons, and those commands are active when the HK 3490's tuner is in use. See the appendix for listings of the different functions for each type of component.

IR Transmitter Lens: As buttons are pressed on the remote, infrared codes are emitted through this lens. Make sure it is pointing toward the component being operated.

Power Off Button: Press this button to turn off the HK 3490 or another device.

Power On Button: Press this button to turn on the HK 3490 or another device.

Speaker 1/2: Press the Speaker 1 Button to enable the HK 3490 to output audio to the speakers connected to the Speaker 1 Outputs, and press the Speaker 2 Button to enable the Speaker 2 Outputs. You may enable or disable both sets of speaker outputs simultaneously. This feature is a convenient way of hearing audio in more than one room at a time, although the same source material will be played through both sets of speakers.

Source Selectors: Press one of these buttons to select a source device, which is a component where a playback signal originates, e.g., DVD, CD or the tuner. This will also turn on the receiver and switch the remote to the codes that operate the source device.

NOTE: The Video 3 source device may be connected to either the front- or rear-panel connectors. To select the desired device, press the Video 3 Source Selector repeatedly. The VIDEO 3 message indicates that the rear-panel inputs are active, and the VIDEO F message indicates the front-panel inputs have been selected.

FM Mode: This button toggles between Stereo and Mono modes when an FM station is tuned. When XM Radio is in use, each press of this button changes the search mode, which controls how the ◀/▶ Buttons operate.

- **Preset Search Mode:** Each press of the ◀/▶ Buttons changes the lettered bank of preset stations. Each press of the ▲/▼ Buttons changes the numbered preset within the bank.
- **Category Search Mode:** Each press of the ◀/▶ Buttons jumps to the next category of stations, e.g., Decades.
- **All Channel Search Mode:** The ◀/▶ Buttons do nothing. The ▲/▼ Buttons change the channel number.

DSP Mode: Each press of this button switches the digital signal processing mode as follows: Dolby Virtual Speaker Wide, Dolby Virtual Speaker Reference, Stereo.

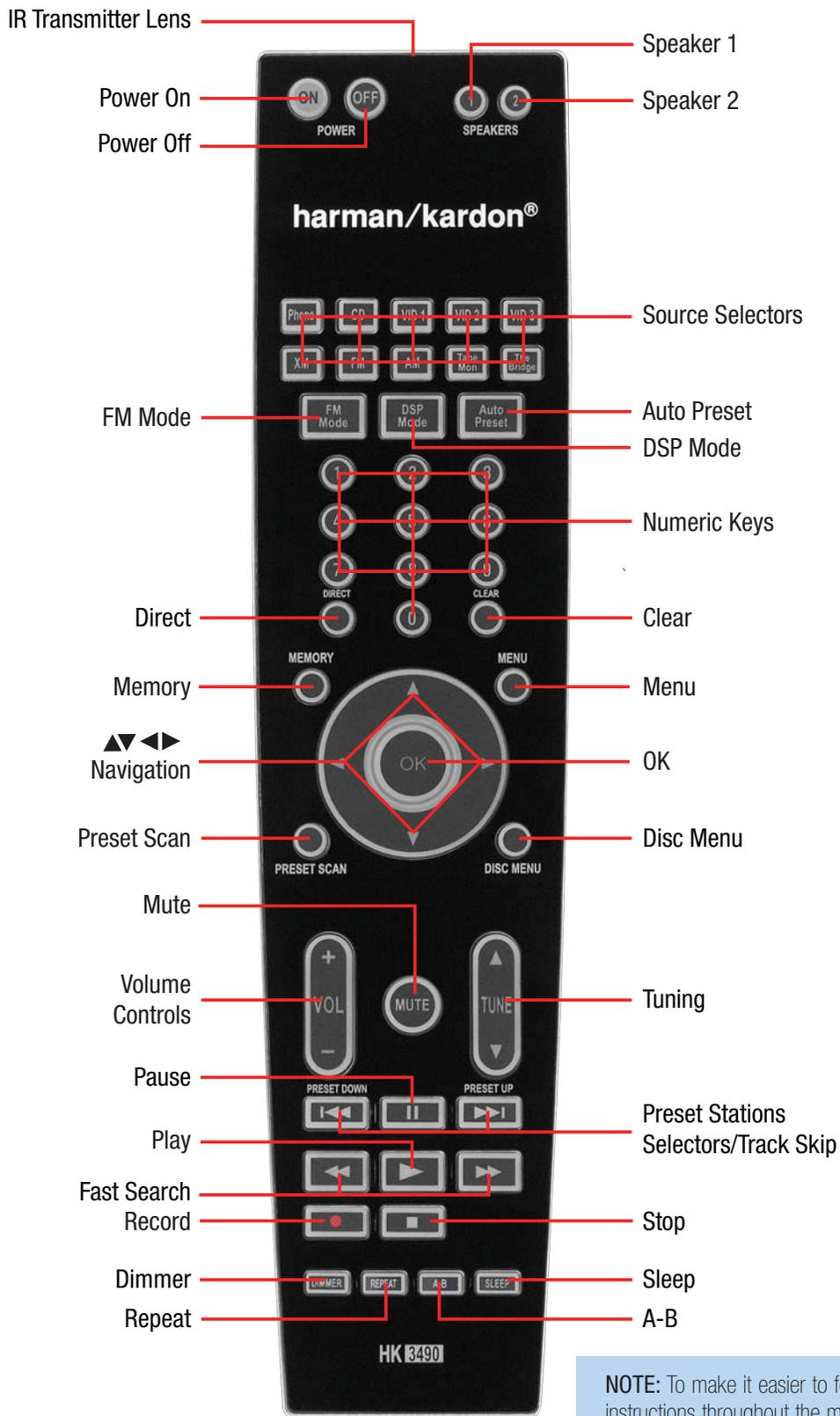
Auto Preset: The Auto Preset feature enables you to automatically set presets for all available FM radio stations in your area with a single button press. To start the process, make sure the FM tuner has been selected as the source. Press and hold this button. The AUTO PRESET message will appear as the HK 3490 tuner scans through all FM stations with acceptable signal quality and programs them into the presets. If there are fewer than 30 stations, the tuner will cycle through again, filling up the higher preset slots with the same stations. The scan will stop when all 30 presets have been filled, or after two scans through the FM band.

Numeric Keys: Use these buttons to enter radio station frequencies when using the tuner (after pressing the Direct Button, except for XM), or to select station presets.

Direct: Press this button before using the Numeric Keys to directly enter a radio station frequency. It is not necessary to press this button before using the Numeric Keys to enter an XM Radio channel.

Clear: Press this button to clear a radio station frequency you have started to enter.

Memory: After you have tuned a particular radio station, press this button, then the Numeric Keys, to save that station as a radio preset. When XM Radio is in use, programming presets is somewhat different. First, tune to the desired channel. Then, press the Memory Button and the preset indication will flash. Use the ◀/▶ Buttons to select the desired preset bank (A through E), and then use the ▲/▼ Buttons



NOTE: To make it easier to follow the instructions throughout the manual that refer to this illustration, a copy of this page may be downloaded from the Product Support section at www.harmankardon.com.

REMOTE CONTROL FUNCTIONS

to select a numbered location (1 through 8) within the bank. Press the Memory Button to complete the process and let the HK 3490 return to normal operation.

Menu: This button has no effect on the HK 3490, but is used with some source devices to access the source's setup menus.

Navigation (▲/▼/◀/▶) and OK Buttons: When XM Radio is in use, the ◀/▶ Buttons may be used to change the channel category or the lettered bank of presets. As described above, press the FM Mode Button to select a search mode. Use the ▲/▼ Buttons to change the numbered preset within a bank when in Preset Search mode, or to change the channel sequentially when in All Channel Search mode. These buttons have no other effect on the HK 3490, but are used to make selections within the on-screen menu system for some source devices. The OK Button transmits the Random Play command when used with CD players.

Preset Scan: Press this button once to scan through the stations you have previously programmed as presets. Each station will play for five seconds before the tuner skips to the next preset station. Press the button a second time to select the current station. If no presets have been programmed, the 0 PRESET message will be displayed. When XM Radio is in use, this button has nothing to do with preset stations. Instead, each press of this button changes the information displayed on the front panel as follows: channel name and number, channel category, artist name and song title.

Disc Menu: This button has no effect on the HK 3490, but is used with some DVD players to access the DVD disc's menus.

Volume Controls: Use this control to raise or lower the volume, which will be shown in decibels (dB) in the Message Display.

Mute Button: Press this button to mute the HK 3490's speaker and headphone outputs temporarily. To end the muting, press this button or adjust the volume. Muting is also canceled when the receiver is turned off. When the Subwoofer Trigger Output is connected to the correct input on the subwoofer, and the corresponding Subwoofer Link Switch is on, muting the HK 3490 will remove the trigger signal, turning off the subwoofer's amplifier to conserve energy. When normal listening resumes, the trigger signal will be reactivated, turning on the subwoofer.

Tuning: Use this control to tune a radio station. Tap one end of the button briefly to tune one frequency step at a time, or press and hold it to seek the next frequency with an acceptably strong signal. When XM Radio is in use, the digitally tuned channels are always of acceptable strength, and thus there is no seek function, although pressing and holding the Tuning Buttons scans through the channels faster. When the FM Mode Button has been used to activate Category Search Mode, the Tuning Buttons will only tune channels within the current category. Press the FM Mode Button until All Channel Search Mode has been selected to tune any channel.

Preset Stations Selectors/Track Skip: Press these buttons to select a preset radio station, or to change tracks or chapters on compatible Harman Kardon DVD and CD players. XM presets are stored in one of five lettered banks. To switch banks, press the FM Mode

Button repeatedly until the PRESET SEARCH message appears in the Message Display, and use the ◀/▶ Buttons to change to the desired bank. Then use the Preset Stations Selectors to select the numbered preset within the bank.

Stop, Record, Pause and Play: These transport controls have no effect on the receiver, but are used to control compatible Harman Kardon DVD and CD players.

Fast Search: The Fast Search function is available with compatible Harman Kardon DVD and CD players.

Dimmer: Press this button to partially or fully dim the front-panel display.

Repeat (V. Mode): This button has no effect on the HK 3490, but issues the Repeat command when used with DVD and CD players. On some remotes this button is labeled "V. Mode," but it still issues the Repeat command.

A-B (Source): This button has no effect on the HK 3490, but issues the Repeat A-B command when used with DVD and CD players with that feature. On some remotes, this button is labeled "Source," but it still issues the Repeat A-B command.

Sleep: Press this button to activate the sleep timer, which shuts off the receiver after a programmed period of time up to 90 minutes.

There are different types of audio and video connections used to connect the receiver to the speakers and video display, and to connect the source devices to the receiver. To make it easier to keep them all straight, the Consumer Electronics Association has established a CEA® color-coding standard. Table 1 may be helpful to you as a reference while you set up your system.

Table 1 – Connection Color Guide

Audio Connections	
	Left Right
Front (FL/FR)	
Digital Audio Connections	
Coaxial	
Optical	
Video Connections	
Composite	

Types of Connections

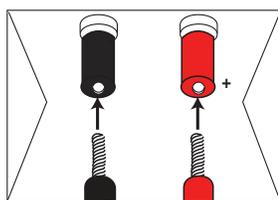
This section will briefly review different types of cables and connections that you may use to set up your system.

Speaker Connections

Speaker cables carry an amplified signal from the receiver's speaker terminals to each loudspeaker. Speaker cables contain two wire conductors, or leads, inside plastic insulation. The two conductors are usually differentiated by using different colors, or stripes, or by adding a ridge to the insulation. Sometimes the wires are different colors, one being copper red and the other silver.

The differentiation is important because each speaker must be connected to the receiver's Speaker-Output terminals using two wires, one positive (+) and one negative (–). This is called speaker polarity. It's important to maintain the proper polarity for all speakers in the system. If some speakers have their negative terminals connected to the receiver's positive terminals, performance can suffer, especially for the low frequencies.

Always connect the positive terminal on the loudspeaker, which is usually colored red, to the positive terminal on the receiver, also colored red. Similarly, always connect the black negative terminal on the speaker to the black negative terminal on the receiver.



The HK 3490 uses binding-post speaker terminals that can accept banana plugs or bare-wire cables.

Banana plugs are simply plugged into the hole in the middle of the terminal. See Figure 1.

Figure 1 – Binding-Post Speaker Terminals With Banana Plugs

Bare-wire cables are installed as follows (see Figure 2):

1. Unscrew the terminal cap until the pass-through hole in the collar is revealed.
2. Insert the bare end of the wire into the hole.
3. Screw the cap back into place until the wire is held snugly.

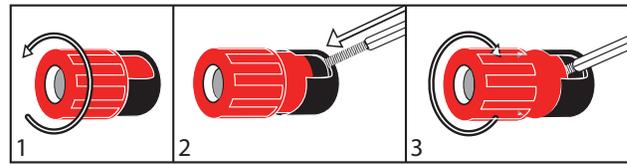


Figure 2 – Binding-Post Speaker Terminals With Bare Wires

The HK 3490 features two sets of speaker connections, with each set allowing connection of a left and right loudspeaker. This allows you to place a second set of speakers in another room, or even outdoors, when weather-resistant loudspeakers are used. You may play both sets of speakers simultaneously, one set at a time or neither set when using the headphones or making recordings. Use the Speaker 1/2 Buttons to activate or deactivate each pair of speakers. It is not possible to select different sources for each speaker pair.

Subwoofer

The subwoofer is a specialized type of loudspeaker used to play only the low frequencies (bass), which require much more power than the other speaker channels. To obtain the best results, most speaker manufacturers offer powered subwoofers, in which the speaker contains its own amplifier on board. Usually, a line-level (nonamplified) connection is made from the receiver's Subwoofer Output to a corresponding jack on the subwoofer, as shown in Figure 3, but sometimes the subwoofer is connected to the receiver using the left and right speaker outputs, then the left and right speakers are connected to terminals on the subwoofer. The same full-range signal is output through both jacks. Thus, you have the option of connecting each jack to the line-level input on a separate subwoofer. If you have only one subwoofer with a single line-level input, connect it to the right Subwoofer Output on the HK 3490.

Connect the Subwoofer Trigger Output for each subwoofer to the corresponding trigger input on its amplifier. This enables the subwoofer to turn on or off together with the HK 3490. To further conserve energy, when the trigger connection is made, turn the Subwoofer Link Switch on to turn the subwoofer off when the corresponding pair of main speakers are not being used, such as during muting, when headphones are being used, or when the main speakers are turned off using the Speaker 1/2 switch.

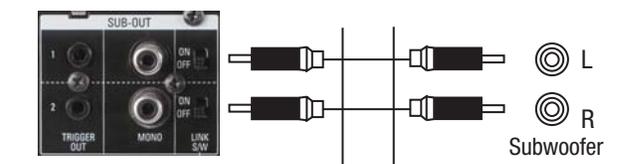


Figure 3 – Subwoofer

Connecting Source Devices to the HK 3490

The HK 3490 is designed to process audio and video input signals, playing back the audio and displaying the video on a television or monitor connected to it. These signals originate in what are known as "source devices," including your DVD player, CD player, DVR (digital video recorder) or other recorder, tape deck, game console, cable or satellite television box, or MP3 player. Although the tuner is built into the

CONNECTIONS

HK 3490, it also counts as a source, even though no external connections are needed, other than the FM and AM antennas and the XM module.

Separate connections are required for the audio and video portions of the signal.

Audio Connections

There are two formats for audio connections: digital and analog. Digital audio signals offer improved quality, free of distortion and with greater detail and presence. The HK 3490 uses two types of digital audio connections: coaxial and optical. Either type of digital audio connection may be used for each source device, but never both simultaneously for the same source. However, it's alright to make both analog and digital audio connections to the same source.

Digital Audio

Coaxial digital audio jacks are usually color-coded in orange. Although they look similar to analog jacks, they should not be confused, and you should not connect coaxial digital audio outputs to analog inputs or vice versa. See Figure 4.

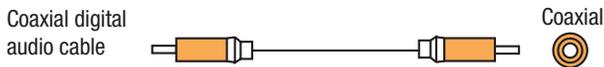


Figure 4 – Coaxial Digital Audio

Optical digital audio connectors are normally covered by a shutter to protect them from dust. The shutter opens as the cable is inserted. Input connectors are color-coded using a black shutter, while outputs use a gray shutter. See Figure 5.



Figure 5 – Optical Digital Audio

Analog Audio

Analog connections require two cables, one for the left channel (white) and one for the right channel (red). These two cables are often attached to each other for most of their length. See Figure 6. Most sources that have digital audio jacks also have analog audio jacks, although some older types of sources, such as tape decks, have only analog jacks. For sources that are capable of both digital and analog audio, you may wish to make both connections. If you wish to record materials from DVDs or other copy-protected sources, you may only be able to do so using analog connections. Remember to comply with all copyright laws if you choose to make a copy for your own personal use.



Figure 6 – Analog Audio

Video Connections

Although some sources only produce an audio signal (e.g., CD player, tape deck), many sources output both audio and video signals (e.g., DVD player, cable television box, HDTV tuner, satellite box, VCR, DVR). In addition to the audio connection, make a video connection for each of these sources.

The composite video jack is usually color-coded yellow, and looks like an analog audio jack, although it is important never to confuse the two. Do not plug a composite video cable into an analog audio jack, and vice versa. Both the chrominance (color) and luminance (intensity) components of the video signal are transmitted using a single cable. See Figure 7.



Figure 7 – Composite Video

Antennas

The HK 3490 uses separate terminals for the included FM and AM antennas that provide proper reception for the tuner.

The FM antenna uses a 75-ohm F-connector. See Figure 8.



Figure 8 – FM Antenna

The AM loop antenna needs to be assembled. Connect the two leads to the spring terminals on the receiver. The AM antenna leads are polarized, and it is important to color-match the leads and terminals to maintain the proper polarity. See Figure 9.

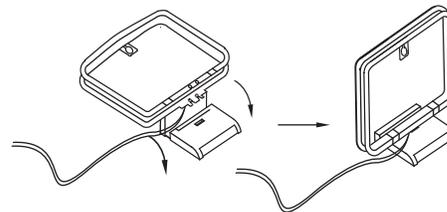


Figure 9 – AM Antenna

To enjoy XM satellite radio, purchase an XM antenna module designed for use with XM Ready devices and a subscription to the XM service. We recommend the XM Mini-Tuner and Home Dock Bundle, available at www.xmradio.com. The older Connect-and-Play module is also compatible with the HK 3490, but it may no longer be available in your area.

An XM Ready-compatible module uses the special connector on the HK 3490's rear panel that allows you to use the receiver's tuner, including its 40 preset station locations and remote control. Although you may use a module with standard audio connections, which may be indicated for "car and home use," you will not be able to enjoy the HK 3490's ease of control.

SPEAKER PLACEMENT

Before you begin to connect cables, it is important to set up your speakers in their correct locations in the room. See Figure 10.

Optimally, the front left and right speakers are placed the same distance from each other as from the listening position, or about 60 degrees apart, and angled toward the listener.

The subwoofer's location is less critical, since low-frequency sounds are omnidirectional. Placing the subwoofer close to a wall or in a corner will reinforce the low frequencies and may create a "boomy" sound. You may wish to experiment over time by placing the subwoofer where the listener normally sits and then walking around the room until the low frequencies sound best. Place the subwoofer in that spot.

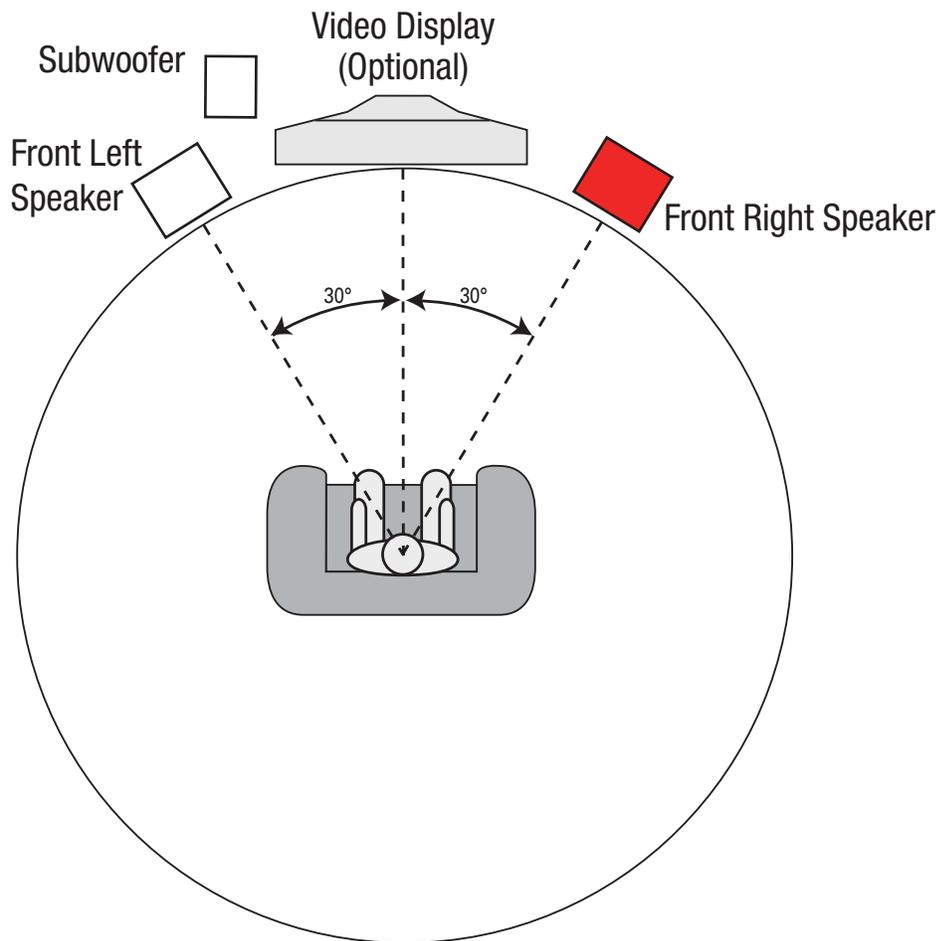


Figure 10 – Speaker Placement

INSTALLATION

You are now ready to connect your various components to your receiver. Before beginning, make sure that all components, including the HK 3490, are turned completely off and their power cords are unplugged. **Don't plug in any of the power cords until you have finished making all of your connections.**

The receiver generates heat while it is on. Select a location that leaves several inches of space on all sides of the receiver. It is preferable to avoid completely enclosing the receiver inside a cabinet. It is also preferable to place components on separate shelves rather than directly on top of the receiver. Some surface finishes are delicate. Try to select a location with a sturdy surface finish.

Step One – Connect the Speakers

If you have not yet done so, place your speakers in the listening room as described in the Speaker Placement section.

Connect the front left and right loudspeakers to the Speaker 1 speaker terminals on the HK 3490. Maintain the proper polarity by always connecting the positive and negative terminals on each speaker to the positive and negative terminals on the receiver. You may place a second pair of speakers in another room, or in the same room for additional sound power, connecting those speakers to the Speaker 2 Outputs and maintaining polarity. Use the Speaker 1/2 Selector on the front panel or remote to activate either or both pairs of speakers simultaneously. See Figure 11.

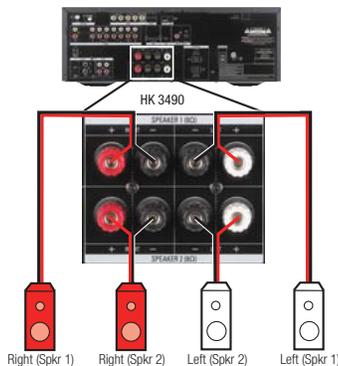


Figure 11 – Speaker Connections

Step Two – Connect the Subwoofer

Connect the Subwoofer Outputs on the HK 3490 to the line-level inputs on your subwoofer. The same full-range signal is output through both jacks. Thus, you have the option of connecting each jack to the line-level input on a separate subwoofer. If both pairs of main speaker outputs are in use in different locations, you may install a separate subwoofer with each speaker pair. If you have only one subwoofer with a single line-level input, connect it to the right Subwoofer Output on the HK 3490. For optional auto turn-on/turn-off control over the subwoofer, connect the Subwoofer Trigger Output for each subwoofer to the corresponding trigger input on its amplifier. This enables the subwoofer to turn on or off together with the HK 3490. To further conserve energy, when the trigger connection is made, turn the Subwoofer Link Switch on to turn the subwoofer off when the corresponding pair of main speakers is not being used, such as during

muting, when headphones are being used, or when the speakers are turned off using the Speaker 1/2 Switch. See Figure 12. Consult the manufacturer's guide for the subwoofer for additional information.

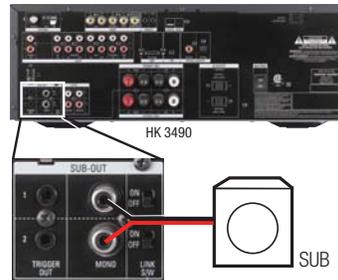


Figure 12 – Subwoofer Connection

Step Three – Connect the Antennas

Connect the FM and AM antennas to their terminals, and plug the XM antenna module (not included) into its connector. The XM module is purchased separately, and must be activated at the time you purchase a subscription. See Figure 13.

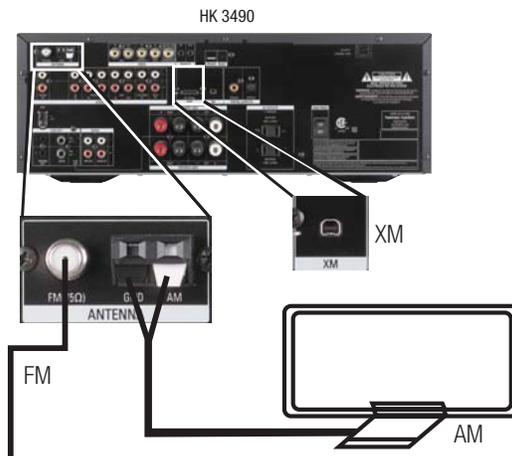


Figure 13 – Antenna Connections

Step Four – Connect the Source Components

Use the worksheets in the appendix to note which connections you will use for each of your source devices.

For each source, select a source input (Video 1, Video 2, Video 3, etc.). In Table A1 in the appendix, we recommend connecting certain types of sources to certain source inputs to make it easier to use the remote control.

The remote is preprogrammed to operate certain Harman Kardon components, as shown in Table A1. However, you may connect any component with analog audio and/or composite video outputs to any source input on the HK 3490, with the exception of the Phono Inputs, and you may use the original remote control supplied with the component. It is not possible to reprogram the HK 3490 remote, or to change the device type associated with any source input.

We recommend you follow the guidelines in Table A1 when connecting various source components to the HK 3490. However, due to the limitations in the design of the HK 3490 remote control, when using source components manufactured by other brands, use the device's original remote control to operate it.

For each audio-only source, such as a CD player, connect the left and right analog audio outputs of the source device to the corresponding inputs on the HK 3490.

For sources that have a digital audio output, connect it to the corresponding Optical or Coaxial Digital Audio Input on the HK 3490. You may connect a source's analog and digital audio outputs at the same time; only one connection is active at a time. To select the digital audio input, press and hold the front-panel Source Selector and simultaneously press the T-Mon Selector to change the audio input as follows: Analog, Optical, Coaxial.

For audio/video devices, such as a cable television set-top box, in addition to the audio connections, connect the composite video output on the set-top box to the corresponding video input jack on the HK 3490.

Phono (Turntable)

Connect the audio outputs of your turntable or tonearm with a moving-magnet (MM-type) cartridge to the Phono Inputs, and connect the ground wire to the Ground Terminal immediately below the Phono Inputs (not the AM Antenna Ground Terminal). If the cartridge is a moving-coil (MC-type) cartridge, it requires a separate phono preamp (available at your local electronics store) before you connect it to the Phono Inputs. See Figure 14.



Figure 14 – Phono Inputs and Ground

If your turntable has an MM-type cartridge and a built-in phono preamp, *do not* connect it to the Phono Inputs. Use one of the other available audio input sources on the HK 3490.

Compact Disc (CD) Player

Connect the analog audio outputs of your CD player (or another audio-only device) to the CD Audio Inputs. See Figure 15.



Figure 15 – CD Audio Inputs

Tape

The Tape source is used for audio recorders, such as a CDR, MiniDisc or cassette deck.

Connect the output jacks on your recorder to the Tape/CDR Audio Input jacks on the HK 3490, and the input jacks on your recorder to the Tape/CDR Output jacks on the HK 3490. See Figure 16.



Figure 16 – Tape/CDR Audio Inputs and Outputs

To listen to the Tape/CDR source, press the Tape Mon Button. The upper line of the Message Display will indicate the last-selected source, which is always available at the Tape/CDR Outputs for recording. The T-Mon message will flash in the lower line, indicating that the HK 3490 is playing the signal present at the Tape/CDR inputs. When the recorder is in Playback-Only mode, this signal will originate in the recorder, e.g., when playing a commercial CD. If the recorder is in recording mode and has off-head playback capability, you may monitor recording of the source displayed in the upper line. If the recorder does not have off-head playback, you will not be able to monitor the recording. To hear the original source, press the Tape Mon Button to stop monitoring the recording.

NOTE: To make recordings, insert blank media in the recording device and set it in Recording mode. The fact that a signal is always available at the Tape/CDR Outputs doesn't mean recording is taking place if the recorder is not set to record.

Video 1 Source

Since this source includes audio and video recording output jacks, it is best suited to a video recorder, such as your VCR or DVR, even though the remote codes are programmed to operate the DMC 1000. Simply use your video recorder's original remote.

Connect your recorder to the Video 1 Audio Inputs and Outputs. Then connect the recorder to the Video 1 Composite Video Input and Output. See Figure 17.



Figure 17 – Video 1 A/V Inputs and Outputs

Remember to connect the audio and video *output* jacks on your recorder to the Video 1 *Input* jacks on the HK 3490, and the audio and video *input* jacks on your recorder to the Video 1 *Output* jacks on the HK 3490.

INSTALLATION

Video 2 Source

The Video 2 source is used only for playback. Since the remote is preprogrammed to operate a Harman Kardon DVD player when the Video 2 source is selected, we recommend that you connect a DVD player to the Video 2 Inputs.

You may have observed that the HK 3490 does not feature surround sound decoding, other than Dolby Virtual Speaker. If you prefer the complete home theater experience, you may wish to consider purchasing a full-featured Harman Kardon AVR Series audio/video receiver. However, we hope you will find that using a DVD player with the HK 3490 in smaller settings, such as a bedroom or den, surpasses the audio performance of most televisions, including those with onboard stereo speakers.

Connect the left and right analog audio outputs of the DVD player to the Video 2 Audio Inputs on the HK 3490. Then connect the composite video output of the DVD player, usually colored yellow, to the Video 2 Video Input. See Figure 18.



Figure 18 – Video 2 Audio and Video Inputs

NOTE: If you receive your television programming using your TV with an antenna or direct cable connection, connect the TV's analog audio outputs (if available) to the Video 2 Analog Audio Inputs. Do not connect any video output on the television set to any Video Input on the receiver. See Step Five for information on connecting the receiver's Video Monitor Outputs to the television.

Video 3 Source

The Video 3 source is used only for playback. The Video 3 source has two sets of input jacks, one located on the HK 3490's rear panel and one set on the front panel. If you wish to connect a video device more or less permanently, you may prefer to connect it to the rear-panel inputs for a neater appearance. You may prefer to reserve the front-panel inputs for devices connected on a temporary basis, such as an iPod (not included), a camcorder, a game console, or another type of media player with analog audio and/or video outputs.

You may connect devices to both the front- and rear-panel inputs simultaneously. To select either device, press the Video 3 Source Selector on the HK 3490's front panel or remote repeatedly. When VIDEO 3 appears on the front panel of the HK 3490, the rear-panel inputs are active. When VIDEO F appears, the front-panel inputs are active.

Connect the left and right analog audio outputs of your device to the corresponding Video 3 Inputs on either the front or rear panel, and if available, connect the composite video output of the device to the Video 3 Video Input on the same panel. See Figure 19.



Figure 19 – Front- and Rear-Panel Video 3 A/V Inputs

To connect an iPod to the Video 3 Inputs, insert the 1/8" mini plug on the A/V cable included with the HK 3490 into the headphone jack of the iPod. Insert the left and right analog audio plugs on the other end of the A/V cable into the Video 3 Audio Inputs on the front of the receiver. If the iPod is capable of playing videos or displaying images, insert the composite video plug of the A/V cable into the Video 3 Video Input.

NOTE: The iPod classic, iPod touch and iPhone require a special cable (not included) for video playback through the HK 3490. The cable features a dock receptacle at one end, and conventional A/V plugs at the other end that may be connected to the HK 3490 as described above. Visit www.apple.com for more information about the cable.

When the front-panel inputs and tone controls are not in use, place the supplied covers over them for a cleaner appearance by snapping the covers in place. To remove the covers, gently press on the left side of each cover so that it pivots out.

Since the remote is preprogrammed to operate a Harman Kardon DVD player when the Video 3 source has been selected, use the source device's original remote to control other components, or operate an iPod using its own controls.

The Bridge II Docking Station

With the optional The Bridge II docking station, you can listen to audio or view videos stored on your iPod, iPod touch or iPhone (not included), use your HK 3490 remote control to operate the iPod, and even charge the iPod while it's docked in The Bridge II docking station. Simply plug the proprietary cable from The Bridge II unit into the special connector on the rear of the HK 3490. See Figure 20. Refer to the owner's manual for The Bridge II model for more information.



Figure 20 – The Bridge II Connection

Step Five – Connect the Video Display

Only video connections should be made between the receiver and your video display (TV), unless your TV is the source for your television programming (see note below Figure 18).

To view video or images played by your source devices, connect the Video Monitor Output of the HK 3490 to a Composite Video Input on your television or video display. See Figure 21. Consult the manual for your TV so that you understand how to select the correct video input.



Figure 21 – Video Monitor Output

Step Six – Connect the Remote IR Input and Output (Optional)

The HK 3490 is equipped with a Remote IR Input and a Remote IR Output to facilitate use of your system with a remote control in a variety of situations.

When the HK 3490 is placed in such a way that aiming the remote at the front-panel IR sensor is difficult, such as inside a cabinet or facing away from the listener, you may connect an external IR receiver, such as the optional Harman Kardon HE 1000, to the Remote IR Input jack.

If any of your source devices are equipped with a compatible Remote IR Input, use a 1/8" mini-plug interconnect cable (not included) to connect the HK 3490's Remote IR Output to the source device's Remote IR Input, which will pass any applicable remote signals transmitted through the HK 3490 to the source device. This enables you to control your sources even when the HK 3490 itself is controlled via an external IR receiver.

To control more than one source device using the Remote IR Output, connect all sources in "daisy chain" fashion, with the HK 3490's Remote IR Output connected to the first device's Remote IR Input, that device's Remote IR Output connected to the next device's Remote IR Input, and so forth. See Figure 22.



Figure 22 – Remote IR Input and Output

NOTE: Not all remote-controllable devices are equipped with compatible IR inputs and outputs. Check with the manufacturer of the source device for more information on the type of IR signal expected. The HK 3490 will output a "stripped carrier" IR signal.

Step Seven – Connect Optional External Equipment

If you wish to use the HK 3490 with an external power amplifier, remove the jumpers connecting the Preamp Outputs and Main-Amp Inputs. Store the jumpers in a safe place in case they are needed in the future. Connect the left and right Preamp Outputs of the HK 3490 to the analog audio inputs on the external power amplifier. See Figure 23.



Figure 23 – Preamp Outputs and Main-Amp Inputs

You may adjust the Volume and Tone Controls using the HK 3490's front panel or remote (volume only).

If you wish to install an external processor, such as an equalizer, connect it to the Preamp Outputs and Main-Amp Inputs. Remove the jumpers and store them in a safe place. Connect the HK 3490's Preamp Outputs to the processor's analog audio inputs, and then connect the processor's analog audio outputs to the Main-Amp Inputs on the HK 3490.

Alternatively, you may connect the external processor to the HK 3490's Tape Monitor Loop. See Figure 16.

Step Eight – Plug In AC Power

Having made all of your wiring connections, it is now time to plug each component's AC power cord into a working outlet.

You may plug two devices into the AC Switched Accessory Outlets on the rear of the HK 3490. See Figure 24. Make sure each device draws no more than 100 watts. The devices should have their mechanical or master power switches turned on, and they will power on any time the HK 3490 is turned on.



Figure 24 – AC Switched Accessory Outlets

Step Nine – Insert Batteries in Remote

The HK 3490 remote control uses four AAA batteries, which are included.

To remove the battery cover located on the back of the remote, squeeze the tab and lift the cover.

Insert the batteries as shown in the diagram, making sure to observe the correct polarity. See Figure 25.

INSTALLATION



Figure 25 – Remote Battery Compartment

When using the remote, point the lens toward the front panel of the HK 3490. Make sure no objects, such as furniture, are blocking the remote's path to the receiver. Bright lights, fluorescent lights and plasma video displays may interfere with the remote's functioning. The remote has a range of about 20 feet, depending on the lighting conditions. It may be used at an angle of up to 30 degrees to either side of the HK 3490.

If the remote seems to operate intermittently, then make sure the batteries have been inserted correctly, or replace the batteries with fresh ones.

Step Ten – Turn On the HK 3490

Place the HK 3490 in Standby mode by turning on the Main Power Switch on the rear panel. The Power Indicator will turn amber. The HK 3490 may be turned on from Standby mode by pressing the Power Switch or any Source Selector on either the front panel or the remote. See Figures 26 and 27.



Figure 26 – Front-Panel Power Switch



Figure 27 – Remote Control Power Switch

Now that you have installed your system components, you are ready to begin enjoying your new audio system.

Turning On the HK 3490

After you plug the power cord into an AC outlet and turn on the Main Power Switch on the rear panel, the Power Indicator should light up in amber. This indicates that the HK 3490 is in Standby mode and is ready to be turned on. See Figure 26.

The HK 3490 may be turned on by pressing the Power Switch or any Source Selector on the front panel or the remote. See Figures 26 and 27.

The Power Indicator will turn white to indicate that the HK 3490 is on. If the PROTECT message appears in the Message Display, unplug the receiver from AC power and check all of your wires and connections. Make sure no speaker wires are shorting out by touching each other, and that there are no breaks in the insulation covering any of the speaker wires, interconnects or the power cord. If the PROTECT message still appears when you plug in the HK 3490 and try to turn it on again, bring the receiver to an authorized Harman Kardon service center for assistance.

To turn the receiver off, press the Power Switch on the front panel, or press the Power Off Button on the remote. When the HK 3490 is left unplugged, any settings you have programmed, including system configuration and preset radio stations, will be preserved indefinitely.

Volume Control

The volume may be adjusted either by turning the knob on the front panel (clockwise to increase volume or counterclockwise to decrease volume), or by pressing the Volume Control Buttons on the remote. See Figure 28. The volume is displayed as a negative number of decibels (dB) below the 0dB reference point. Unlike some volume controls on other products, 0dB is the maximum volume for the HK 3490. Although it's physically possible to turn the volume to a higher level, doing so may damage your hearing and your speakers. For certain more-dynamic audio materials, even 0dB may be too high, allowing for damage to equipment.



Figure 28 – Volume Controls

The HK 3490 is designed to reproduce audio with a minimum amount of distortion. This clarity may lead you to believe that your hearing and the equipment can handle higher volumes. We urge caution with regard to volume levels.

Mute Function

To temporarily mute all speakers and the headphones, press the Mute Button on the front panel or remote. See Figure 29. Any recording in progress will not be affected. If the Subwoofer Trigger Outputs are

in use and the Subwoofer Link Switch is on, muting will turn off the subwoofer's amplifier to conserve energy. The MUTE message will flash in the display as a reminder. To restore normal audio, either press the Mute Button again, or adjust the volume. Turning off the HK 3490 will also end muting.



Figure 29 – Mute Buttons

Sleep Timer

You may program the HK 3490 to play for up to 90 minutes and then turn off automatically using the sleep timer.

Press the Sleep Button on the front panel or remote, and the time until turn-off will be displayed. Each additional press of the Sleep Button will reduce the time until turn-off by 10 minutes, until the OFF setting is reached, which disables the sleep timer. See Figures 30 and 31.



Figure 30 – Front-Panel Sleep Button



Figure 31 – Remote Control Sleep Button

When the sleep timer has been set, the front-panel display will automatically dim to half-brightness. If you press any button on the remote or front panel, the display will return to full-brightness. The display will dim again several seconds after your last command.

If you press the Sleep Button after the timer has been set, the remaining time until turn-off will be displayed. You may press the Sleep Button to change the time until turn-off. Pressing and holding the Sleep Button will disable the sleep timer, and the SLEEP OFF message will appear.

Tone Controls

You may boost or cut either the treble or the bass frequencies by up to 10dB.

The Bass and Treble Tone Controls may be adjusted using the knobs on the front panel. Remove the front-panel covers if necessary, then gently press the desired control knob until it unlatches and pops out. Turn the appropriate knob counterclockwise to reduce the levels of the low frequencies (Bass Control) or the high frequencies (Treble Control), and turn it clockwise to increase the levels for the low or high frequencies. See Figure 32.



Figure 32 – Tone Controls

You may also adjust the balance to compensate for speaker placement or the acoustic characteristics of your listening room. Ideally, the audio

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should be heard most clearly at a point exactly midway between the left and right speakers, unless the artist has mixed the recording in a way that pans sounds to one side or the other. If your speakers are not placed the same distance from the listening position, or if your room has other unusual characteristics, gently press the Balance Control knob until it unlatches and pops out. Then turn it counterclockwise to move the sound toward the left speaker or clockwise to move the sound toward the right speaker. See Figure 33.



Figure 33 – Balance Control

The Balance Control reduces the level of the speaker opposite the pointer. For example, turning the knob from the midpoint toward “R” reduces the level of the left speaker, leaving the right speaker unaffected. If two pairs of speakers are connected to the HK 3490, then both will be affected.

IMPORTANT NOTE: Do not attempt to install the front-panel covers with the Tone and Balance Control knobs in the unlatched position. Gently press each knob until it latches. When locked, the controls cannot be adjusted, preventing inadvertent changes to your desired settings.

Headphones

Plug the 1/4" plug on a pair of headphones into the headphone jack on the front of the receiver for private listening. See Figure 34.



Figure 34 – Headphone Jack

Speaker 1/2

The HK 3490 may be used with up to two pairs of speakers for additional sound power in the main listening room or if you wish to place the second pair of speakers in another room, or even outdoors (when you select weather-resistant loudspeakers). Select each pair of speakers by pressing its associated button on either the front panel or remote. See Figure 35.



Figure 35 – Speaker 1/2 Buttons

Press the button a second time to deactivate that pair of speakers. You may activate both speaker pairs simultaneously, or deactivate both pairs for private listening through the headphones. When either of the speaker pairs are deactivated, if the corresponding Subwoofer Trigger Output is connected to the subwoofer and the corresponding Subwoofer Link

Switch is on, the trigger signal will be deactivated, turning off the subwoofer amplifier and conserving energy when the subwoofer is not needed.

Source Selection

Select a source device connected to the HK 3490 for playback by pressing its associated button on the front panel or remote control. See Figure 36.



Figure 36 – Source Selectors

To enjoy video sources, make sure to connect the device's composite video output to the correct Video Input on the HK 3490. In addition, connect the HK 3490's Video Monitor Output to an input on your television or video display.

To select whether the source will use its analog audio input or one of the digital audio inputs, press and hold the front-panel Source Selector and simultaneously tap the front-panel T-Mon Button repeatedly until the desired input appears in the Message Display. Audio input selection requires use of the front-panel controls and cannot be selected using the remote control.

To select a device connected to either the front- or rear-panel Video 3 Inputs, press the front-panel or remote Video 3 Source Selector repeatedly to toggle between the front- and rear-panel Video 3 Inputs, as indicated in the front-panel display. When the front-panel inputs are not in use, you may snap the supplied cover over them. Remove the cover by pressing on the left side until it pivots outward.

If you have connected a three-head tape deck to the Tape/CDR Inputs, you may monitor a recording while it is being made so that you can confirm that the correct program material is being recorded and make any necessary adjustments to the recording level. Press the T-Mon Button on the front panel to hear playback from the tape deck's playback head. When the recording is being monitored, the T-MON message will flash. Press the T-Mon Button again to hear the original source.

NOTES:

- The HK 3490 is not an audio/video surround sound receiver. It is only capable of playing source programs in one- or two-channel formats, and any information encoded in additional channels will be lost. The HK 3490 cannot decode digital surround-sound programs. If you have connected the analog audio and composite video outputs of a DVD player to the HK 3490, remember to select two-channel audio in the DVD player and disc menus. However, you may press the DSP Surround Button to select a Dolby Virtual Surround mode (Reference or Wide) to expand the presentation of the sound field even though only two main loudspeakers are in use.

- The HK 3490 does not switch the last-selected video source when an audio-only source, such as Phono, CD or Tape/CDR, is selected subsequently. It is not possible to view video while listening to an audio-only source.

Using the Tuner (AM, FM and XM Modes)

The HK 3490's built-in tuner may be selected in one of two ways (see Figure 37):

1. Press the front-panel AM or FM Button. The front-panel FM Button toggles between the FM and XM bands.
2. Press the AM, FM or XM Button on the remote.



Figure 37 – Tuner Input Selection

Radio stations may be selected in one of five ways (see Figures 38–40):

1. If you know the frequency number, enter it directly by first pressing the Direct Button on the remote, and then using the Numeric Keys. It is not necessary to press the Direct Button when XM Radio is in use.
2. After you have programmed preset stations (see below), either enter the preset number (1 through 30) using the remote or use the front-panel Preset Stations Button to scroll through the list of presets. When XM Radio is in use, first press the FM Mode Button repeatedly to select Preset Search mode. Then use the ◀/▶ Buttons to select a lettered bank of presets. To select a numbered preset within a bank, make sure the HK 3490 is in Preset Search mode, then use the Numeric Keys, the ▲/▼ Buttons or the Preset Stations Buttons.
3. In Auto Tuning mode, press and hold the Tuning Buttons (front-panel or remote) to scan in the chosen direction until a station with acceptable signal strength is detected.
4. In Manual Tuning mode, with each press of the Tuning Buttons the HK 3490 will tune the next frequency increment (0.1MHz for FM, or 10kHz for AM) in the selected direction.

NOTE: When XM Radio is in use, there are no auto or manual tuning modes. Use the Tuning Button or ▲/▼ Buttons (only when in All Channel Search mode) to select a channel. Press and hold the button to search faster.

5. Press the Preset Scan Button on the front panel or remote to scan through the previously programmed preset stations. The tuner will pause for five seconds at each frequency before tuning to the next preset. Press the Preset Scan Button again to select the current station and stop scanning. When XM Radio is in use, this button is used to change the display as follows: channel name and number, category, artist and song title.



Figure 38 – Tuning a Station

When an FM station has been tuned, pressing the FM Mode Button will switch between stereo and mono tuning, which may improve reception of weaker stations. See Figure 39.



Figure 39 – FM Mode Button

To store a station in one of the 30 AM/FM presets (see Figure 40):

1. Tune the desired station.
2. Press the Memory Button on the remote.
3. Use the Numeric Keys to enter the desired preset number.

To clear a station from the preset memory:

1. Tune the preset station using any of the methods described above.
2. Press the Memory Button.
3. Within five seconds, press the Clear Button.



Figure 40 – Programming Presets

When XM Radio is in use, programming presets is somewhat different.

1. Tune to the desired channel.
2. Press the Memory Button on the remote.
3. Use the ◀/▶ Buttons to select the desired preset bank (A through E).
4. Use the ▲/▼ Buttons to select a numbered location (1 through 8).

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5. Press the Memory Button on the remote to complete the process and let the HK 3490 return to normal operation.

To delete an XM Radio preset, tune to the preset station and press the Clear Button. To delete all XM Radio presets in all banks, press and hold the Clear Button until the ALL DELETED message appears. Table 2 may be helpful to you as a reference while using the XM Radio tuner.

Table 2 – Using the XM Radio Tuner

XM Radio Function	Remote Control Key	Front-Panel Button
Toggle Search Modes	FM Mode	FM Mode
Scroll Preset Numbers (1–8)	Preset Up/Up Arrow (▲)	Preset Up
	Preset Down/Down Arrow (▼)	Preset Down
Channel Search	Tuning Up	Tuning Up
	Tuning Down	Tuning Down
Display Mode	Preset Scan	Preset Scan
Exit All Channel Search		
Changes Category	Left/Right Arrow (◀/▶)	N/A
Changes Preset Group		
Enter/OK	OK	N/A
Preset Memory Mode	Memory	N/A
Clear Preset Memory Mode	Clear	N/A
Clear All Preset Memories	Press and Hold Clear	N/A
Enter Numeric Numbers	0–9 Numeric Keys	N/A

Auto Preset (FM Only)

You may automatically program all FM radio stations in your area that are received with acceptable signal strength into the HK 3490's presets. Press and hold the Auto Preset Button until the Memory and Preset Indicators flash in the front-panel display. The tuner will automatically scan through the entire FM band, entering all stations with acceptable signal strength into the presets until either all 30 presets have been filled, or the tuner has scanned the band twice.

NOTE: If there are a large number of FM stations in your area, Auto Preset will overwrite any presets you programmed previously. Stations with exceptionally strong signals may be programmed into more than one preset.

Using Docking Station

The Bridge II docking station is an optional unit that may be used with a compatible iPod (not included). When The Bridge II docking station is connected to its proprietary input on the HK 3490 and the iPod is docked, you may play the audio materials on your iPod through your high-quality audio system, operate the iPod using the HK 3490 remote or the HK 3490's front-panel controls, and charge the iPod.

Either press the front-panel Phono Selector repeatedly until the DMP/THE BRIDGE IS CONNECTED message scrolls across the front panel, or press The Bridge Button on the remote to select The Bridge II docking station as the input source.

In normal operation, information from the iPod will appear in the HK 3490's Message Display. While a track is playing, its title will scroll once on the upper line, and the elapsed and remaining track times will appear on the lower line. While navigating the iPod, the menu title or current setting will appear on the upper line, and the current menu line or setting option will appear on the lower line.

Table 3 summarizes the controls available when The Bridge II unit is in use.

Table 3 – Using The Bridge II

iPod Function	Remote Control Key	Front Panel-Button
Play	Play (▶)	Preset Scan
Pause	Pause ()	Preset Scan
Menu	Menu	FM Mode
Select	OK	Preset Scan
Scroll Reverse	Up Arrow (▲)	Preset Up
Scroll Forward	Down Arrow (▼)	Preset Down
Forward Search/Next Track	Right Arrow (▶▶)	Tuning Up
Reverse Search/Previous Track	Left Arrow (◀◀)	Tuning Down
Switch between normal operation and iPod Manual mode	Press and hold Menu	Press and hold FM Mode Button

When the HK 3490 is in Standby mode, the iPod is not charged.

It is not possible to view videos or still images stored on the iPod.

To access the full functions of the iPod, press and hold the Menu Button (FM Mode Button on front panel) to switch it to Manual mode. You may navigate the iPod using the HK 3490 remote while viewing its menus on the iPod screen. Manual mode allows access to functions such as Repeat and Shuffle. Although the audio portion of video content may be played, it will not be possible to view the content on a video display connected to the HK 3490. To return to normal operation, press and hold the Menu Button again until the check mark appears on the screen of the iPod.

Recording

Two-channel analog audio signals, as well as composite video signals, are normally available at the appropriate recording outputs. Thus, to make a recording, you need only make sure to connect your audio or video recorder to the appropriate output jacks, as described in the Installation section, insert blank media and make sure the recorder is turned on and recording while the source is playing.

You may monitor your recording if your recorder has separate record and playback heads. Press the front-panel T-Mon Button to monitor the recording using the playback head, indicated by the T-MON message flashing. This will not affect the recording being made from the original source. To hear the original source again, press the T-Mon Button again.

If your recorder does not have off-head playback, then you will not hear anything when you press the T-Mon Button, unless the recorder is being used for playback.

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

Dim Function

Some people find the front-panel messages distracting and would prefer to dim them or turn them off altogether.

To dim the display, press the Dim Button on the front panel or remote. Each button press will cycle through the three settings of:

VFD FULL: Normal brightness

VFD HALF: Display is dimmed but still visible; the light inside the volume knob goes dark

VFD OFF: Display goes completely dark except for Power Indicator to remind you that the receiver is turned on

NOTE: When the remote is in the device mode for either the Video 1 or Video 2 source, the Dimmer Button on the remote will only affect the source device (if compatible), and will not affect the HK 3490.

Processor Reset

If you wish to fully reset the HK 3490 to its factory defaults, or if it behaves erratically after a power surge, first turn the Master Power Switch off and unplug the AC power cord for at least three minutes. Plug the cord back in and turn the receiver back on. If this doesn't help, you may want to try a system reset.

NOTE: A system reset erases all user configurations, including tuner presets. After a reset, you will need to reenter all of these settings.

Place the receiver in Standby mode by pressing the Power Switch so that the Power Indicator turns amber. Simultaneously press and hold the front-panel Preset Scan and Mute Buttons for at least five seconds until the software version number, followed by the RESET message, appears in the display.

The unit will return to Standby mode, and you may power it on.

You may reset the HK 3490 by using a sharp object to press the rear-panel Reset Button. This method does not erase user configurations.

If the receiver still does not function correctly after a processor reset, contact an authorized Harman Kardon service center for assistance. Service centers may be located by visiting www.harmankardon.com.

Memory

If the HK 3490 is unplugged or experiences a power outage, it will retain user settings indefinitely.

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	<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 whether outlet is switch-controlled
Display lights, but there's no sound or picture	<ul style="list-style-type: none"> • Intermittent input connections • Mute is on • Volume Control is down • Desired source not selected • Speakers deactivated • Headphones are in use • Jumper pins between Preamp Outputs and Main-Amp Inputs were removed 	<ul style="list-style-type: none"> • Make certain that all input and speaker connections are secure • Press Mute Button • Turn up Volume Control • Press correct Source Selector • Press Speaker 1 or Speaker 2 Button • Unplug headphones • Replace jumper pins or, if external amplifier is in use, make sure it is turned on
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 for shorts at receiver and speaker ends • Contact your local Harman Kardon service center
Unit does not respond to remote commands	<ul style="list-style-type: none"> • Weak batteries in remote • Remote sensor is obscured 	<ul style="list-style-type: none"> • Change remote batteries • Make certain front-panel sensor is visible to remote or connect an optional 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
Audio sources sound distorted	<ul style="list-style-type: none"> • CD player or other audio device incorrectly plugged into Phono Inputs • Turntable not plugged into Phono Inputs 	<ul style="list-style-type: none"> • Only plug a device into the Phono Inputs if it is a turntable with a moving-magnet cartridge, or if it is a turntable with a moving-coil cartridge with a phono preamp • Do not use a turntable with any inputs other than the Phono Inputs, unless it has a moving-magnet-type cartridge and includes a phono preamp
No video image	<ul style="list-style-type: none"> • Source device's video output not connected to HK 3490 • Wrong source selected • Video Monitor Output not connected to display • Wrong video input on video display selected • Audio-only source selected 	<ul style="list-style-type: none"> • Connect the source's composite video output to the correct video input on the HK 3490 • Press the correct Source Selector on the HK 3490 • Connect the HK 3490's Video Monitor Output to a composite video input on your television or video display • Consult the manual for your television for instructions on selecting the correct video input • It is not possible to view video while listening to the Phono, Tape/CDR or CD sources or to the tuner

In addition to the items shown above, additional information on troubleshooting possible problems with your HK 3490, or on installation-related issues, may be found in the list of "Frequently Asked Questions," which is located in the Product Support section at www.harmankardon.com.

HK 3490 TECHNICAL SPECIFICATIONS

Audio Section

Stereo Mode:

Continuous Average Power (FTC):

120 Watts per channel, 20Hz – 20kHz,
@ <0.07% THD, both channels driven into 8 ohms
150 Watts per channel, 20Hz – 20kHz
@ <0.2% THD, both channels driven into 4 ohms

Input Sensitivity/Impedance

Linear (High-Level): 200mV/47k ohms

Signal-to-Noise Ratio (IHF-A): 95dB

Frequency Response @ 1W (+0dB, -3dB): 10Hz – 110kHz

High Instantaneous Current Capability (HCC): ±45 Amps

Transient Intermodulation

Distortion (TIM): Unmeasurable

Rise Time: 16 µsec

Slew Rate: 40V/µsec

FM Tuner Section

Frequency Range: 87.5 – 108.0MHz
Usable Sensitivity: IHF 1.3µV/13.5dBf
Signal-to-Noise Ratio: Mono/Stereo 73/72dB
Distortion: Mono/Stereo 0.3/0.4%
Stereo Separation: 40dB @ 1kHz
Selectivity: ±400kHz, 65dB
Image Rejection: >80dB
IF Rejection: >100dB
Tuner Output Level: 1kHz, ±100kHz, Dev 500mV

AM Tuner Section

Frequency Range: 520 – 1720 kHz
Signal-to-Noise Ratio: >40dB
Usable Sensitivity: Loop 500µV/M
Distortion: 1kHz, 50% Mod 0.8%
Selectivity: ±10kHz, >25dB

Video Section

Television Format: NTSC/PAL/SECAM
Signal Format: Composite
Input Level: 1Vp-p
Input Impedance: 75 Ohms, unbalanced
Sync Polarity: Negative
Output Level: 1Vp-p
Output Impedance: 75 Ohms, unbalanced
Video Frequency Response: 10Hz – 10MHz

General

Power Requirement: AC 120V/60Hz
Power Consumption: <1W standby, 310W maximum
(both channels driven)

Dimensions:	(Product)	(Shipping)
Width:	17-3/8" (442mm)	22" (560mm)
Height:	6-3/8" (163mm)	10-5/8" (270mm)
Depth:	15" (382mm)	18-5/16" (465mm)
	(Product)	(Shipping)
Weight:	23 lb (10.4kg)	27.3 lb (12.4kg)

Depth measurement includes knobs, buttons and terminal connections.

Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

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iPod is a trademark of Apple Inc., registered in the U.S. and other countries. iPhone and Shuffle are trademarks of Apple Inc.

XM and XM Ready are registered trademarks of XM Satellite Radio.

Please register your product at www.harmankardon.com. Note: You'll need your serial number. At the same time, you can choose to be notified about new products and/or special promotions.

APPENDIX

Table A1 – Remote Control Device Types

Source Input	Remote Control Device Type
Phono	Operates HK 3490 only
Video 1	Harman Kardon DMC 1000
Video 2	Harman Kardon DVD player
Video 3	Harman Kardon DVD player
Tape/CDR	Harman Kardon CD recorder
CD	Harman Kardon CD player
AM/FM	Operates HK 3490 only

Table A2 – Subwoofer Trigger Output Operation

Subwoofer Link Switch Status		Main Speaker Signal Status		Trigger Output Status		Subwoofer Output Status	
Switch	Status	Speaker Pair	Audio Signal Status	Trigger Output	Status	Subwoofer Output	Audio Signal Status
1	ON	1	ON	1	High	1	ON
			OFF		Low		OFF
2	ON	2	ON	2	High	2	ON
			OFF		Low		OFF
1	OFF	1	ON	1	High	1	ON
			OFF		High		ON
2	OFF	2	ON	2	High	2	ON
			OFF		High		ON

Note: Each switch only affects its correspondingly numbered Subwoofer Output and Trigger Output.

Table A3 – Remote Control Function List

Button	Phono Controls HK 3490 only	VID 1 DMC 1000 Control Codes	VID 2 DVD Player Control Codes	VID 3/VID Front DVD Player Control Codes	Tape MON/CDR CD Recorder Control Codes	CD CD Player/Changer Control Codes	AM Controls HK 3490 only	FM Controls HK 3490 only	XM Controls HK 3490 only	The Bridge Controls iPod/iPhone
Power On	System Power On	System/DMC Power On	System/DVD Power On	System/DVD Power On	System/CDR Power On	System/CD Power On	System Power On	System Power On	System Power On	System Power On
Power Off	System Power Off	System/DMC Power Off	System/DVD Power Off	System/DVD Power Off	System/CDR Power Off	System/CD Power Off	System Power Off	System Power Off	System Power Off	System Power Off
Speakers 1	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off	Speakers 1 On/Off
Speakers 2	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off	Speakers 2 On/Off
Phono	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select	Phono Select
CD	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On	CD Select/CD Power On
VID 1	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On	VID 1 Select/DMC Power On
VID 2	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On	VID 2 Select/DVD Power On
VID 3	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select	VID 3 Select/VID Front Select
FM	FM Select	FM Select	FM Select	FM Select	FM Select	FM Select	FM Select	FM Select	FM Select	FM Select
AM	AM Select	AM Select	AM Select	AM Select	AM Select	AM Select	AM Select	AM Select	AM Select	AM Select
Tape Mon.	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On	Tape, Mon/CDR Select/CDR Power On
XM	XM Select	XM Select	XM Select	XM Select	XM Select	XM Select	XM Select	XM Select	XM Select	XM Select
The Bridge	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select	The Bridge Select
FM Mode		DMC Status	DVD Status	DVD Playlist	MP3	CD Time Display Mode		FM Mode	Search Mode	
DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode	DSP Mode
Auto Preset		DMC Subtitle	DVD Subtitle	DVD Subtitle On/Off	CDR Program Check	CD Program Check	Auto Preset	Auto Preset		
1		1	1	1	1	CD 1	1	1	1	
2		2	2	2	2	CD 2	2	2	2	
3		3	3	3	3	CD 3	3	3	3	
4		4	4	4	4	CD 4	4	4	4	
5		5	5	5	5	CD 5	5	5	5	
6		6	6	6	6	CD 6	6	6	6	
7		7	7	7	7	CD 7	7	7	7	
8		8	8	8	8	CD 8	8	8	8	
9		9	9	9	9	CD 9	9	9	9	
Direct		DMC Info	DVD Info	DVD Chapter	CDR Auto/Manual	CD + 10	Frequency Direct	Frequency Direct		
0		0	0	0	0	CD 0	0	0	0	
Clear		DMC Clear	DVD Clear	DVD Clear	CDR Clear	CD Clear	Clear	Clear	Clear Preset	
Memory			DVD Audio	DVD Return	CDR Program	CD Program	Memory/Store	Memory/Store	Memory	
▲		DMC Up	DVD Up	DVD Up	CDP Select		Preset Tuning Up	Preset Tuning Up	Preset Tuning Up/ Channel Up	Scroll Reverse
Menu		DMC Setup/Main Menu	DVD Setup	DVD Setup	CDR Level Indicator					Menu
◀		DMC Left	DVD Left	DVD Left	CDP Level Indicator	CD Volume Down			Preset Bank Down/ Category Channel Down	Search Reverse
OK		DMC Enter	DVD Enter	DVD Enter	CDR Random Play	CD Random Play			OK	Select
▶		DMC Right	DVD Right	DVD Right	CDR Track Increment	CD Volume Up			Preset Bank Up/ Category Channel Down	Search Forward
Preset Scan		DMC Title	DVD Title	DVD Intro Scan	CDP Intro Scan	CD Intro Scan	Preset Scan	Preset Scan	Display Info	
▼		DMC Down	DVD Down	DVD Down	CDR Select		Preset Tuning Down	Preset Tuning Down	Preset Tuning Down/ Channel Down	Scroll Forward
Disc Menu		DMC Disc Menu	DVD Disc Menu	DVD Disc Menu	CDR Intro Scan	CD Display				
Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up
Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute	Audio Mute
Tuning Up			DVD Zoom	DVD Page +	CDR Display	CD Disc Skip +	Tuning Up	Tuning Up	Channel Up	
Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down
Tuning Down		DMC Audio	DVD Audio Mode	DVD Page --	CDP Display	CD Disc Skip --	Tuning Down	Tuning Down	Channel Down	
Preset Down ◀		DMC Prev/Step	DVD Prev/Step	DVD Prev/Step	CDR Skip Down	CD Track Skip Down	Preset Tuning Down	Preset Tuning Down	Preset Tuning Down	Track Skip Down
Pause II		DMC Pause	DVD Pause	DVD Pause	CDR Pause	CD Pause				Pause
Preset Up ▶▶		DMC Next/Step	DVD Next/Step	DVD Next/Step	CDR Skip Up	CD Track Skip Up	Preset Tuning Up	Preset Tuning Up	Preset Tuning Up	Track Skip Up
Search Backward ◀◀		DMC Search/Slow Reverse	DVD Search/Slow Reverse	DVD Search/Slow Reverse	CDR Search Reverse	CD Search Reverse			Channel Down	
Play		DMC Play	DVD Play	DVD Play	CDR Play/Select	CD Play				Play
Search Forward ▶▶		DMC Search/Slow Forward	DVD Search/Slow Forward	DVD Search/Slow Forward	CDR Search Forward	CD Search Forward			Channel Up	
Rec		DMC Record	DVD Video Off	DVD Video Off	CDP Text Readout					
Stop		DMC Stop	DVD Stop	DVD Stop	CDR Stop	CD Stop				
Dimmer	Dimmer	DMC Dimmer	DVD Dimmer	Dimmer	Dimmer	Dimmer	Dimmer	Dimmer	Dimmer	Dimmer
Repeat (V. Mode)		DMC Video Mode	DVD Repeat	DVD Repeat	CDR Repeat	CD Repeat				
A-B (Source)			DVD A-B Repeat	DVD A-B Repeat	CDR A-B Repeat	CD A-B Repeat				
Sleep	Sleep Timer	Sleep Timer	DVD Angle	Sleep Timer	Sleep Timer	Sleep Timer	Sleep Timer	Sleep Timer	Sleep Timer	Sleep Timer

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