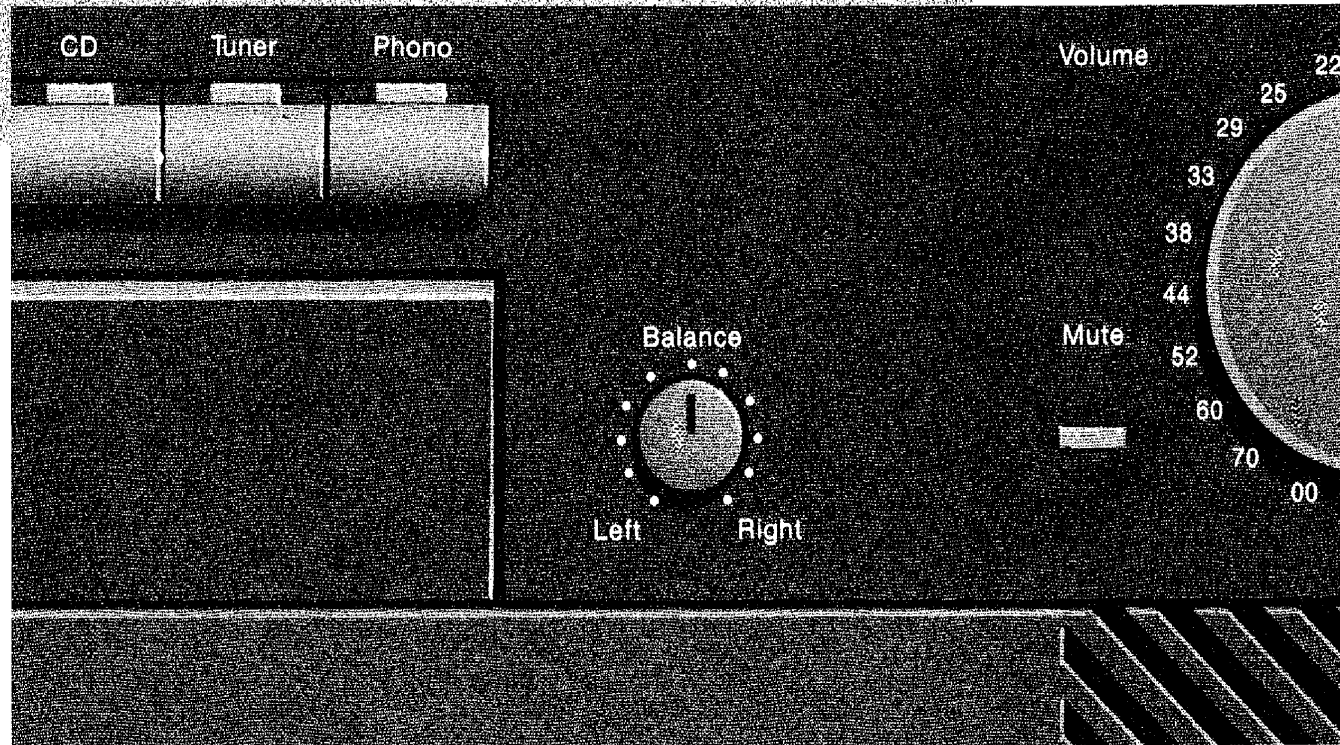


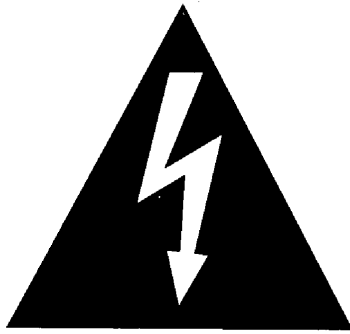
**Citation**  
harman/kardon

*t w e n t y - f i v e*



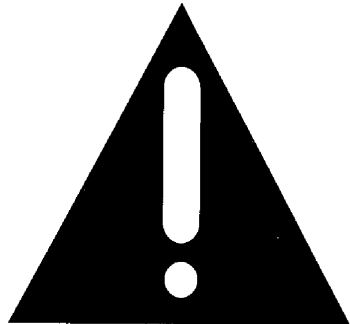
*Remote Control Preamplifier Instruction Manual*

# Rear Panel Safety Precautions



**CAUTION:** TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED 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 electrical 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 within the literature accompanying the component.

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

1. Read instructions — all safety and operation instructions should be read before using the preamplifier .
2. Retain instructions for future reference.
3. Heed warnings — all warnings on the preamplifier and in its operations instructions should be adhered to.
4. Follow all instructions.
5. Water and moisture — do not use the preamplifier around water, for example near a swimming pool, sink or in a wet basement.
6. Ventilation — The preamplifier should be situated so that its location or position does not interfere with its proper ventilation.

- 7.** Heat — The preamplifier should be situated away from heat sources such as radiators, fireplaces, stoves, electric popcorn poppers or other appliances that produce heat. Also avoid prolonged contact with direct sunlight and extremely low temperatures.
- 8.** Power sources — The preamplifier should be connected ONLY to a power supply of 120 volts, 60 cycles (North American Version).
- 9.** Power cord protection — Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles and the point at which the cord exits from the preamplifier. Also never pull or stretch the cord.
- 10.** Cleaning — Do not use volatile solvents such as alcohol, gasoline, benzine etc. to clean the preamplifier cabinet. Use only a clean dry cloth. If you must use a wet cloth, wet only the cloth lightly with water.
- 11.** Object and liquid entry — Care should be taken so that objects (including excessive dust) do not fall into the unit, and that liquids are not spilled into the inside of the preamplifier.
- 12.** Abnormal smells — If an abnormal smell or smoke is detected, immediately turn the preamplifier power OFF and pull out the power cord. Contact your dealer or nearest Harman Kardon Service station.
- 13.** Damage requiring service — The preamplifier should be serviced by qualified service personnel when:
- A. The power supply cord or the plug have been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the preamplifier; or
  - C. The preamplifier has been exposed to rain; or
  - D. The preamplifier does not appear to operate normally in performance; or
  - E. The preamplifier has been dropped or the cabinet damaged.
- 14.** Servicing — The user should not attempt to service the preamplifier beyond those means described in this manual. All other servicing should be referred to qualified service personnel.
- 15.**

**IMPORTANT SAFETY PRECAUTION FOR AC PLUG**  
**CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THE CITATION 25's POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

**ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.**

# I n t r o d u c t i o n

## Important Design Features of Citation 25 Remote Control Preamplifier

Thank you for choosing Citation.

Judging from your choice of preamplifiers, you are a discriminating music listener. You now own a superb piece of high fidelity equipment with the additional capabilities of true video switching and dubbing. Used properly, you are about to begin thousands of hours of music and video enjoyment.

While you are probably no beginner when it comes to high fidelity components, we nevertheless ask you to read and carefully follow the instructions in this manual, to insure a successful partnership between you and your new Citation Remote Control Preamplifier.

Actual hook-up instructions begin on page 10.

### Symmetrical Circuitry Throughout

Musical waveforms are comprised of positive and negative polarity portions which must be amplified in precisely the same way. Unlike traditional designs which use two semiconductors in a non-symmetrical configuration (demanding excessive amounts of feedback correction and causing a musical distortion) the Citation 25 employs fully symmetrical circuitry. While this approach requires considerably more overall circuitry, it is based on the most fundamental principles of amplification and represents the purest way to achieve gain. Feedback correction is minimized and complex musical waveforms are reproduced flawlessly.

### Ultra-Wide Open-Loop Bandwidth with Low Negative Feedback

In the Citation 25, care has been taken to not employ circuit design that reduces Total Harmonic Distortion at the price of compromising overall sound quality.

This compromise often occurs when a preamplifier is designed with very *high* gain, *narrow* bandwidth and *high* THD through application of a large amount of negative feedback. While gain and THD *are* reduced and bandwidth *does* get somewhat wider, a fearful price is exacted in amplifier reaction time. When a circuit is slow to react to instantaneous musical impulses, miscorrelation occurs between the incoming signal and the applied feedback. Unlike THD, miscorrelation distortion follows the topology of dynamic *musical* waveforms

and is VERY audible as a brittle artificiality which constricts the sound stage, limits the natural transient attack of many instruments and contributes to an overall fatiguing listening experience.

Harman Kardon engineers did not take this "easy way out". Your Citation 25 was rigorously designed from the very beginning for inherently lower gain, low Total Harmonic Distortion and very wide open-loop bandwidth. Judicious application of *minimal* negative feedback produces still wider bandwidth and even lower THD.

Another benefit of the Citation 25's wide open-loop approach is precise correlation of incoming music signals to any necessary low level negative feedback, resulting in extremely fast amplifier reaction time. You will hear the difference in the crisp transient response and increased ability to reproduce delicate musical overtones.

### Phase Correct Loudness Circuitry

In designing your Citation 25, Harman Kardon engineers discovered that, contrary to the half-century-old research of Fletcher and Munson, high end equalization was not necessary for the perception of increased bandwidth at low sound pressure levels. Rather, a fixed amount of low frequency boost was preferable. Also correction for midrange phase errors inherent in low frequency loudness equalization made a dramatic improvement in overall sound quality. It is this rigorous attention to phase accuracy which sets the Harman Kardon Phase Correct Loudness circuit apart from conventional controls. Lower frequencies will simply sound natural, with no coloration or degradation of stereo imaging. The effect

is especially pleasing on male vocals and other lower midrange sounds which can become muffled and un-focused easily when phase coherence is lost.

The Citation 25 Phase Correct Loudness feature can also be used to extend the low frequency response of many small loudspeakers.

### **2-way Turnover Tone Controls**

Most preamplifier tone controls are set at fixed points. You can vary the amount of boost and cut, but not the frequency at which the boost or cut begins.

The Citation 25 provides the additional flexibility of two turnover points each for both bass and treble. Thus you can better utilize the tone controls to improve the sound of a particular musical selection, speaker or listening room.

Citation 25 bass turnover points are at 200 and 400Hz; treble tone control points are at 2 kHz (high midrange) and 6 kHz (mid treble).

### **Extremely Flexible Input and Dubbing Capabilities**

The Citation 25 not only allows inputs from up to 4 video and 3 audio sources, but also allows you to use each as a record source. This means you can record almost any combination of video-to-video, audio to cassette deck or audio to one or more VHS Hi-Fi VCR's without changing the connections of your components. You can even dub from one source to several others while listening to yet another!

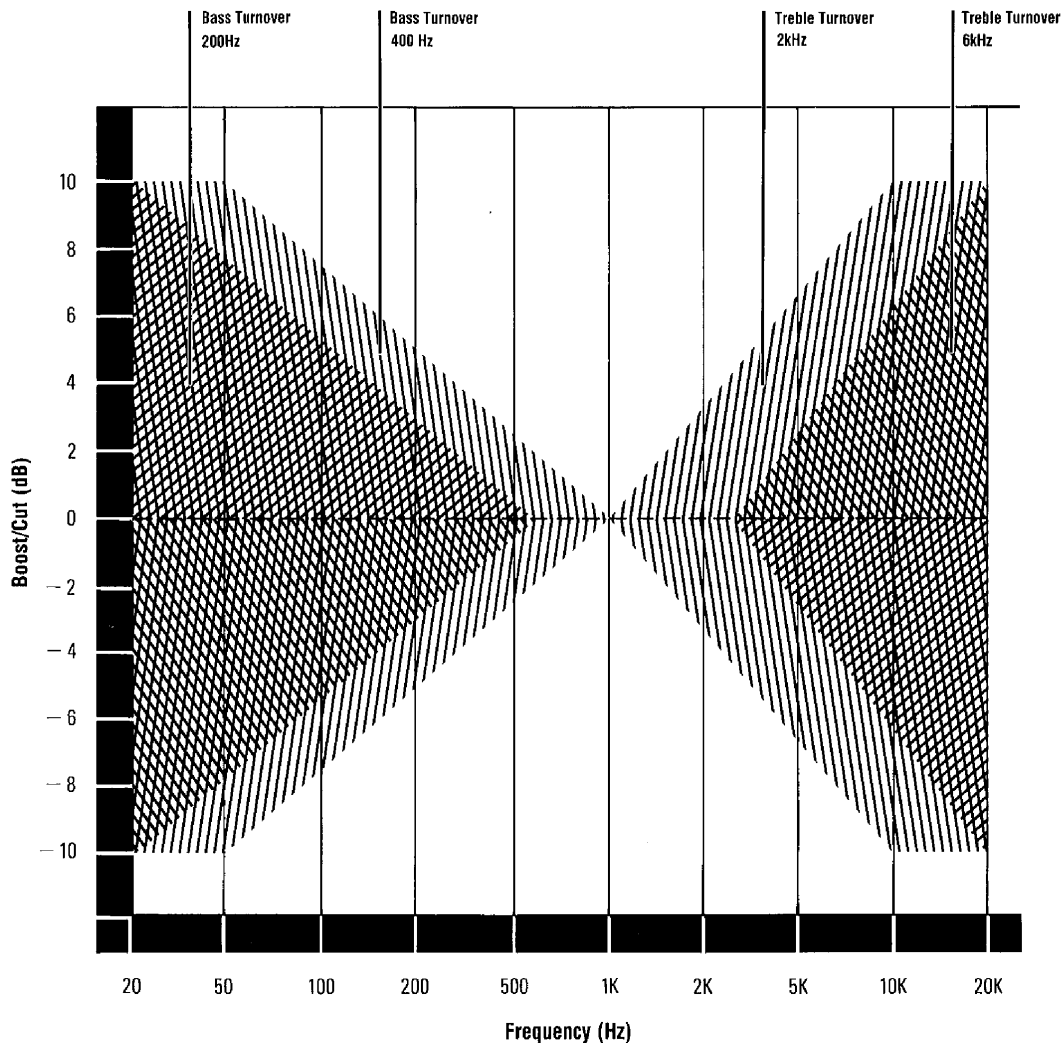


Figure 1 Tone Control Characteristics

# Citation 25 Front Panel Controls

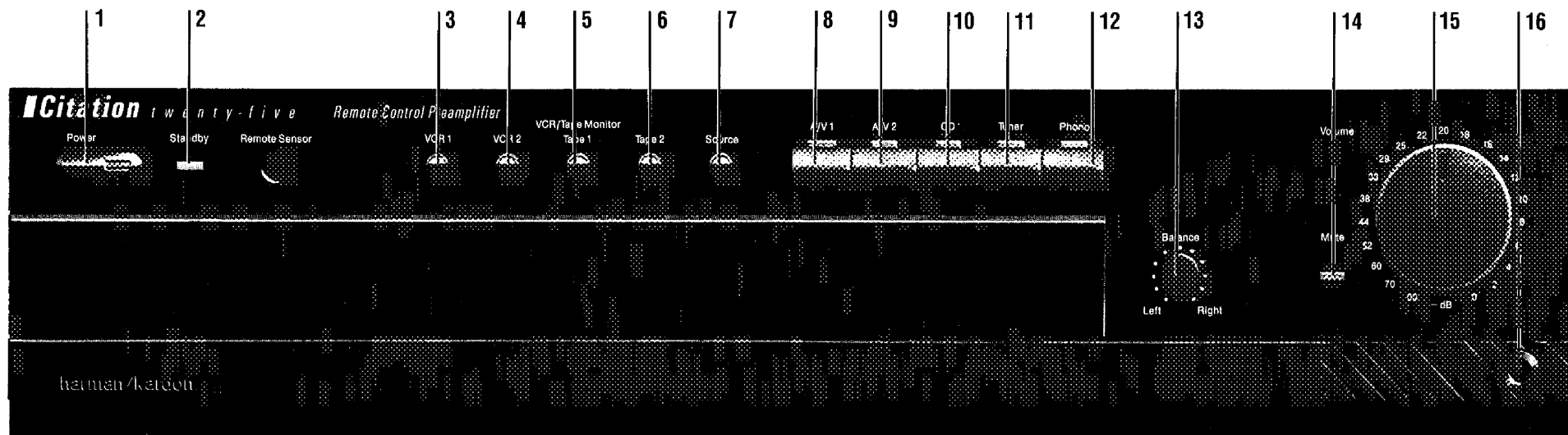


Figure 2 Citation 25 Front Panel

The following is a short explanation of the operating controls and features on the exterior and hinged, flip-down panel of your Citation 25 Control Pre-amplifier.

## 1. Power

Beginning on the far left hand side is the **POWER** button (1) with built-in LED. It controls power to the Citation 25 and any components in the switched AC outlets on the back panel.

## 2. Standby Light

When the Citation 25 has been turned OFF using the remote control, the **STANDBY** light (2) will remain lit, signaling that the main **POWER** switch is still on.

## 3-12. Input Source Selection System

The Citation 25 provides you with extreme flexibility in audio and video tape playback and recording. Up to nine components may be connected to the pre-amplifier. Four (**VCR 1**, **VCR 2**, **TAPE 1** and **TAPE 2**) are selected directly from their appropriate monitor buttons. Five more are selected after pressing the **SOURCE** button.

**VCR/TAPE MONITOR (3-6).** Two Hi-Fi VCR's may be selected through the **VCR 1 (3)** and **VCR 2 (4)** monitor buttons. In addition, playback of two audio tape recorders can be monitored through the **TAPE 1 (5)** and **TAPE 2 (6)** monitor buttons.

**SOURCE (7).** The **SOURCE** button may be thought of as a sort of "master switch" which, when pressed, gives you access to 5 more inputs (**A/V 1**, **A/V 2**, **CD**, **TUNER** and **PHONO**). These sources may not be accessed for *playback* unless the **SOURCE** button is pressed.

**Function Selectors (8-12).** Next are five primary source buttons. Remember, these controls are only operable when the **SOURCE** button has been pressed in.

**A/V 1 (8)** and **A/V 2 (9)** select both sound and picture from video sources such as Laser Discs, TV tuners (when equipped with RCA-type connections) or CDV players. The other three are audio-only, for selection of your **CD player (10)**, **FM/AM TUNER (11)** and **PHONO** input (12) from a turntable with moving magnet or moving coil cartridge.

We cannot stress enough the importance of making sure that **VCR/Tape Monitor** buttons are *not* left in after you finish listening to a cassette or viewing a video tape. If any of these buttons are left pressed in, (while you wish to listen to a CD, FM, phonograph record, etc.) you will be left with silence until the **SOURCE** button is once again pressed in (disengaging all VCR & tape sources).

### 13. Balance

Sound imbalances between left and right channels can be caused by speaker placement, listening room conditions and even some improperly recorded musical sources. For example, your listening position may be nearer one speaker than the other. Use the **BALANCE** control (13) to concurrently change left and right output volumes and create a more balanced musical image between the speakers.

### 14-15. Muting and Volume

A remote control muting circuit can be used to reduce the sound level by 20dB. When the remote MUTE button is pressed, the front panel **MUTE INDICATOR** (14) illuminates. The muting feature is very convenient for lowering the volume level temporarily (for instance, to answer a phone call or cue a record) without disturbing the original setting of the master **VOLUME** control (15).

### 16. Headphone Jack

Stereo headphones may be plugged into this jack for private listening. The output volume is changed by the master **VOLUME** control, either manually or from the remote.

All of the controls discussed so far are also found on the Citation 25 handheld remote control unit. In addition, nineteen more controls are provided behind a flip-down panel on the front of the preamplifier. While each has an important function, you will not need to use them as often, so they have been concealed for simplicity and to enhance the appearance of the Citation 25.

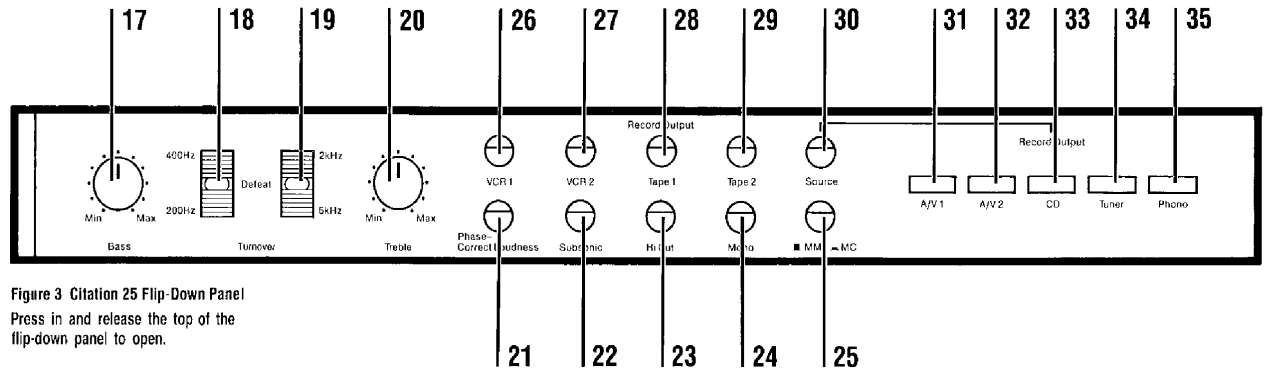


Figure 3 Citation 25 Flip-Down Panel  
Press in and release the top of the flip-down panel to open.

### 17-20. Tone Controls

As was previously noted, the Citation 25 separates the functions of *tone frequency turnover* and *amount of boost/cut* for added flexibility.

The **BASS** (17) and **TREBLE** (20) knobs control the amount of effect (plus or minus 10dB) provided by the 3-position **TURNOVER** slide switches (18 & 19).

Both treble and bass **TURNOVER** switches have a central position marked **DEFEAT**. When set at this position, the adjacent **BASS** and **TREBLE** rotary knobs will have no effect. This provides an excellent method of assessing “before” and “after” tone control adjustments quickly. Simply return the **TURN-OVER** switches to the **DEFEAT** position several times as you make bass and treble adjustments to compare their effect to the “flat”, unequalized sound.

The Citation 25’s tone control system is primarily recommended as a method of gently correcting tonal deficiencies (or overabundances) in *program material*. Contrary to popular belief, many recordings receive arbitrary equalization during recording, mixdown and mastering, according the widely varying tastes of the engineer, producer and mastering technician. Thus an overly shrill or “boomy” recording may be made more listenable with a slight decrease in treble and bass, respectively. An older record lacking in low bass may be

enhanced. An indistinct vocal may be made more clear by relatively “boosting” the midrange through the reduction of both treble and bass controls.

While the Citation 25 tone controls may also be used to correct for overall room and speaker deficiencies, that is not their primary purpose. It is recommended that you explore alternatives such as speaker placement, adjustment of speaker level controls, acoustic room treatments, etc. so that the position of the Citation 25 tone controls may be left in their **DEFEAT** position at most times.

### 21. Phase Correct Loudness

The **PHASE-CORRECT LOUDNESS** (21) circuit provides a special fixed equalization curve which compensates for the ear’s decreased sensitivity at low listening levels. When using your system for background music, engage this button to restore frequency balance. As mentioned in the introduction to this manual, the Phase-Correct Loudness circuit is unique both in its equalization curve (flat over 400Hz, +3dB at 200Hz) and in its ability to maintain phase accuracy throughout the midrange portion of the sound spectrum. Even if you have developed an understandable aversion to “loudness” buttons in the past, you are urged to try the Citation 25’s new approach to low frequency psychoacoustic sound enhancement.

## 22. Subsonic Filter

The **SUBSONIC (22)** circuit helps control the acoustic consequences of warped records and turntable resonance. If you can see your speaker's woofer cones visibly flutter in and out when you play a record, subsonic frequencies are present. While directly inaudible, subsonics can rob amplifier power, cause intermodulation distortion at audible frequencies and actually damage woofer cones if the movement is violent enough. The Citation 25's SUBSONIC filter circuit reduces sub-bass frequencies at 6dB per octave below 15 Hz. Audible bass response will not be significantly affected by this action, so you may leave this button pressed in whenever you play phonograph records.

## 23. Hi Cut

While the subsonic filter circuit cuts inaudible (but potentially destructive) sub-bass frequencies, the **HI CUT** filter (23) can be used to reduce audible (but unpleasant) high frequency hiss.

This circuit reduces frequencies above 6000 Hz at the rate of 6 dB/octave. Since your range of hearing extends as high as 20,000Hz, the HI CUT filter should only be used on video or audio sound sources which have a noticeably high level of noise. Make sure the button is in its OUT position when listening to music or video sound which is relatively hiss-free.

## 24. Mono

The **MONO** button (24) combines left and right channel signals and routes their sum to both power amplifier channels. It has several purposes.

The most obvious application for this switch is with mono records, such as old 45's, 78's and many excellent classical LP's you may have collected. NOTE: It is not necessary, however, to engage the Mono button when listening to Compact Discs of older albums which have retained the original mono format.

Another use is with the input from a mono VCR. Engaging the MONO button will route the sound to both left and right speakers.

You can also use the MONO button as a means of testing speaker phase during system hook-up. After connecting your speakers to their power amplifier, play a stereo record with a vocal or instrumental that images in the center between the two speakers. While sitting in a normal listening position in front of and between the speakers, have someone switch the MONO button on the Citation 25 in and out. There should be no change in the intensity or imaging of the vocal or instrumental. If there IS a change, one of the speakers has been connected out of phase, which results in poor stereo imaging and a diminution of bass. Re-check the polarity of your speaker-to-amplifier connections.

## 25. MM/MC Cartridge Selector

To the right of the MONO button is the **MOVING MAGNET/ MOVING COIL** cartridge input selector (25). The normal (OUT) position selects the Citation 25's input for regular moving magnet cartridges and high output moving coil cartridges with an output rating of at least 2.2mV. The "IN" position switches to the moving coil inputs and engages a special MC step-up amplifier stage. Capacitance and resistance trim adjustments are also provided on the Citation 25's rear panel to further optimize MM/MC performance.

Note that you can connect both MM and MC cartridge inputs to the Citation 25 and use this selector button to switch between them.

## 26-35. Record Output

This set of selectors mirrors the configuration of the playback source selector buttons on the upper front panel. However, they select the source for RECORDING, rather than listening.

As with the playback selectors, the **SOURCE (30)** button activates the next five record sources: **A/V 1 (31)**, **A/V 2 (32)**, **CD (33)**, **TUNER (34)** and **PHONO (35)**.

This system lets you:

- 1) record video and audio from TV, LaserDisc or CDV (connected to the A/V 1 & A/V 2 sources) onto one OR two VCR's.
- 2) dub video and audio from one VCR to another.
- 3) record audio from tuner, CD, tape or turntable onto your audio cassette recorder.
- 4) record audio from those sources onto VHS Hi-Fi video tape.

It is important to note that once a RECORD SOURCE has been selected (using buttons 26-35), this signal is sent to all connected components which are capable of recording. To choose which of them to record with, set those units to their RECORD mode.

- For example, if you have a stereo TV hooked up to A/V 1, pressing **RECORD OUTPUT A/V 1 (31)** will send video and audio to VCR 1 and VCR 2 (and audio only to TAPE 1 and TAPE 2). If you wish to make one videocassette copy, simply set your VCR 1 to record. If you wish to make TWO copies, activate VCR 1 and VCR 2. Note that you could also make one or two audio soundtrack copies at the same time with TAPE 1 and TAPE 2, since the TV sound is also automatically routed to them.

# Citation 25 Remote Control Functions

- Or, you could copy a videocassette by selecting **RECORD SOURCE VCR 1 (26)** and recording onto VCR 2.
- To make VHS Hi-Fi audio recordings of CD's or records, you would press **RECORD SOURCE CD (33)** or **PHONO (35)** and then record with a VCR hooked to VCR 1 or VCR 2.
- To create a cassette tape copy of a record, select **RECORD SOURCE PHONO (35)** and then press RECORD on a tape deck hooked to TAPE 1 or TAPE 2 (or both if you have two decks and want to make two copies at once).

Because the RECORD OUTPUT selectors are completely independent of the VCR/Tape Monitor and SOURCE selectors (3-12), you can listen to a different sound or video source while making copies or recordings. This is covered further in the **Operation** section of this manual.

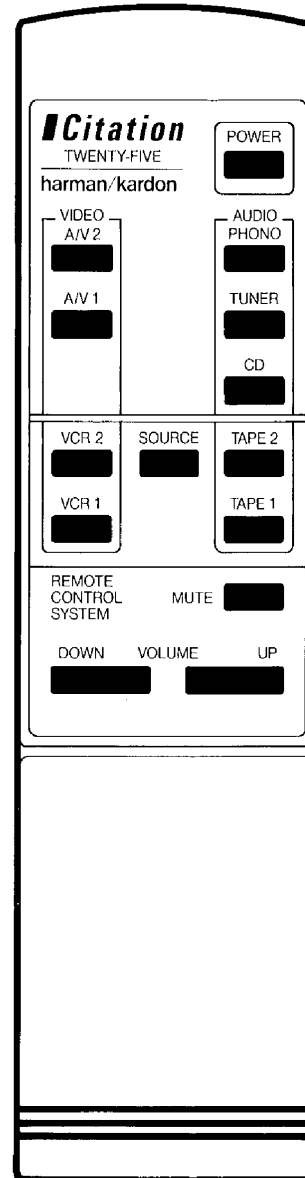


Figure 4 Citation 25 Remote Control

The Citation 25 remote control duplicates all functions found on the front panel *except* those under the concealed flip-down panel.

The remote control operates within a 30-degree angle of the Citation 25.

Two batteries (included) must be loaded into the remote before the remote control unit will operate. See instructions and further information on remote operation on page 16 of this manual.

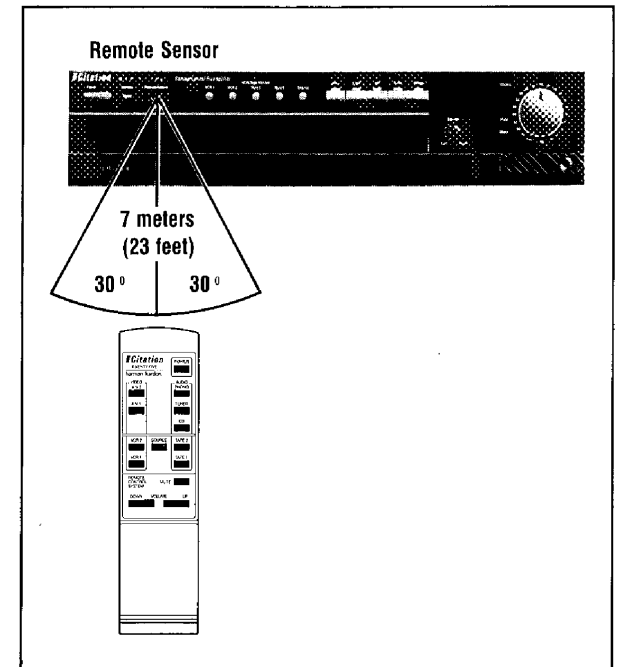


Figure 5 Remote Control Angle of Operation

# Citation 25 Preamplifier Set-Up

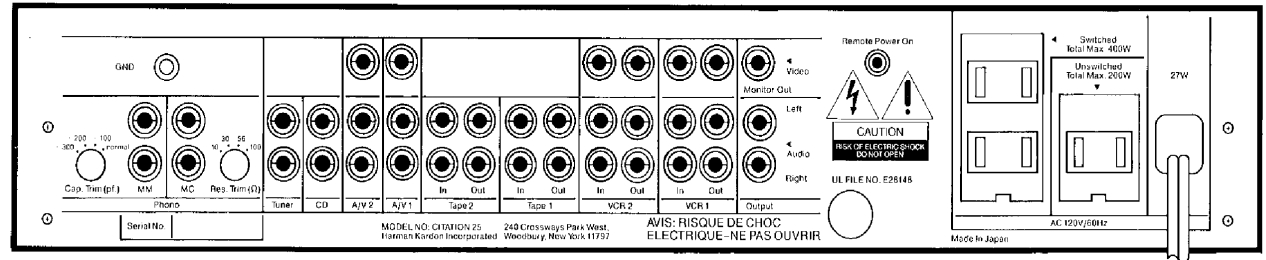


Figure 6 Citation 25 Back Panel

Every Citation 25 owner will have his or her own unique combination of components to connect to the preamplifier. Instead of sequential instructions, we have provided a discussion of each connection on the Citation 25's back panel. Read those sections which pertain to your own particular components.

## Packing and Paperwork

Save all packing material from your Citation 25 Preamplifier. While the box is quite large and may be a nuisance to store, it is essential for shipping if you move or should the unit ever need repair.

Also be sure to fill out the Customer Profile card and save your sales receipt in a safe place. It is necessary to establish the date on which your warranty begins, and as proof of ownership in the event of something drastic such as fire or theft.

## Placement

The Citation 25 is fully shielded and may be placed on top of or under other stereo components, provided that its 3/8-inch "feet" provide sufficient clearance for the cooling needs of the component below.

## General Connection Hints

Before connecting any other components to the Citation 25, first make sure that your power amplifier and all other components are switched off.

Take care to match left and right component plugs with the left and right input jacks on the Citation 25. Common practice is to treat the *red* plug as *right* and the *grey/black/white* plug as *left*.

## Ground (GND) Connection

At the far top left of the Citation 25 back panel is a ground terminal. It should be connected to the ground wire on your turntable cable.

The vast majority of system hook-ups do not require special grounding between the Citation 25 and a power amplifier. However, in the rare event that you do have a 50/60-cycle hum problem, you may take further advantage of the ground terminal provided. First, check that all AC line cords and speaker wires are well away from sensitive line level audio cables, especially the one running from your turntable to the Citation 25. If that doesn't cure the problem, run a single conductor wire from your power amplifier's ground post to Citation 25 ground terminal. In extreme cases, you may need to wrap this ground wire around the audio cables running from the Citation 25's Output terminals to the power amplifier.

## Phono Inputs

The Citation 25 has provisions for both moving coil and moving magnet cartridge inputs.

Make sure to plug turntables with moving magnet cartridges only into the **MM** inputs on the Citation 25, as the sizeable gain boost found at the **MC** inputs will cause volume level problems and severe distortion with MM (Moving Magnet) cartridges.

## Moving Magnet Phono Capacitance Trim Adjustment

Many phono cartridges are relatively insensitive to the capacitance of connecting cables and the pre-amp input. If so, the **CAP. TRIM (pf)** adjustment may be left at its **NORMAL** setting. But some moving magnet cartridges will provide their flattest frequency response only within a specific range of load capacitance.

To select the best value for preamplifier input capacitance, you must first determine the total capacitance recommended for the cartridge. The formula is:

$$\text{CARTRIDGE CAPACITANCE} \text{ MINUS TURNTABLE CAPACITANCE} \\ \text{or} \\ \text{CC} - \text{TC}$$

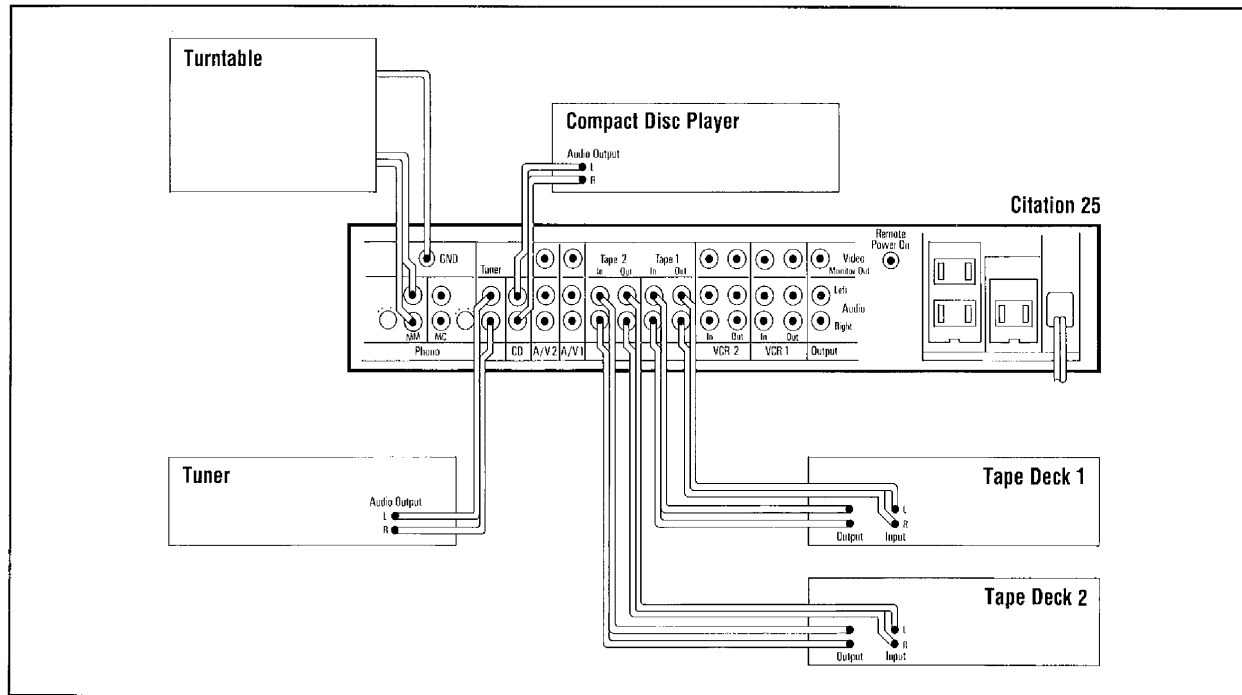


Figure 7 Audio Connections

To obtain these two figures, first check the specifications which came packed with your cartridge. Cartridge capacitance should be listed under "Capacitive Load Range" or "Optimum Load Capacitance" or similar wording. Or consult with the dealer from which it was purchased.

Next determine the total capacitance of the phono cable and internal tonearm wiring. This specification is printed in the turntable's owner's manual.

The final amount of adjustment made with the CAP TRIM potentiometer must also take into account that the Citation 25's

normal setting provides 125 pf capacitance. The CAP TRIM feature adds 100, 200 or 300pf to the "normal" 125pf.

Thus the actual formula for adjusting CAP TRIM is:

$$\text{CARTRIDGE CAPACITANCE} \text{ MINUS } \text{TURNTABLE CAPACITANCE} \\ \text{MINUS } 125 \\ \text{or} \\ \text{CC} - \text{TC} - 125$$

For example, a certain popular cartridge is designed for a 400 pf load. Your turntable has a specified cable capacitance of 150 pf.  $400 - 150 - 125 = 125$ . With most cartridges, a variation of 25-50 pf from the ideal capacitance produces only a very slight

change of response. Thus in our example, you would choose the +100 setting for a total of  $125\text{pf} + 100\text{pf} = 225\text{pf}$ .

An alternative approach is to experiment by adjusting the capacitance while listening to recordings. Typically, with too low a capacitance, the upper midrange will be "soft" while the highest frequencies will be "peaky" and overemphasized. Too much capacitance will over-accentuate the upper midrange and muffle extreme highs.

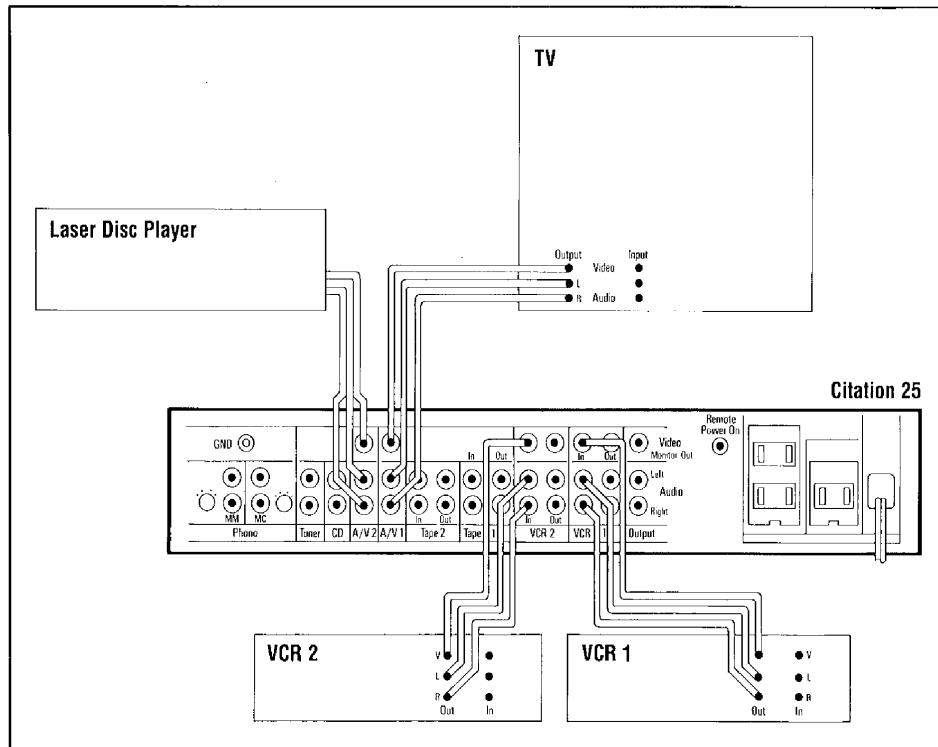


Figure 8 Video Input Connections

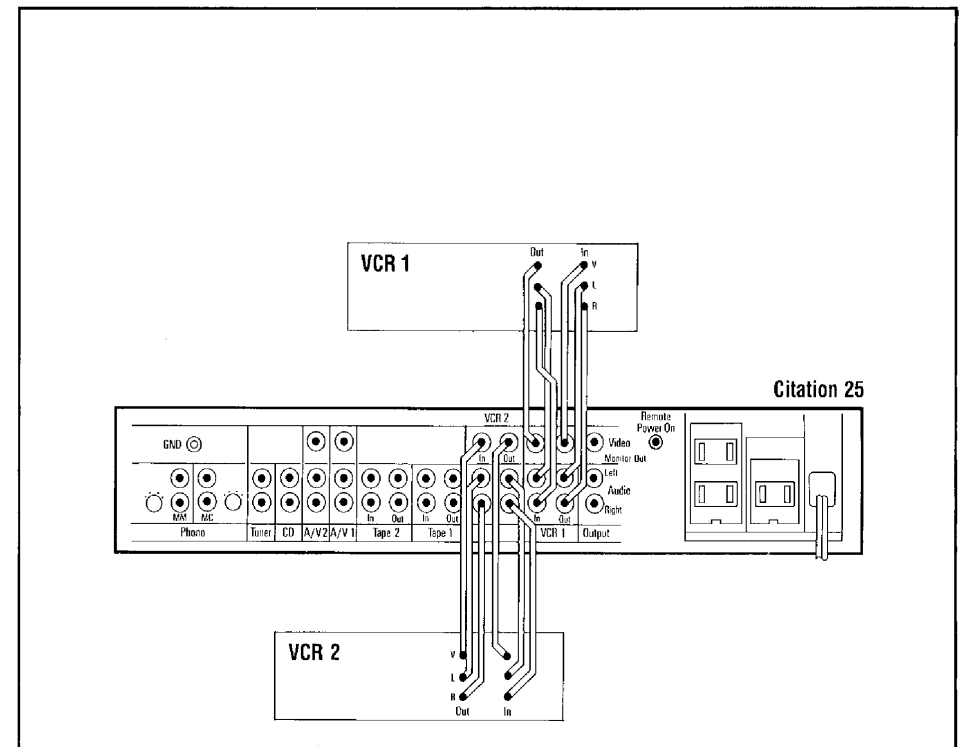


Figure 9 Video Loops

### Moving Coil Resistance Trim Adjustment

MC cartridge performance can be optimized by adjusting the **RES. TRIM**  $\Omega$ . Check the cartridge specifications or consult with your dealer. If no specifications are given, use the 56 ohm position. Feel free to experiment with various settings if you wish.

### FM/AM Tuner & CD Inputs

Simply attach patch cords from these input sockets to your FM/AM tuner and Compact Disc player.

### A/V 1 and A/V 2

These audio and video inputs can be used for stereo TV's with line level audio outputs, LaserDisc players, outboard TV or satellite tuners, CDV players or even some video game systems and home computers.

If you wish to route the sound from a TV through your main stereo loudspeakers (and its video into your VCR), both audio and video outputs from the set *must* be connected to one of the Citation 25's A/V inputs.

The A/V 1 and A/V 2 left and right *audio* inputs may also be used for other audio-only inputs if you do not currently have any other audio/video components in your high fidelity system.

They may also be used for audio/video *playback only* from one or two additional VCR's.

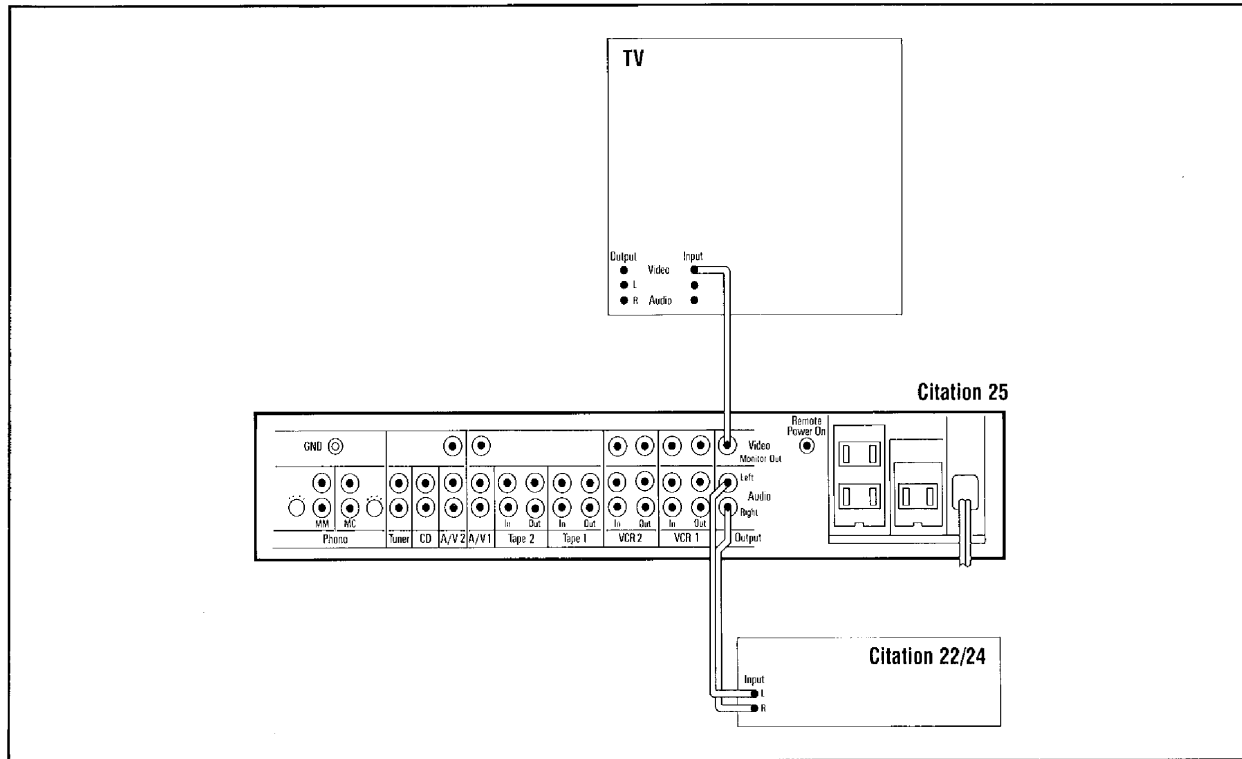


Figure 10 Audio and Video Output Connections

### **Tape 1 and Tape 2 (tape monitor loops)**

The Citation 25's audio tape inputs and outputs (tape monitor loops) correspond to the opposite sockets on your tape deck(s). That is, OUT on the cassette deck (also often labeled PLAY or MON) connects to IN on one of the Citation 25's two tape monitor loops.

If you are employing signal processing devices such as an equalizer, expander, dynamic noise suppressor, or special speaker equalization box, these also should be connected

through the Citation 25 tape loops. Connect such devices directly to a tape monitor loop on the Citation 25. Your tape deck would then be connected in the tape monitor loop of the last outboard signal processing device.

Engaging the RECORD OUT-SOURCE button and appropriate TAPE MONITOR button on the front of the Citation 25 will switch in your signal processor. To use your cassette deck, press the TAPE MONITOR button on the outboard component.

### **VCR 1 and VCR 2 (video loops)**

The Citation 25's VCR video/audio inputs and outputs correspond to the opposite sockets on your videocassette recorder(s). That is, VIDEO OUT on your VCR connects to VIDEO IN on one of the Citation 25's sets of VCR inputs; left and right AUDIO OUT on the VCR connect to left and right AUDIO IN on the Citation 25.

If your VCR has mono sound output, it will have only one audio output jack instead of both left and right. Use a standard set of connection cords, but only hook up the red plug to the single AUDIO OUT socket. Connect the other end to the RIGHT AUDIO input on the Citation 25. (For sound from both speakers, make sure to press the MONO button behind the Citation 25's flip-down panel).

Note that all of the following are essentially identical line level inputs: **1)** the four tape monitor inputs, **2)** both A/V inputs, **3)** CD and TUNER. If they are unoccupied with a component, you may use them for other input sources (such as an additional CD player or tape deck).

### **Audio Output**

Connect hook-up cables from the Citation 25's AUDIO OUTPUT sockets to the corresponding left and right inputs of your power amplifier.

### **Video Output**

Connect a hook-up cable from the Citation 25's VIDEO OUTPUT to the VIDEO INPUT of your TV monitor/receiver.

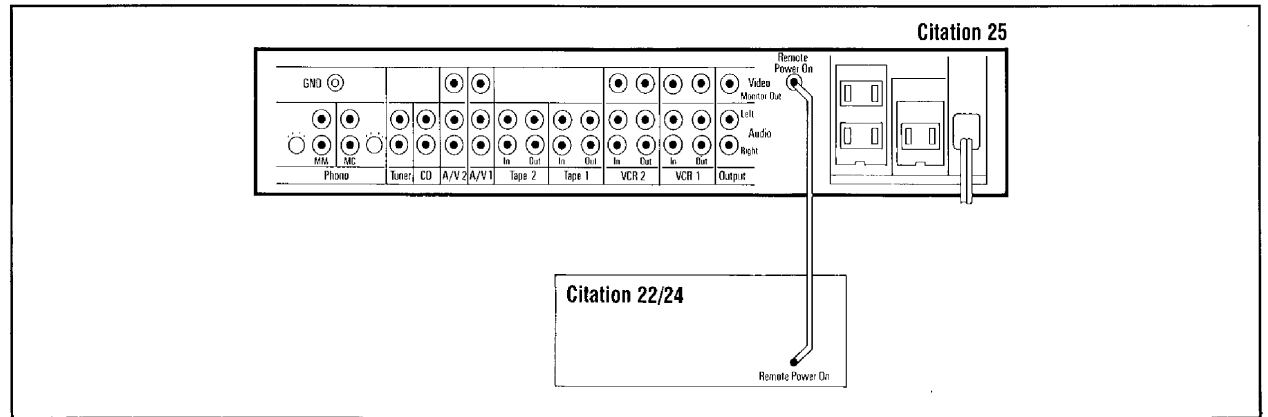


Figure 11 Remote Power On Connection

### Convenience Receptacles (North American Version Only)

The Citation 25 has two switched and one unswitched 120V convenience receptacles. The general rule of thumb is to use the switched outlets for components which are used each time you operate your stereo system. These may include any outboard signal processors (if you leave them switched into the system at all times), speaker equalization boxes and/or whichever sound source you use most often. This gives you the convenience of being able to power up most of your system with the Citation 25's front panel or remote control POWER switch.

If your power amplifier is rated at more than 100 watts RMS per channel, it should NOT be plugged into either switched or

unswitched Citation 25 AC receptacles. The amplifier's current draw will be far too high for the maximum rating of the receptacles.

The unswitched socket may be used with any other component rated at 200 watts or less. It is especially convenient for powering your VCR.

### Citation 25 to Citation 22/24 Power Amplifier Remote Power On Connection (European version only)

If you are connecting your Citation 25 to a Citation 22 or Citation 24 Power Amplifier (European version only), you can turn on your power amplifier with the Citation 25 remote control. Connect the Remote Power On Cable by

plugging it into the REMOTE POWER ON receptacles on both components. When the Citation 22/24 is set in the STANDBY mode, it can be powered up from the Citation 25.

### Citation 25 Power Connection

Finally, plug in the Citation 25's own power cord after reading the warning on page 2 of this manual. We recommend that your Citation 25 be plugged directly into a polarized wall socket. If you must use an extension cord or power strip, check that it is terminated in a polarized plug and rated in excess of the power to be drawn as printed on the back panel of your Citation 25.

# Citation 25 Preamplifier Operation

After checking your connections one final time, it's now time to turn on your Citation 25 Remote Control Preamplifier and begin enjoying its convenient features and great sonic performance.

A good habit to get into is to power up your signal sources (CD player, turntable, tape deck etc.) first. Then the Citation 25. And *finally*, your power amplifier. This will protect your speakers and ears from turn-on transients.

If you have also added a new power amplifier such as the Citation 22 or 24 at the same time you've installed the Citation 25 Preamplifier, we suggest you use your first listening experience to double-check your amplifier-to-speaker connections for proper phasing. Instructions for this test were covered previously in this manual under **Citation 25 Front Panel Controls - 24. Mono.**

## Turning the Citation 25 On and Off

If you intend to power up the preamplifier by remote control, you must first press in the POWER button on the front panel. When the unit is then turned OFF via remote control, the STANDBY light will light, although all other indicator lights will go off. The Citation 25 draws minimal current in this standby mode. However, you should turn off the main POWER button if you are going on vacation or otherwise not using your stereo system for long periods of time.

## Selecting and Playing a CD, Record, FM or A/V Component

1. With the Citation 25 volume control set to a low level, turn on the preamplifier, the source component and finally, your power amplifier.

2. Press SOURCE (7) on the Citation 25.
3. Select the appropriate input (A/V 1, A/V 2, CD, TUNER or PHONO).
4. Activate the source component.
5. Adjust the master VOLUME control.
  - While changing records, CD's, or answering the door or phone, simply press MUTE to lower the volume without losing your master VOLUME setting.
  - To switch sources, press the appropriate input selector.

## Selecting and Playing an Audio Tape or Videocassette

1. With the Citation 25 volume control set to a low level, turn on the preamplifier, the tape deck/VCR, and finally, your power amplifier.
2. Select the appropriate input (VCR 1, VCR 2, TAPE 1 or TAPE 2).
3. Activate the source component.
4. Adjust the master VOLUME control.
  - Make sure to press SOURCE (7) before again listening to A/V 1, A/V 2, CD, TUNER or PHONO.
  - If your VCR has a mono output, press the MONO button on the Citation 25's concealed panel. Remember to turn off the MONO circuit when again listening to stereo sources.

## Recording on a Tape Deck or VCR

1. First select the recording source by pressing the appropriate RECORD OUTPUT button (25-34) on the flip-down panel. This output is now available at the record outputs of VCR 1, VCR 2, TAPE 1 and TAPE 2.

2. Press RECORD on the cassette deck or VCR.
3. To monitor the recording, press the appropriate VCR/Tape monitor button (3-6).
- 3A. To listen to another source (such as FM while you're making a CD to tape copy), press SOURCE (7) and one of the input selectors (8-12).
  - You can also use one VCR/Tape monitor as your recording source, and listen to another one independently.
  - To compare source to recording, simply alternate between the source input and the appropriate VCR/Tape monitor button.
  - If you wish to make more than one copy, simply engage record on both audio tape decks or VCR's. The same signal will be routed to each.
  - The effects of the HI CUT, MONO and SUBSONIC filter circuits are not transferred to the recording outputs, even if they are audible while monitoring the source.

## Copying From One Tape Deck or VCR to Another

1. First select the recording source by pressing the appropriate RECORD OUTPUT VCR or TAPE button (25-28) behind the flip-down panel. For example, if you have two VCR's, load the tape to be copied into VCR 1 and select RECORD OUTPUT VCR 1 (25).
2. Press RECORD on the cassette deck or VCR connected to the other Citation 25 tape or video loop. In our example above that would be VCR 2.
3. To monitor the recording, press the appropriate VCR/Tape monitor button. In our example this would be VCR 2 (4).
- 3A. To listen to another source (such as FM while you're copying videotapes), press SOURCE (7) and one of the input selectors (8-12), or another VCR/Tape Monitor button.

- When making copies of Dolby B or C-encoded audio cassettes, activate the noise reduction circuits on *both* the source and record decks. This will allow the encoded tape to be *decoded* first, before being routed to the record deck (where noise reduction will be *re-encoded* on the copy).

### Care and Cleaning

When cleaning your preamplifier, avoid the direct use of dusting sprays, abrasive cleaners or caustics (such as dilute ammonia window cleaning solutions). Use only a mild soap and water solution, applied to a soft cloth, rather than sprayed directly onto the component.

### Remote Control

When the strength of the remote control's batteries becomes weakened, the operating range of the remote control is shortened.

To change the batteries (or initially load the batteries provided with your new player):

1. Slide the battery compartment cover on the back of the remote in the direction of the embossed arrow and remove it.
2. Insert two AA (1.5V/R6/UM3) cells according to the + and - polarity symbols at the bottom of the battery well. Always replace both batteries at the same time.
3. Replace the cover.

Make sure that both the remote's front infrared projection "lens" and REMOTE SENSOR on the Citation 25 front panel are kept free from dirt to insure proper optical transmission and reception.

Do not use the remote control near fluorescent lamps which may shorten the operating range of the remote.

If you do not intend to use the remote regularly, but have loaded it with batteries to experiment with it, remove them to prevent damage from corrosion.

Once again, thank you for choosing Harman Kardon. We wish you many happy years of audio/video enjoyment.

Checking these possibilities first may save you time and effort getting your unit serviced. Your Harman Kardon dealer will also be able to answer questions and help you discover the problem.

#### No indicator LED's will light.

1. Preamplifier is not plugged into wall socket.
2. Wall socket or extension cord is faulty. Check for poor connections and/or blown fuse.

#### No sound from system.

1. MUTE button is currently pressed in.
2. FUNCTION selector hasn't been switched to the source currently playing.
3. VCR/Tape Monitor buttons are pushed in while attempting to listen to A/V 1, A/V 2, CD, TUNER or PHONO.
4. Power amplifier is not turned on.

#### No picture from TV or monitor.

1. Correct A/V output has not been selected.
2. SOURCE button has not been pressed before selecting A/V source.
3. TV monitor has been connected to wrong A/V output on Citation 25.
4. TV input selector is not set correctly.

#### No sound from tape deck; no sound or picture from VCR.

1. Correct VCR/Tape Monitor button isn't pushed in.
2. Cassette deck or VCR plugged into wrong set of inputs.
3. Output of cassette deck or VCR plugged into OUT instead of IN on back of Citation 25.

#### Sound from turntable sounds weak or thin.

1. Phono output has been plugged into the wrong preamplifier input.
2. Turntable cartridge is a low output Moving Coil type. Plug it into the MC input on the back of the Citation 25.
3. Moving Magnet cartridge capacitance is incorrect. See instructions on adjusting capacitance in the **Set Up** section of this manual.

# Warranty and Service

## Sound from turntable contains hum.

1. Ground wire from turntable has not been connected to Citation 25's ground terminal.
2. Cable from turntable is too close to power cords or speaker cables.

## Sound only comes from one speaker while playing VCR.

1. VCR has a mono output. Press the MONO button on the Citation 25's flip-down panel.

## Sound lacks stereo image or sounds "lifeless".

1. MONO button has been left on while playing a stereo source.
2. HI CUT filter has been left on.

## When playing a record, sound is muddy. Acoustic feedback and "howling" occur.

1. Too much bass boost is being applied. Switch off LOUDNESS button, reduce the amount of BASS tone control boost.
2. Turntable is too close to speakers.
3. Turntable is placed on unstable surface.

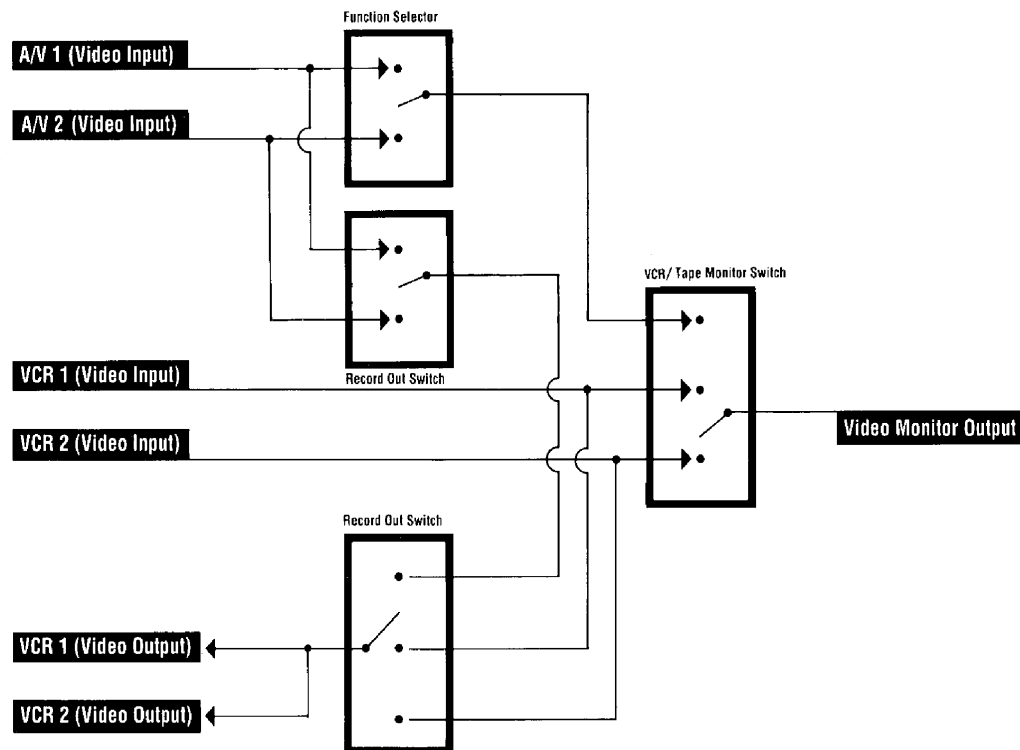
## Remote does not function correctly.

1. Make sure the distance and operating angle do not exceed those described in this manual.
2. Check that the remote transmitter lens and front panel REMOTE SENSOR window are clean.
3. Make sure that strong fluorescent lights are being used in your listening room.
4. Check that the batteries inside the remote are fresh.

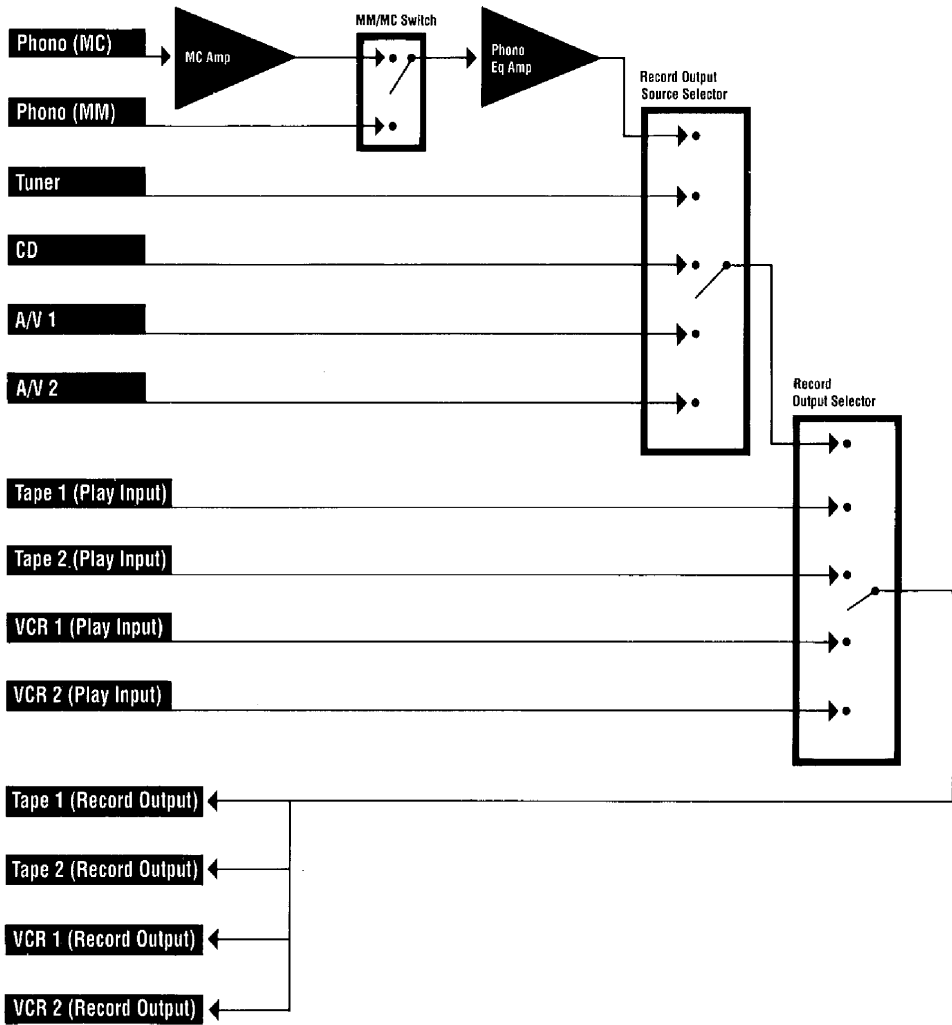
If you have followed the suggestions in this manual and are reasonably sure that your preamplifier requires service, call the Harman Kardon dealer from which you purchased your Citation 25. It is important that service be carried out only by a designated Harman Kardon Service agent to insure both proper service and to comply with the terms of the Citation 25 Limited Warranty.

Remember to keep your sales slip or receipt in a safe place since you will be required to show it for service during the duration of the Limited Warranty.

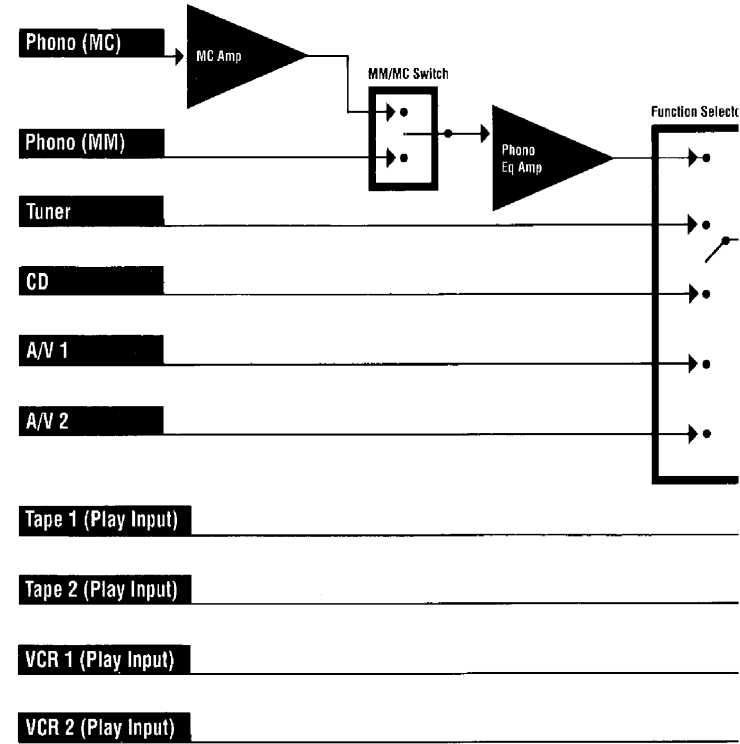
## Video Signal Path

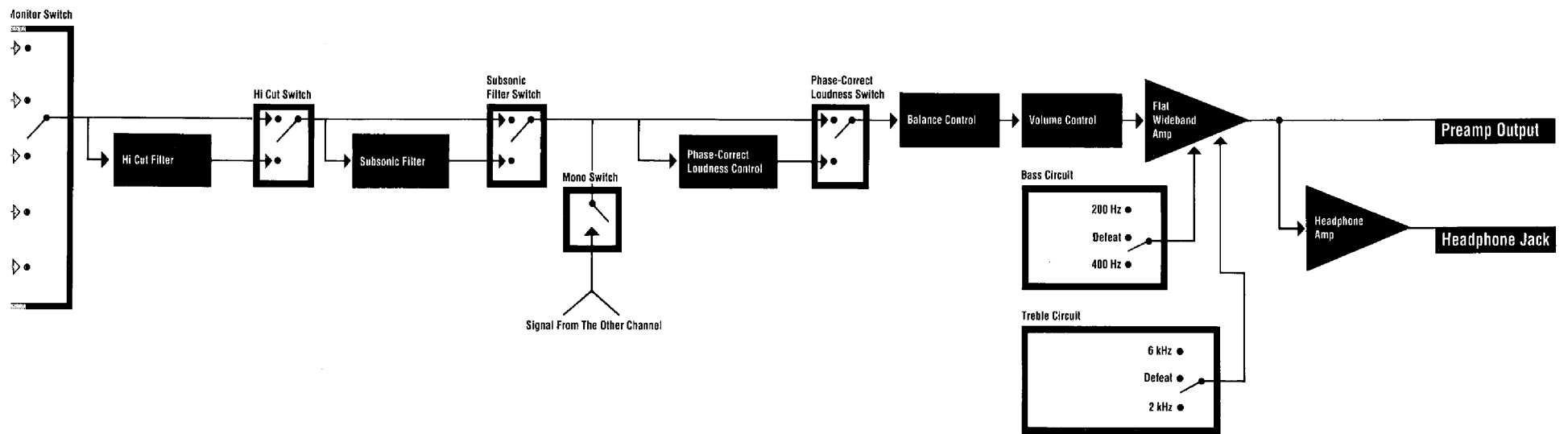


**Audio Record Signal Path**



**Audio Playback Signal Path**





## Citation 25 Specifications

<b>Frequency Response (Aux 0.5V output):</b>	0.25Hz-250kHz + 0/ - 3dB
<b>Total Harmonic Distortion (Aux), 1 Volt Output, 20Hz-20kHz, 10kOhm Load:</b>	.002%
<b>Slew Rate*:</b>	120 Volts/ $\mu$ sec
<b>Rise Time:</b>	1.4 $\mu$ sec
<b>Signal-to-Noise Ratio (ref. 0.5V output, A-Wtd)</b>	
Phono (MC), 500 $\mu$ V input:	78dB
Phono (MM), 5mV input:	83dB
CD, Video, 0.5V input:	91dB
<b>Input Sensitivity/Impedance (IHF 500mV ref)</b>	
Phono (MC):	65 $\mu$ V/100/56/30/10 Ohms
Phono (MM):	1.1mV/47kOhms/425,325,225,125pf
CD Video:	65mV/22kOhms
<b>Phono Overload</b>	
(MC):	10mV
(MM):	180mV
<b>RIAA Equalization (20Hz-20kHz):</b>	$\pm$ 0.2dB
<b>Subsonic Filter:</b>	- 3dB at 15Hz, 6dB/Octave
<b>Hi-cut Filter:</b>	- 3dB at 6kHz, 6dB/Octave
<b>Loudness Characteristic:</b>	+ 10dB at 50Hz + 3dB at 250Hz
<b>Output Level (reference/Max):</b>	1.0/10.0V
<b>Output Impedance:</b>	600 Ohms
<b>Bass/Treble, boost/cut:</b>	$\pm$ 10dB
<b>Mute Attenuation:</b>	- 20dB
<b>Dimensions</b>	
Width x Height x Depth:	17 $\frac{3}{8}$ " x 3 $\frac{3}{8}$ " x 14 $\frac{5}{8}$ " 443 x 85 x 371mm
<b>Weight:</b>	20 lbs./9.09kg

\*Measured without input anti-slewing and output isolation networks.

Feature and specification subject to change without notice.

**harman/kardon**

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