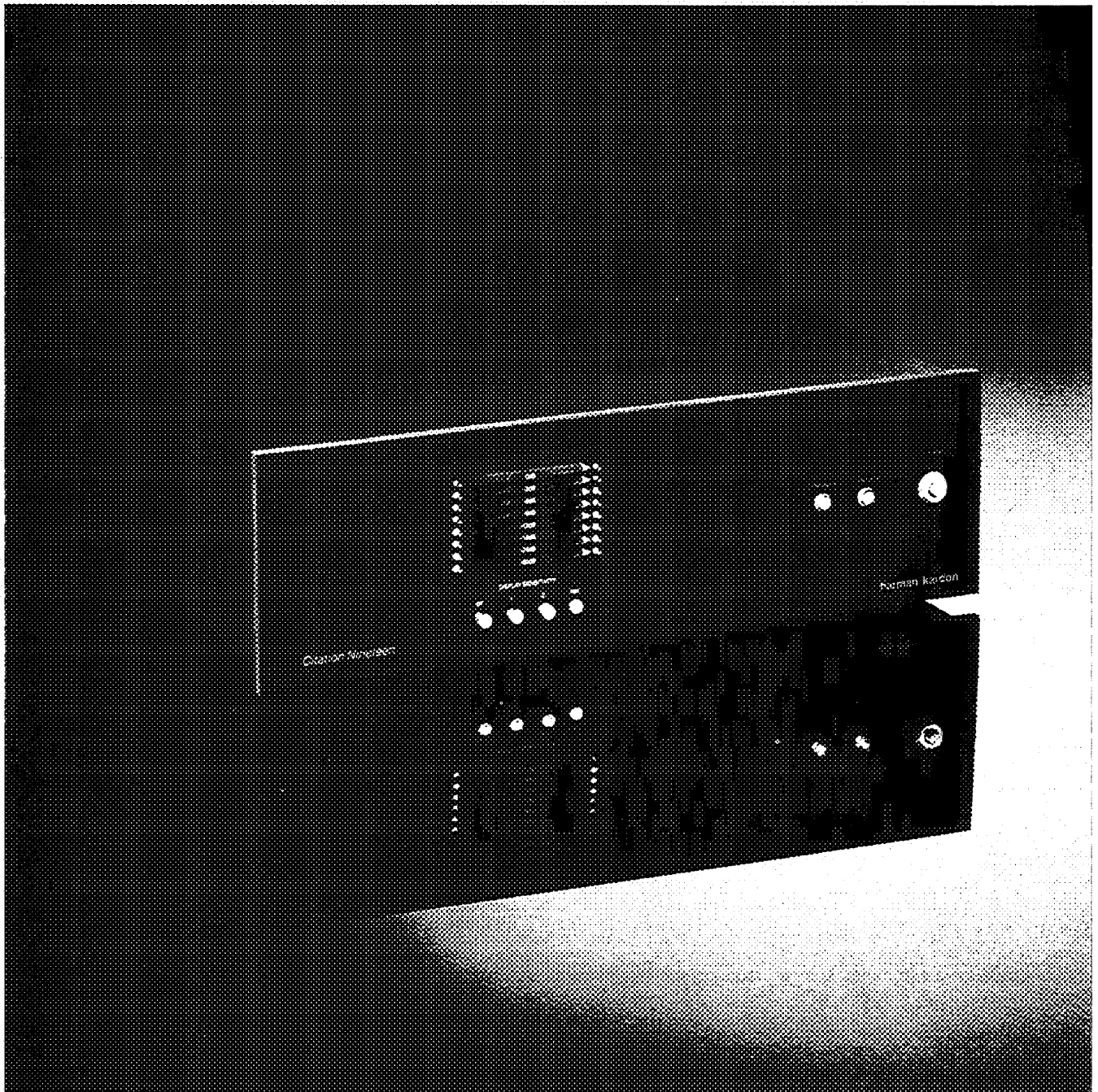


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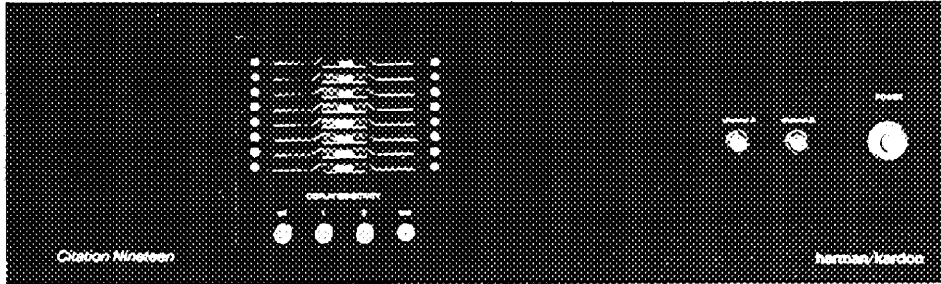
Citation 19

stereo power amplifier
Owner's Manual



The Citation 19 is an expression of our love for music and our desire to hear music reproduced as accurately as possible.

We believe you will find using the Citation 19 amplifier as satisfying an experience as we enjoyed in designing and building it.



Special Features

The Citation 19 is an instrument engineered to fulfill the audiophile's most exacting requirements.

Discrete components are used throughout the audio chain. Their electrical and thermal isolation makes them sonically superior to commonly used integrated circuits.

The Citation 19 has a fast slew rate, resulting from the extended high frequency response of the circuit. Excellent slew rate, coupled with low feedback voltages, assures extremely low transient intermodulation distortion. The audible result is transparency of sound, even during the most demanding musical passages.

The bias current of the Citation 19 has been set for a combination of smooth high frequency reproduction and accurate stereo imaging. Listening tests reveal that a slight change in the bias level can alter an amplifier's sound appreciably. Higher bias settings yield cleaner, smoother high frequency response. Lower bias settings produce more detailed, precise stereo imaging. The bias of the Citation 19 has been adjusted for optimal balance of these two qualities.

Completely separate power supplies for each channel provide excellent transient handling ability and unrestricted dynamic range.

The peak-reading, light-emitting-diode display provides an instantaneous monitor of the power output. LEDs are faster, easier to read, and more accurate than meters.

Warning: To prevent fire or shock hazard, do not expose this amplifier to rain or moisture.

Ventilation

Effective ventilation of the Citation 19 requires that air enter at the bottom and leave at the top. Isolate any accessories that might interfere with ventilation. Dress speaker wires and input cables so that they do not touch the heat sink fins. If you install the amplifier in an enclosure such as a cabinet, leave the back of the cabinet open. Leave a minimum of two inches between the sides of the chassis and the enclosure, and a minimum of six inches between the top of the heat sinks and the enclosure. If it is not possible to leave the back of the enclosure open, make sure that there are at least two inches of clearance in the rear and cut large holes or slots in the bottom, top, or sides of the enclosure to allow for the flow of air from bottom to top.

Connections

Caution:

Make all input and output connections and disconnections while the amplifier is turned off. In addition, once the preamplifier patch cords are connected, do not handle the plugs of the patch cords while the amplifier is on. The transient that may result could damage your speakers.

Power Connections

Connect the power line cord to any outlet furnishing 120 volts AC, 50 or 60 Hertz. Voltage can vary between 110 and 128 volts without damage to the amplifier.

Caution:

Do not plug the power line cord of the Citation 19 into a switched power receptacle of your preamplifier. The surge of current drawn by the Citation 19 when it is first turned on exceeds the capacity of most preamplifier power switches.

Grounding

Give careful attention to the grounding configuration of the components used with the Citation 19. When you insert it into an AC outlet, the three-prong plug of the Citation 19 grounds the chassis of the amplifier. If the preamplifier, turntable, or other piece of associated equipment also has a three-prong plug, a ground loop may occur which would increase hum to undesirable levels. For this reason, the third wire of the associated component's power line cord should be interrupted with isolating plugs.

The same problem may develop in rack-mounted applications if the various chassis are connected to each other via the rack. To keep hum levels at a minimum, all other chassis should be isolated from metal-to-metal contact with the rack.

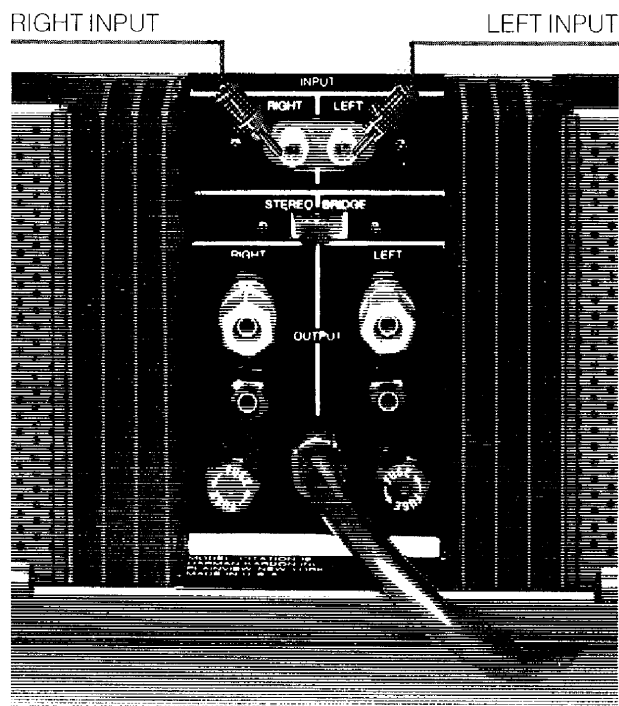
Input Connections

Use standard shielded patch cords with RCA plugs to connect the outputs of your preamplifier to the inputs on the rear of the Citation 19.

Speaker Compatibility and Protection

It is not necessary to match the impedance of your speakers to the Citation 19. The amplifier will perform perfectly with any speaker of 4-, 8-, or 16-ohm impedance.

The Citation 19 can deliver 2.6 amperes into a 16 ohm speaker, 3.7 amperes to an 8 ohm speaker, and 6.3 amperes into a 4 ohm speaker. Therefore, speakers that cannot operate safely with this level of current must be provided with fuses of the proper size in the speaker line. Check the speaker owner's manual or with the manufacturer of the speaker for the proper fuse rating.

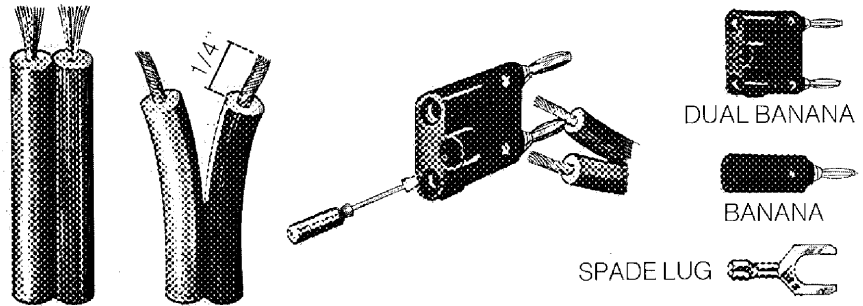


Preparing Speaker Wire

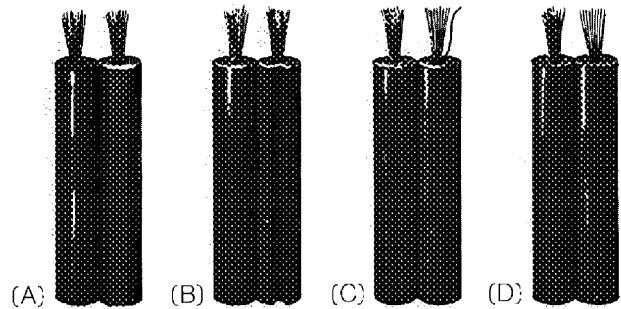
Use stranded two-conductor wire to connect your speakers to the Citation 19. Eighteen gauge lamp cord (zip cord) is satisfactory, but a heavier gauge (with a lower number) is preferable, especially for distances over 25 feet. It is possible to use 50 feet of connecting wire for each speaker without loss of volume. However, the damping factor will be reduced and shorter wires are preferable. Do not drive staples or tacks through the center of the wire, for this may short out the two conductors and consequently decrease volume or eliminate the sound entirely.

Cut two segments of wire of approximately equal length. Both should be long enough to comfortably reach the farther speaker. Separate the conductors at each end of the wire segments for a distance of two or three inches. Then carefully remove about ¼ inch of insulation from each free end. Twist the strands of each conductor so they are smooth and tight, without any loose strands.

For your convenience, the output terminals of the Citation 19 accept spade lugs, banana plugs, and dual banana plugs in addition to bare wire.



Lamp cord usually provides a "code" which differentiates the two conductors. A conductor may be coded by a rib, sharp corner (A), or indentations molded along the length of the insulation (B). In some cases, a thin colored thread is molded along the length of the insulation, along with one conductor (C). In others, the strands of the coded conductor are of darker color than those of the uncoded conductor (D).



Stereo Speaker Connections

Connect one length of lamp cord to your left speaker system. Connect the coded conductor to the speaker's positive (" + ") terminal, and the uncoded conductor to negative (" - "). (The " + " and " - " markings are in general use, although some speakers use other labeling systems, such as " 1 " and " 2 ", " A " and " B ", and so on.)

Connect the other end of the cord to the LEFT output on the rear panel of the amplifier. Connect the coded side to the red terminal post, and the uncoded side to the black. Repeat the procedure for the right speaker system taking care to observe the coding of the conductors as described for the left speaker system. If the code is followed, your speakers will now be connected "in phase."

Phasing the Speakers

Speaker phasing refers to the connecting of two stereo speakers to the Citation 19 in the same way. That is, the red terminal post on the amplifier should be connected to the positive terminal in each case, and the black to the negative.

The diaphragms of speakers that are in phase with each other move simultaneously in the same direction in response to the same signal from the amplifier. The aural result is firm, solid bass and precise lateral location of the sound source. Speakers that are out of phase produce weaker bass and less coherent, less precise location of the sound.

Speakers that cannot operate safely with this level of current must be provided with fuses of the proper size in the speaker line. Check the speaker's owner's manual or with the manufacturer of the speaker for the proper fuse rating. (4-ohm speakers will cause the Citation 19 current limiting circuits to operate and distort the signal. For this reason, 4-ohm speakers cannot be used with the Citation 19 in the bridge mode.)

To operate the amplifier in the bridge mode, slide the rear panel STEREO/BRIDGE switch to BRIDGE. Connect the preamplifier output to the LEFT input receptacle of the Citation 19. Connect one end of a length of lamp cord to the positive and negative terminals of your speaker system. Connect the other end to the red LEFT and RIGHT output terminal posts on the back of the Citation 19.

Operation

The POWER switch is on the front panel, and is "on" in the depressed position. When the power is on, two neon indicator lamps – one for each channel – will glow. If a lamp is not illuminated, the corresponding channel is not receiving power. This can be caused by the action of the thermal circuit breakers, which trip when conditions cause the temperature of the heat sinks to become too high. When this happens the circuit breakers will reset automatically as soon as the heat sinks return to proper operating temperatures.

Monitoring Power Output

The output level of the Citation 19 can be monitored on the light-emitting-diode (LED) display. The ranges for the display are set by the DISPLAY SENSITIVITY 1 and 2 pushbuttons. Each range represents a full-scale wattage that depends upon the impedance of your speakers. For example, when the amplifier operates into 8 ohm speakers, Range 1 represents 100 watts of output power at full scale and Range 2 represents 5 watts at full scale.

Speaker Impedance and DISPLAY SENSITIVITY Range

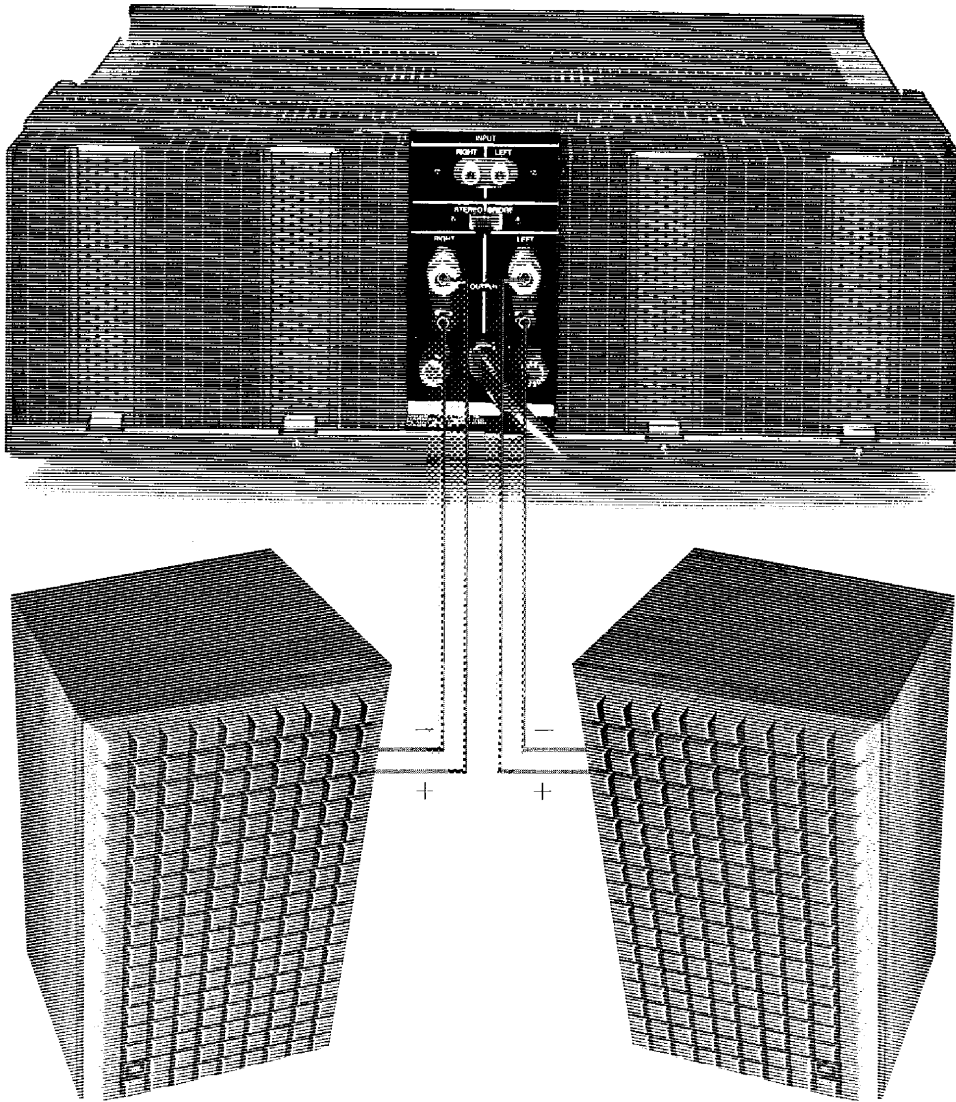
	16 ohms		8 ohms		4 ohms	
	Range 1	Range 2	Range 1	Range 2	Range 1	Range 2
0dB	50.0 watts	2.5 watts	100.0 watts	5.0 watts	200.0 watts	10.0 watts
-3dB	25.0	1.25	50.0	2.5	100.0	5.0
-6dB	12.5	0.625	25.0	1.25	50.0	2.5
-9dB	6.25	0.313	12.5	0.625	25.0	1.25
-12dB	3.125	0.156	6.25	0.313	12.5	0.625
-18dB	0.781	0.039	1.562	0.078	3.125	0.156
-24dB	0.195	0.010	0.391	0.020	0.781	0.039
-30dB	0.049	0.002	0.098	0.005	0.195	0.010

The calibrations between the lamps indicate the level of the output below full scale in decibels (dB). For instance, with the Citation 19 driving 8 ohm speakers and the DISPLAY SENSITIVITY in Range 1, the first green lamp will illuminate at 30dB below 100 watts, the second green lamp at 24dB below 100 watts, etc. The top red lamp will glow at 100 watts output. The matrix above shows the wattage value of each lamp in Ranges 1 and 2 for stereo speakers of 4-, 8-, and 16-ohm impedance. (For 16-ohm speakers in bridge mode, use the matrix values for 4-ohm stereo speakers. For 8-ohm speakers in bridge mode, double the matrix values for 4-ohm speakers.)

To test that all the lamps function, press the TEST pushbutton. Every lamp should glow. To defeat the display, press the OFF pushbutton.

To check for proper phase by ear:

1. Put your stereo preamplifier in the A + B or monophonic mode.
2. Play a record, tape or FM broadcast that has a single speaking or singing voice, or a solo instrument.
3. Stand in a position equidistant between the two speakers. If the voice or instrument appears to be coming from an area directly between the two speakers, they are in phase. If the sound appears to be coming from the two individual speakers, they have been incorrectly connected and are out of phase.



To correct the phasing, reverse the positive and negative leads at the terminals of only one speaker. The system will now be in phase.

Bridge Mode Connections

The left and right channel amplifiers of the Citation 19 can be bridged to deliver approximately 200 watts to a single 16 ohm load. In the bridge mode, the Citation 19 can deliver 3.7 amperes to a 16 ohm load and 6.3 amperes to an 8 ohm load.