



Nakamichi

CA-7A

Control Amplifier



NEW PRODUCT INFORMATION

The Ultimate Control Amplifier

CA7A \$1995.00

Cost \$1197.00

At last, there exists a preamplifier so well conceived, so well designed and so well implemented that it serves as the centerpiece of the ultimate sound system. Its name—the Nakamichi CA-7A Control Amplifier. True audiophiles no longer need to settle for a "bare bones" preamp to obtain sound purity. The CA-7A offers the features of a conventional preamp and the unparalleled convenience of complete system remote control *without sacrificing one iota of sound quality!*

With the CA-7A's wireless remote control, you turn the system on, raise and lower volume, select the program source, choose your favorite FM station, operate your CD player and fully control two tape decks—even to the point of adjusting playback azimuth!—from your armchair. The CA-7A's remote control is compatible with *all* Nakamichi Series-7 and Series-5 components and with every Nakamichi cassette deck ever made for *wired* remote control! And, you can link up to *three* remote sensor units to the CA-7A so you can control the system from other rooms—even 300 feet away! Extra remote controls are available too so you can have one in each listening area.

CONVENIENCE AND PERFORMANCE

You sacrifice *nothing* in sound quality because of the way we designed the CA-7A. Example... the microprocessor-operated logic system that controls the CA-7A is *totally* isolated from the audio circuitry. There are no common signal lines—no common grounds. Each operates from its own power supply and even has its own self-shielding toroidal power transformer. Control signals are *optically* coupled to the audio circuitry, and the audio circuitry, control circuitry and power supply are enclosed in separate shielded containers so no digital noise can ever get into the signal path.

Not only are the logic and audio circuitry separately powered, the moving-coil preamp is powered separately from the equalizer and line amplifiers via a separate winding, rectifier and regulator on the audio power transformer. Then there are individual regulators for each *circuit block*—moving-coil preamp, equalizer and line amplifier—for each *channel*. Each of the six local power regulators is mounted close to its respective amplifier and is of a special Non-NFB design that serves out noise on the ground line. Since ordinary IC regulators cannot produce equivalent performance, the CA-7A regulators are configured of discrete components. This "multi-regulated power supply" prevents mutual interference between channels and between stages. It has the same effect as using a separate power transformer for each stage and greatly enhances stereo separation. To ensure total independence, left and right amplifier circuits are constructed on separate PC boards which are shielded from each other.

CIRCUITRY OF UNUSUAL SOPHISTICATION

The CA-7A audio circuitry is unusually sophisticated. Consider the moving-coil preamp. It handles extremely small signals so noise is of paramount concern. Instead of the typical differential topology, we developed a single-ended push-pull circuit employing direct-coupled Super Hi-gm FETs. It has the stability of a differential circuit with 3-dB less noise. The RIAA equalizer and high-level stages also are direct coupled and use discrete components of the finest quality—Hi-gm dual-FET inputs followed by low-noise bipolar pairs and a buffer amplifier with current bootstrap that can drive virtually any load. A precision feedback network provides perfect RIAA equalization into the ultrasonic region.

ACOUSTICAL FINE TUNING

Many audiophiles shun tone controls because of the noise and distortion they introduce. Furthermore, ordinary controls have such a wide and non-linear range that they're impossible to use. Such audiophile complaints often are justified... but they don't apply to the CA-7A Acoustical Fine Tune (AFT) system! Nakamichi AFT was developed after hours of critical listening to establish the frequencies and ranges most useful in

correcting the acoustical deficiencies of a listening room *without* side effects. We determined that, with good loudspeakers, excessive control range is a detriment, not an asset, and that *precise* control at the proper frequencies is all important. We settled on a control range of ± 5 dB at 40 Hz, 200 Hz and 20 kHz with a resolution of 0.5 dB. To accomplish this, we replaced the noisy potentiometers that are normally used with 21-position rotary switches and all-discrete precision metal-film resistors and film-dielectric capacitors. In the center position, the resistor/capacitor networks are completely out of the circuit. A separate AFT On/Off switch permits you to quickly compare the effect of the controls on a program.

TOTAL PERFORMANCE

This care in providing performance and convenience *without* sacrificing sound quality is apparent throughout the CA-7A. For example, in developing the CA-7A's remote control capability, we did *not* use an electronic attenuator as a volume control as is often done; it passes audio through FET switches that add noise and distortion. Instead, we developed a motor-driven high-precision control with a special clutch that enables it to operate smoothly from the front panel as well as remotely via the motor. The balance control is actually a precision metal-film resistor network controlled by a 21-position switch. It has less noise than an ordinary control and, in the center position, is completely out of the circuit. The "Listen Monitor" operates relays which select the program source. It is completely independent of the Rec Out Selector (which minimizes the number of contacts the signal passes through while providing maximum recording flexibility) and permits direct switching at the source for the shortest signal path. Finally, our phono preamp(s) handle both moving-coil and moving-magnet cartridges and give you a choice of gain on the former and a choice of capacitive loading on the latter. Of course, all input and output jacks are gold plated for minimum noise and distortion and long-term reliability.

CA-7A Tentative Specifications

Power Amplifier Section	
Sensitivity/Impedance:	
Phono MC (Gain: 34 / 30 / 23 dB)	50 / 75 / 170 μ V / 100 ohms
Phono MM	2.5 mV / 50k ohms
Tuner/CD/Aux/Tape	200 mV / 20k ohms
Maximum Input Level (1 kHz, IHF-A-202)	
Phono MC (Gain: 34 / 30 / 23 dB)	4.5 / 7 / 16 mV
Phono MM	250 mV
Signal-to-Noise Ratio (A-wtd, Shorted Input, 0.5 V output)	
Phono MC (0.5 mV input)	Better than 90 dB (any gain)
Phono MM (5 mV input)	Better than 90 dB
Tuner/CD/Aux/Tape (0.5 V input)	Better than 100 dB
Stereo Separation (100 Hz / 1 kHz / 10 kHz, Shorted Input, 1 V output)	
Phono MC (0.5 mV input)	100 dB
Phono MM (5 mV input)	100 dB
Tuner/CD/Aux/Tape (0.5 V input)	100 dB
Rated Output Level/Impedance	
Preamp Output	2 V / 600 ohms
Record Output	200 mV / 600 ohms
Maximum Output Level (IHF-A-202)	20 V
Total Harmonic Distortion (20 Hz—20 kHz, to Rec Out at 1 V)	
Phono MC	Less than 0.002% (any gain)
Phono MM	Less than 0.002%
Tuner/CD/Aux/Tape	Less than 0.002%
Frequency Response (Tuner/CD/Aux/Tape)	1.5—100,000 Hz; +0, -3 dB 20—20,000 Hz; +0, -0.2 dB
RIAA Deviation	
Phono MC	20—20,000 Hz \pm 0.25 dB
Phono MM	20—20,000 Hz \pm 0.25 dB
Acoustical Fine Tuning Characteristics	Low: 40 Hz \pm 5 dB (0.5 dB steps) Mid: 200 Hz \pm 5 dB (0.5 dB steps) High: 20 kHz \pm 5 dB (0.5 dB steps)
Power Source	120 VAC, 50/60 Hz
Dimensions	435(W) x 82(H) x 310(D) mm 17-1/8(W) x 3 1/4(H) x 12-3/16(D) inches
Approximate Weight	6.9 kg; 15 lb. 3 oz.

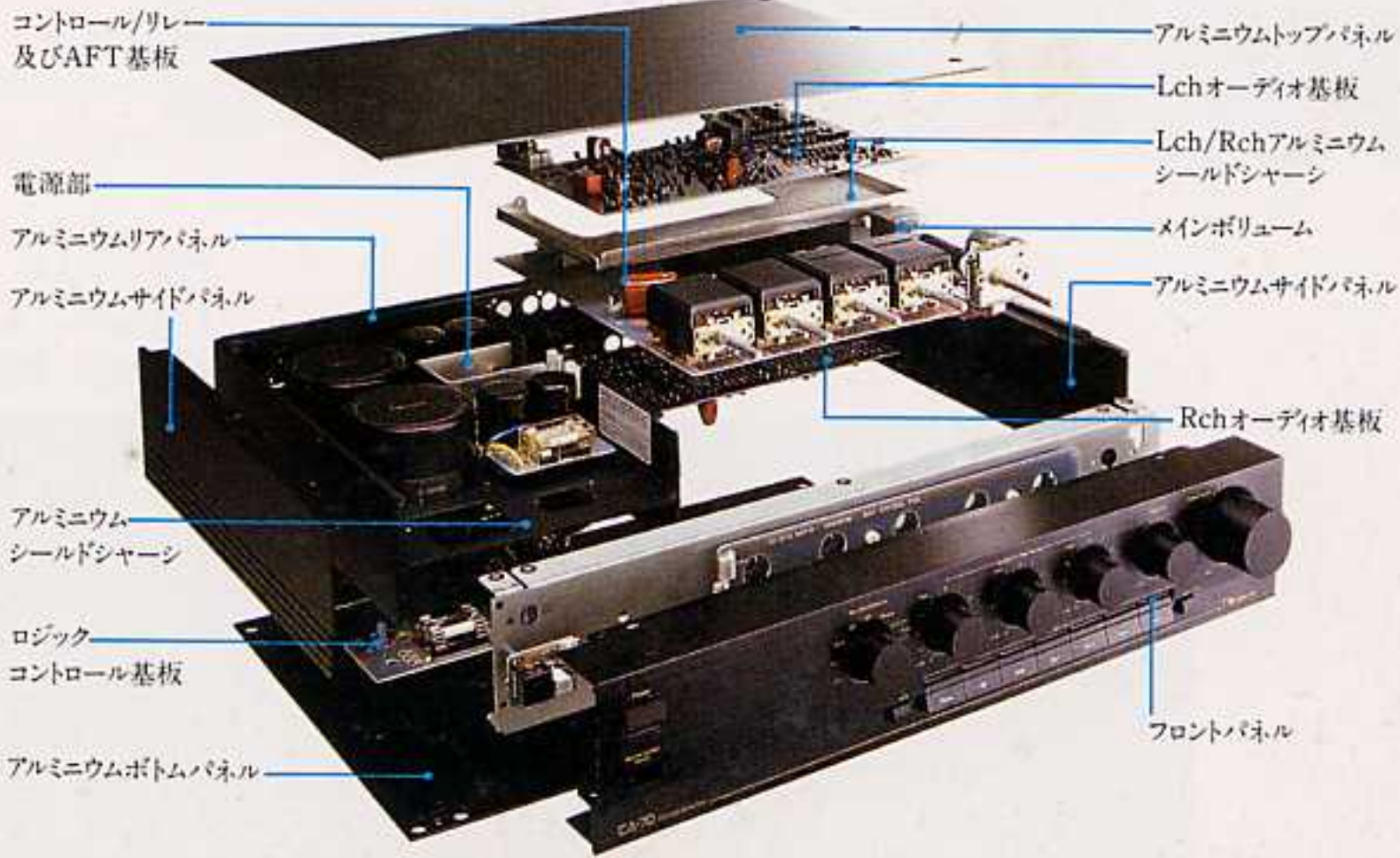
• Specifications and appearance subject to change for further improvement without notice.

NOTE: "A-Version" Models

Nakamichi high-fidelity equipment is sold in 52 countries around the world. Many of these countries have safety regulations to which Nakamichi products must comply. Models designated by an "A" were produced for the United States market and comply with the requirements of Underwriters Laboratories (UL) as well as with other applicable state and Federal safety standards. Within the United States, Nakamichi has authorized its local distributors to offer warranties only on products which have been produced for the United States market in accordance with the foregoing standards.

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CA-70のシールド構造