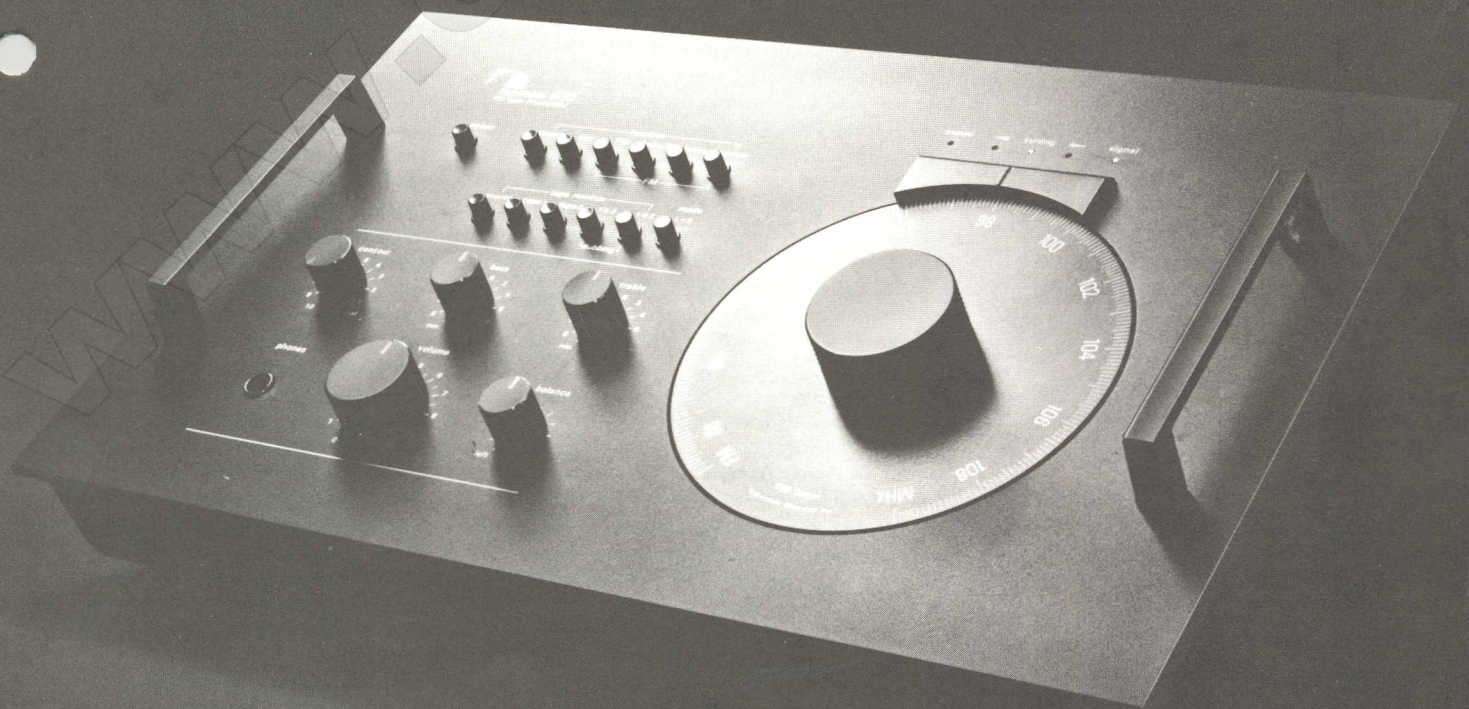




Nakamichi 630

FM Tuner Preamplifier



AN UNUSUAL AND VERSATILE COMBINATION

Nakamichi has combined proven state-of-the-art preamplifier circuitry with an exceptional FM tuner to create yet another fine component for the now famous 600 Series. The 630 is a versatile FM Tuner Preamplifier which offers outstanding performance and quality at a price one would normally expect to pay for such a fine tuner or preamp alone.

Why not a receiver?

Despite tremendous advances in circuit miniaturization, the fact remains that the most critical components of an FM tuner (the front end and IF strip) take up space. Although "the bigger, the better" does not always apply, it can be said that larger tuners generally offer superior performance. Since a power amplifier also requires a finite amount of space, a receiver is always a compromise in performance, unless, of course, it is of gigantic proportions. Even then, it is difficult to keep spurious radiations from the power amplifier circuits from adversely affecting FM performance. The tuner/preamp format of the 630 further offers freedom of choice in the type and size of power amplifier. A user with medium power requirements, for example, can place the 630 atop a Nakamichi 420 Power Amplifier to form a compact system with performance unavailable in a receiver and rarely found in "separates." The audiophile with considerably higher power requirements can utilize the 630 with two Nakamichi 620 Power Amplifiers (either free-standing or in the System One Rack) bridged for monaural operation — no receiver in the world offers 350 watts per channel into 8 ohms.

Extremely low-noise, low-distortion preamplifier circuitry —

The preamplifier section of the Nakamichi 630 has many circuits and features in common with the Nakamichi 610 Control Preamplifier and the 410 Preamplifier, units which have proven themselves to be of the highest order among electronic components. The 630's preamplifier features the following:

- an unexcelled phono section
Utilizing a unique "triple-transistor" first stage and class A push-pull current drive circuitry, the 630's phono preamplifier achieves new lows in noise and distortion. The wide dynamic range and switch selectable input sensitivity (1, 2 or 5 mV) permits the use of a wide range of phono cartridges including several moving-coil devices without the normally required intermediate signal boosting devices.
- bass, treble and contour controls
In addition to precision bass and treble tone controls, the 630 features a contour control which acts independently of the volume control to compensate for the human ear's de-sensitization to the extreme low and high frequencies at low listening levels. Unlike the "loudness" compensation switches found on many units, the 630's contour control provides a realistic level of low and high frequency boosting at soft listening levels regardless of the actual volume control setting.
- tape deck monitoring and dubbing facilities
Up to two tape decks may be monitored independently without affecting recordings in progress. Tape copying does not require re-connection of the decks because front panel switches on the 630 provide copy capability.
- high output headphone amplifier
The headphone amplifier in the 630 provides a maximum of 300 mW per channel into 8 ohm stereo headphones.

High precision FM tuner section —

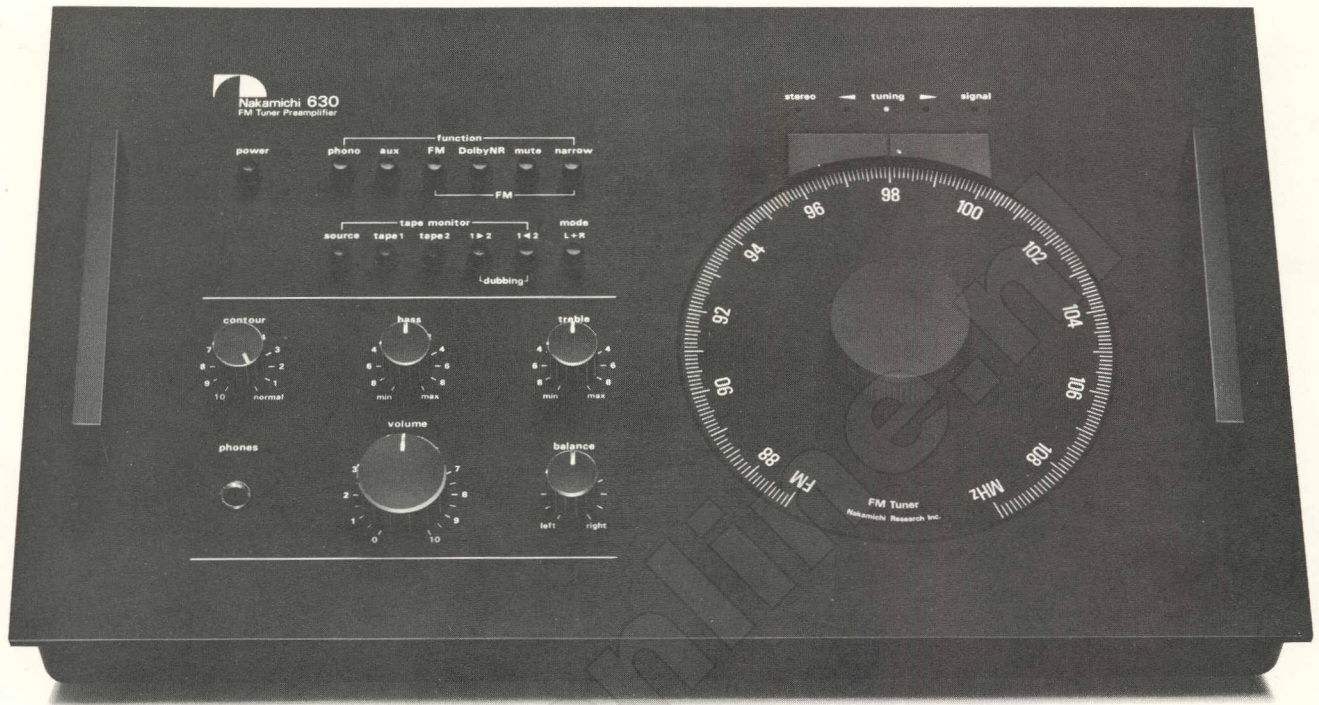
The 630's FM tuner section takes advantage of the most advanced semiconductor and circuit design technology currently available. It is an FM tuner that need not take a back seat to any other.

- an expensive and elaborate front end
The front end of the 630's FM section employs a ganged 5-section linear variable condenser. All of the components are hand-wired directly onto the front end chassis rather than mounted on a PC board as is usually the case. Although costly, this method ensures high rejection of spurious signals. Highest quality parts are used throughout in special drift-free circuit configurations, thus eliminating the need for AFC. The front end also employs selected low-noise dual gate MOSFET devices, which minimize the generation of spurious harmonics with high level input signals. The MOSFETs also keep interstation noise so low that muting almost unnecessary.
- a low phase shift IF filter
The FM section's IF stage employs a 6 element LC filter with highly linearized phase for low overall FM distortion. The elements are closely grouped for excellent temperature stability. In the "narrow" filter position, the IF stage utilizes special low distortion ceramic filters that offer low phase shift and high precision. The entire IF section is shielded, a very uncommon practice, to minimize spurious emissions that can degrade front end performance.
- choice of "narrow" or "wide" filter response
In areas where the stations are crowded together, the 630 user may select "narrow" filter response to increase selectivity to an amazing 90 dB while maintaining superb distortion and separation figures.
- phase-locked loop (PLL) demodulator
The multiplex demodulator of the FM stereo section utilizes phase-locked loop cir



Nakamichi 630

FM Tuner Preampifier



circuitry which assures high temperature stability and drift-free performance.

— built-in Dolby Noise Reduction circuitry

Depressing the Dolby N.R. switch on the 630 switches in B-type Dolby decoding circuitry as well as the 25 microsecond de-emphasis required for proper reception of FM Dolby broadcasts.

— a truly effective 19 kHz filter

The 630 incorporates a filter which reduces the 19 kHz FM Stereo carrier signal by 70 dB, thus preventing it from interfering with Dolby and other circuitry.

— noise-free muting circuit

The muting circuit suppresses interstation noise completely and without the "thumping" noise characteristic of most muting circuits as one tunes through a station.

— unique tuning indicators

Instead of tuning meters, which are often difficult to read, the 630 utilizes a series of tuning lights that indicate center tuning, tuning direction, stereo station and signal strength. Combined with the 630's "human-engineered" large tuning dial, they make precise station selection a breeze.

Specifications

Power Requirements.....100–120/220–240 VAC,
50/60 Hz

Power Consumption.....20 VA

Preampifier Section

Input Sensitivity/Impedance

phono 1 mV, 2 mV, 5 mV/100K ohms
aux 100 mV/100K ohms
tape monitor 1,2... 100 mV/100K ohms

Maximum Input Levels

phono 250 mV (1 kHz, 5 mV position)

Output Levels/Output Impedance/Load Impedance
Preampifier output 1 V/500 ohms/10K ohms
rec out 100 mV/1K ohms/50K ohms
headphone 40 mW/4.5 ohms/8 ohms

Maximum Output at Clipping

preampifier output 5 V into 50K ohms
rec out 4 V into 50K ohms
headphone 300 mW into 8 ohms

Frequency Response

phono RIAA deviation within ± 0.3 dB
aux 20–50,000 Hz +0, -1.5 dB
tape monitor 20–50,000 Hz +0, -1.5 dB

Signal-to-Noise Ratio (IHF-A)/Equivalent Input Noise

phono Better than 80 dB (ref. 1mV)/-140 dB
aux, tape monitor Better than 102 dB/-122 dB
Residual Noise Level (IHF-A)
headphone 8 microvolts or less (8 ohms)
preampifier output 4 microvolts or less (VR @ min.)

Distortion

phono Less than 0.003% (all freq. up to 10 kHz)
aux, tape monitor Less than 0.003%

Tone Control

bass ± 9 dB at 20 Hz
treble ± 9 dB at 20 kHz

Contour (control @ "8")

-30 dB @ 3 kHz
-14 dB @ 20 Hz
-25 dB @ 20 kHz

Tuner Section

Frequency Band 88 MHz – 108 MHz
Sensitivity (IHF) 1.5 μ V for 30 dB quieting
8.75 dBf (new IHF)

Distortion (400 Hz, 100% modulation)

wide mono ... 0.05%
stereo ... 0.08%
narrow mono ... 0.15%
stereo ... 0.3%

Signal-to-Noise Ratio (IHF)

Dolby NR Out mono Better than 65 dB
stereo Better than 65 dB
Dolby NR in mono Better than 70 dB
stereo Better than 70 dB

Frequency Response 50–15,000 Hz +0, -1.5 dB
Selectivity (IHF)

wide Better than 45 dB
narrow Better than 90 dB

Stereo Separation

wide 1 kHz 55 dB
10 kHz 35 dB
narrow 1 kHz 30 dB
10 kHz 30 dB

Capture Ratio (IHF)... 1 dB (wide)

Image Rejection Better than 100 dB @ 98 MHz

IF Rejection Better than 100 dB

Spurious Response

Rejection Better than 100 dB

SCA Suppression 75 dB

AM Suppression 60 dB

MPX Filter -70 dB @ 19 kHz

Antenna 300 ohms balanced

75 ohms unbalanced

Tuner Output 0.1 V (50% modulation)

Dimensions 16(W) x 6-11/16(H) x

9-5/16(D) inches

400(W) x 170(H) x

237(D) m/m

Weight 15-1/2 lbs. (approx.)

7 kg.

- Specifications and appearance design are subject to change for further improvement without notice.
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- The word "Dolby" is trademarks of Dolby Laboratories Inc.

The Nakamichi 600 series was originally envisioned as a group of components that would allow the creative audiophile a degree of flexibility and control in the recording and reproduction of music never before available on consumer high fidelity equipment. Now available from Nakamichi is a custom rack for the 600 series components. Designated the SYSTEM ONE, this strikingly attractive module consists in its basic form of the Nakamichi 600 Cassette Console, the 610 Control Preamplifier, the 620 Power Amplifier, the 630 FM Tuner Preamplifier, and a unique multi-function Digital Program Timer. Differing in basic concept from professional 19 inch standard rack components, the Nakamichi SYSTEM ONE offers a decidedly non-industrial appearance. It serves as a compact nucleus around which a high accuracy music system can be built. Many different combinations of the Nakamichi 600 series components are possible with the system one rack. Extremely high power requirements may call for a combination such as the one shown: a 600 Cassette Console, a 630 FM Tuner Preamplifier, and two 620 Power Amplifiers, each bridged for monaural operation using the BA-100 Bridging Adaptor, to provide over 350 watts per channel with 8 ohm loudspeakers. System One thus offers the first true systems approach to high fidelity: like a camera with interchangeable lenses and components, the System One has built-in flexibility, allowing choice of the particular combination of components that best suit individual requirements.



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