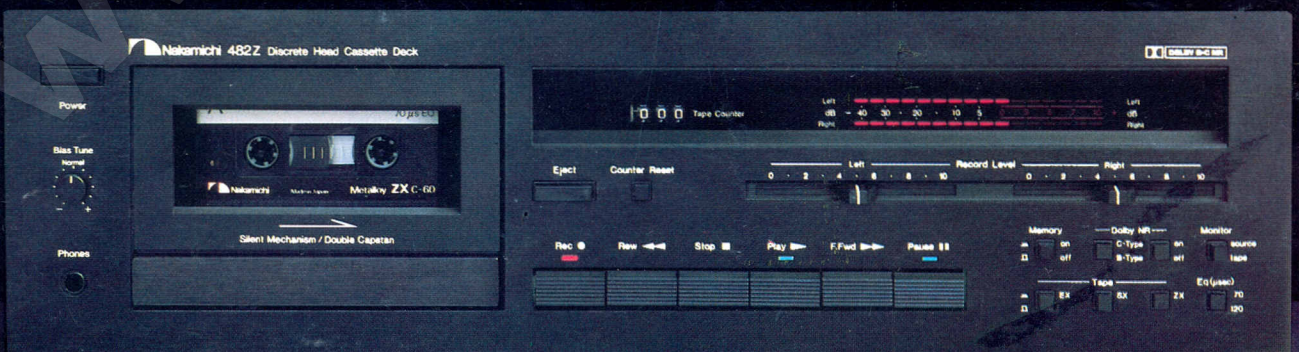


# Nakamichi 481Z/482Z Discrete Head Cassette Decks



**481Z Discrete-Head Cassette Deck**  
Experience the virtuosity of Nakamichi "Discrete 3-Head Technology" in a Dolby-B/Dolby-C recorder that is a simple pleasure to operate. With tape hiss absent and modulation noise eliminated at its source, cassette sound enters a new realm of clarity.

**482Z Discrete-Head Cassette Deck**  
Those who demand "off-tape monitoring" will choose the 482Z—a 3-head deck similar to the 481Z but including *Double-Dolby B/C* processing and its associated electronics so you can hear exactly what *has* been recorded as it is being recorded.





# Simple Virtuosity Reborn

As Dolby B helped give birth to high-fidelity cassette recording, so Dolby-C noise reduction promises to revolutionize its future. With 20 dB of quieting—achieved without the “breathing” noticeable in linear companders—Dolby C heralds a new world of performance—the silent world!

But Dolby C is not a panacea. It will not make response more uniform or music less colored. It will not reduce scrape flutter or entirely eliminate modulation noise. In short, it will not correct problems in the basic performance of a recorder—in fact, it will make many of them worse! To realize the *benefits* of Dolby C without audible side effects requires superior performance to begin with—performance synonymous with the name Nakamichi.

In creating the 481Z and 482Z, we began with an inherently superior design—a transport akin to that of the 1000ZXL, 3 discrete heads and electronics in the true Nakamichi tradition. We maintained the simplicity of operation that earmarked the original 481 and 482 and included Dolby C as well as Dolby B. We added a “Bias-Tune” control to match the requirements of a variety of tapes, developed new 50-dB peak-responding digital LED displays, and provided a choice of headphone level. The 481Z and 482Z represent the rebirth of simple virtuosity—recorders designed for the true music lover.

## Discrete 3-Head Technology—A Nakamichi Creation

Nakamichi created the world's first 3-head cassette recorder in 1973. While many have followed our lead, no one has quite been able to duplicate Nakamichi performance. In the 481Z and 482Z, we bring the true benefits of Discrete 3-Head Technology to the music lover at the lowest possible cost. Others have concentrated on the obvious advantage of a 3-head machine—“off-tape monitoring”—but there are *performance* advantages that dictate the use of a separate record and play heads even when off-tape monitoring is not featured. Thus, we offer two recorders with identical specifications—the 481Z without monitoring and the 482Z with Double Dolby B/C and full monitoring provisions.

Most 3-head decks utilize a “sandwich” record/play head—separate cores combined into a single structure. This simple approach provides off-tape monitoring but is fraught with compromise. While gaps may be mechanically aligned, there is no guarantee that they are in *magnetic* alignment which is what counts. Thus,

20-kHz response cannot be assured. Further, the close proximity of the two gaps and the lack of shielding between them increases signal leakage (thus contaminating the monitor signal with bias and recording signals) and prevents proper core geometry and head contour. If these are compromised, low-frequency response undulates and high-frequency response is unstable. Such recorders must rely on the pressure pad within the cassette to maintain head-to-tape contact and to stabilize high-end reproduction. This palliative only makes the system more subject to scrape flutter and modulation noise.

In the 481Z and 482Z, record and play heads are *physically* as well as magnetically independent. Each is designed with the proper gap length *and* with the ideal core geometry and contour for *flat, stable* response from 20 Hz to 20 kHz *without* relying on the pressure pad! The heads are independently adjusted for per-

fect *magnetic* alignment and are shielded against interaction. Compare specifications, and the difference is obvious!

## The Transport With A Difference

Nakamichi innovation is readily apparent in the 481Z/482Z transport. Wow and flutter are important certainly, but conventional specifications don't tell the whole story. Even the stringent “weighted-peak” measurement ignores scrape flutter (which coarsens sound) and fails to convey the full implications of the common-mode resonances that plague dual-capstan transports.

Our Asymmetrical, Diffused-Resonance, Dual-Capstan system eliminates such modes by employing capstans and flywheels of different diameter and inertia. The chassis is fabricated from materials chosen and treated to absorb vibration and prevent its transference to the tape where it would cause modulation noise. Scrape flutter is virtually eliminated by a tape-pad lifter that pushes the pressure pad out of the way. A motor-driven cam positions the heads and engages pressure rollers and brakes silently, precisely, and gently. IC logic makes possible such features as memory start, unattended operation, remote control, auto takeup of slack tape, high-speed auto shutoff, and direct access between modes. The result is a transport that is a delight to use, impossible to confuse, and with a characteristic clarity and openness of reproduction that is unmistakably Nakamichi.

## Features:

- Dolby B And Dolby C Noise Reduction With Defeatable MPX Filter
- Discrete 3-Head Technology For Total Performance
- Separate Tape And Equalization Switches For ZX, SX, And EX Tapes
- Bias-Tune Control To Optimize Response With Any Tape
- Asymmetrical, Dual-Capstan, Diffused-Resonance Transport With Motor-Driven Cam, Dual Slot Guides, And Tape-Pad Lifter
- Non-Resonant Chassis And Stable Flywheels
- IC Logic With High-Speed Auto Shut Off Protects Your Tapes
- Auto Takeup Of Slack Tape Whenever A New Cassette Is Loaded
- 50-dB Peak-Responding Electronic LED Metering
- Professional-Type Sliding Record-Level Controls
- Two-Level Headphone Output
- Tape-Start Memory And Unattended Operation (Via Any Timer)
- RM-100 Remote Unit (Optional) With Full Transport Control

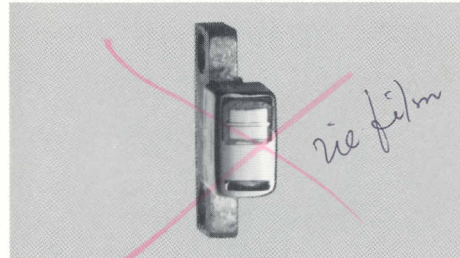
## 481Z/482Z Specifications:

Frequency Response	... 20—20,000 Hz (–20 dB Rec. Level)
S/N with <i>Dolby-C NR</i>	... Better than 69 dB (400 Hz, 3% THD, A-wtd rms, 70 μs, ZX tape)
S/N with <i>Dolby-B NR</i>	... Better than 63 dB (400 Hz, 3% THD, A-wtd rms, 70 μs, ZX tape)
Total Harmonic Distortion	... Less than 0.9% (ZX tape)
(400 Hz, 0 dB)	... Less than 1.0% (SX, EXII tape)
Tape Speed	... 1 7/8 ips (4.8 cm/s) ±0.5%
Wow-and-Flutter	... Less than 0.11% WTD peak
	... Less than 0.06% WTD rms
Erase	... Better than 60 dB below saturation level at 1 kHz
Separation	... Better than 36 dB at 1 kHz, 0 dB
Crosstalk	... Better than 60 dB at 1 kHz, 0 dB
Bias Frequency	... 105 kHz
Input	... 50 mV, 30k ohms
Output Level	... 600 mV (400 Hz, 0 dB) 2.2k ohms
Headphone (High)	... 10 mW (400 Hz, 0 dB) 8 ohms
Power Source	... 100, 120, 120/220-240, 220 or 240 V; 50/60 Hz (according to country of sale)
Power Consumption	... 30 W Max.
Dimensions	... 450(W) x 135(H) x 289(D) millimeters
	... 17 <sup>23/32</sup> (W) x 5 <sup>5/16</sup> (H) x 11 <sup>3/8</sup> (D) inches
Approximate Weight	... 6.4 kg, 14 lb 2 oz

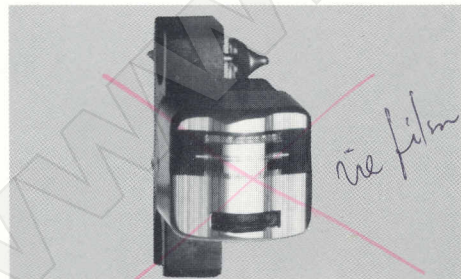
\*Specifications and appearance subject to change without notice.

\*Dolby NR under license from Dolby Laboratories.

\*The word “DOLBY” and the Double-D symbol are trademarks of Dolby Laboratories.



R-8L Crystalloy Record Head



R-8L Crystalloy Playback Head

Nakamichi Corporation  
Tokyo Office  
Nakamichi U.S.A. Corporation

Shinjuku Daiichi Seimei Bldg., 2-7-1 Nishishinjuku, Shinjuku-ku, Tokyo  
Phone: (03) 342-4461 Telex: 2324721 (NAKAM J)  
1101 Colorado Avenue, Santa Monica, California 90401 Phone (213) 451-5901  
New York Office: 220 Westbury Avenue, Carle Place, N.Y. 11514 Phone (516) 333-5440