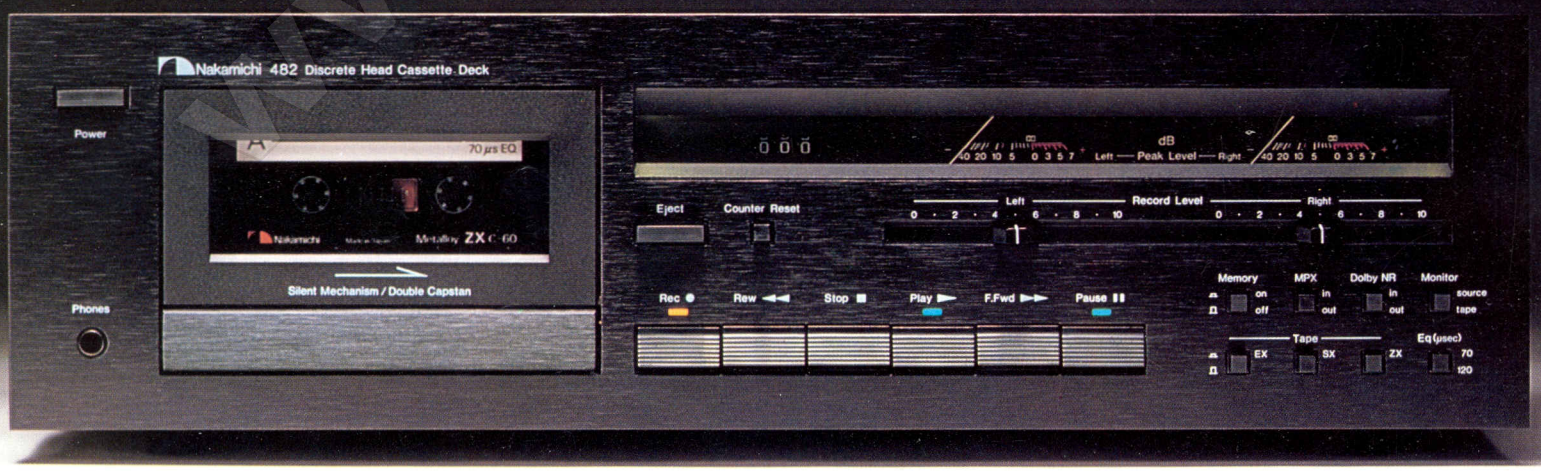
Nakamichi

Discrete Head Cassette Deck 481/482



In many ways, the harpsichord symbolizes the Nakamichi 481 and 482. Light and delicate, it is a simple instrument but one of incredible clarity and elegance. In subtlety, the piano pales. Each harpsichord has its own individuality—the result of the loving care and dedication lavished upon it by its designer. The superb instrument pictured here was created by the world-famous Frank Hubbard and now has a place of honor in the Nakamichi Sound Research Center.

For Those Who Appreciate Simple Virtuosity

Simple Virtuosity—
Great Technical Skill In The Practice Of A Fine Art, Combined With Simplicity Of Operation—
The Essence Of The 481/482.

Nakamichi takes great pride in the 48
use, less costly than our other decks,
Nakamichi quality towards that er
features are extraordinary—rivaling th
dary 1000! Yet, the 481/482 require n
with the music-lover in mind, decks tha
the true virtuoso.

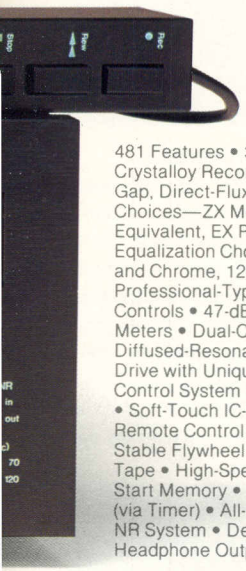
Many of Nakamichi's most advanced features are embodied in the 481—the exclusive "Discrete" 3-head configuration, the motor-driven-cam control system, the Asymmetrical, Diffused-Resonance, 3-motor transport, and full metal-tape compatibility.

For those who demand "off-tape monitoring," the 482—a 3-head deck similar to the 481 but with two complete sets of electronics and Double-Dolby so you can hear exactly what *has* been recorded *as* it is being recorded. Added sophistication.

482 Features • 3 Discrete Heads—Crystalloy Record and Playback, Dual-Gap, Direct-Flux Erase • Off-Tape Monitoring • 3 Tape Choices —ZX Metal-Alloy, SX Chrome-Equivalent, EX Premium-Ferric • 2 Equalization Choices—70 μsec for Metal and Chrome, 120 μsec for Ferric • Professional-Type Sliding Record-Level Controls • 47-dB Peak-Responding Meters • Dual-Capstan, Asymmetrical, Diffused-Resonance Transport • 3-Motor Drive with Unique Motor-Driven-Cam Control System • Non-Resonant Chassis • Soft-Touch IC-Logic Operation with Remote Control (via RM-100 option) • Stable Flywheel • Auto Takeup of Slack Tape • High-Speed Auto Shutoff • Tape-Start Memory • Unattended Operation (via Timer) • All-Metal Cabinetry • Double Dolby NR System • Defeatable MPX Filter • Headphone Output

/482. These are recorders that are simple to ut that forego neither Nakamichi sound nor l. Specifications and performance-related se of the widely acclaimed 582 and the legen- user adjustments. These are decks designed perform their art with the simple assurance of

Discrete Head Cassette Deck 481



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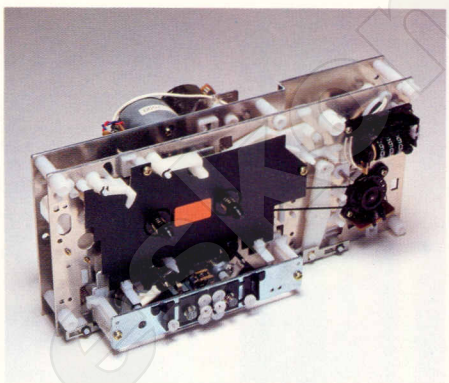
Discrete Head Cassette Deck 482

Metal-Tape Performance Plus...

Metal-alloy tape is the most advanced recording medium available to consumers. Its possibilities are exciting—greatly enhanced dynamic range especially at the higher frequencies, greater freedom from overload, exceptionally low noise. Yet most decks—even many of those claiming "metal compatibility"—are unable to utilize this extraordinary product to its full capability. Essentially, metal tape is very difficult to record and very difficult to erase. The key to unlocking metal tape's potential lies within the recording heads. Conventional ones are unequal to the task. The secret of the 481/482 performance lies in the exclusive Nakamichi discrete-head technology described on the overleaf.

Besides being truly "metal compatible," the 481/482 extract the best performance from conventional ferric and chrome tapes. The adjustments necessary to use these products have been made at the factory. You need only press the button corresponding to the tape being used and choose the appropriate equalization. Having been designed for metal tape, Nakamichi's "discrete" heads provide an extra margin of safety when using conventional tapes, and the performance with them far exceeds what can be expected from a less advanced recorder.

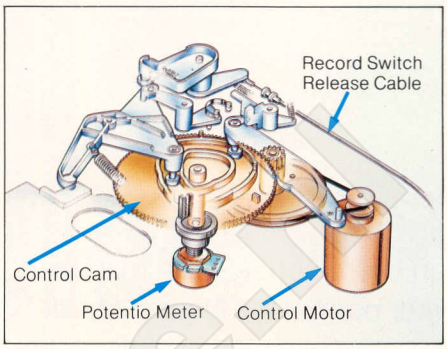


Asymmetrical, Diffused-Resonance Transport

The 481/482 transport is a Nakamichi exclusive. First developed for the acclaimed 580 Series, the Asymmetrical, Diffused-Resonance concept has proved ultra reliable, extraordinarily gentle on the tape, and remarkably free of wow, flutter and modulation noise. Nakamichi's quest for *sonic* as well as specification excellence is responsible for this ingenious mechanism. Our research has shown that many mechanical problems that are *not* reflected in conventional specifications *do* affect the *clarity* of the sound and therefore *must* be addressed.

One such area lies within the cassette. Cassette housings and pressure pads are imperfect. With its dual-capstan design, the 481/482 isolates the tape passing over the heads from the vagaries of the cassette housing. And, the unique pressure-pad lifter eliminates this cause of mistracking, scrape flutter, and modulation noise. Sound emerges with remarkable definition unmatched by conventional transports.

Because dual-capstan designs can cause resonant reinforcement of wow, the 481/482 transport is "asymmetrical." No two parts rotate at the same rate, and therefore resonances are diffused. To prevent vibration from affecting the purity of tape motion, the transport is fabricated from special non-resonant aluminum alloys and highly damped plastics which absorb and dissipate minute vibrations. And, each flywheel is lathe-turned from solid steel so that it is statically and dynamically balanced.



Motor-Driven Cam

The 481/482 make use of Nakamichi's unique motor-driven-cam system that replaces conventional levers and solenoids. The smooth, motor-driven cam positions the heads, applies and releases brakes, etc. in a remarkably quiet, vibration-free manner. Power consumption is minimized (so less heat is generated), and the reliability is enhanced.

IC-Logic Control

The motor-driven cam is operated by IC logic. You may change between modes directly without fear of tape damage. Should any fault occur while the tape is in motion, the IC logic shuts off power within 0.4 seconds. The 481/482 can be remotely controlled via the (optional) RM-100 accessory, and they can be set up very simply for unattended recording (or playback) with an accessory timer. A convenient tape-start memory allows you to return to any portion of the tape quickly and simply.

Simplified Recording

The 481/482 use newly-developed Dolby ICs for quieter tape recording. The MPX filter—a necessity on all Dolby-equipped decks—can be bypassed for full 20-kHz response and improved high-frequency phase accuracy; it is needed *only* when recording FM.

Our famous 47-dB, peak-responding meters are featured on the 481/482, allowing you to set the best recording level simply and with far greater accuracy than typical bar-graph displays.

The record-level controls are smooth-acting, professional-type sliders located directly beneath the meters so you can correlate the meter reading with the control setting quickly. And, Nakamichi's "discrete-head" design makes the 481/482 far more tolerant of tape overload than conventional two-head, or sandwich-head decks.

A headphone jack is provided for private listening. With the 482, "off-tape" monitoring is available so you can hear what has been recorded *immediately* after it has been recorded—added assurance for perfect tape recording.

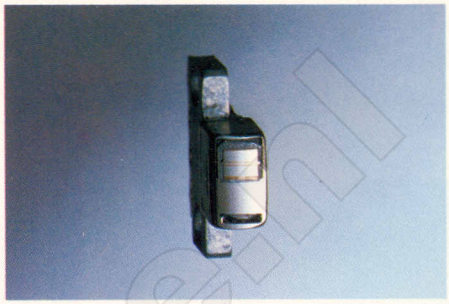
Among high-fidelity companies, Nakamichi is unusual. We count a unique concert hall—the Nakamichi Sound Research Center—among our research tools. Within this hall are housed several prestigious instruments—the Hubbard harpsichord pictured on the opposite page and the Yamaha Concert Grand CF being but two of them. World-famous artists have performed in the Nakamichi Center, and concerts are scheduled regularly.

In the Sound Research Center, we conduct live-versus-recorded listening tests, searching for that elusive sonic clarity and definition that escapes characterization by technical measurements alone. In an even more elusive manner, the Sound Research Center permeates Nakamichi life. Our engineers are not always closeted in an ivory tower surrounded by technical instruments. They are in daily communication with the real world of music, listening to what it is they are committed to bringing you. We believe that to experience the excitement of a fine performance stimulates each engineer's creativity, and that Nakamichi sound is a direct result of that stimulation.

Nakamichi Sound Research Center
Concert Hall

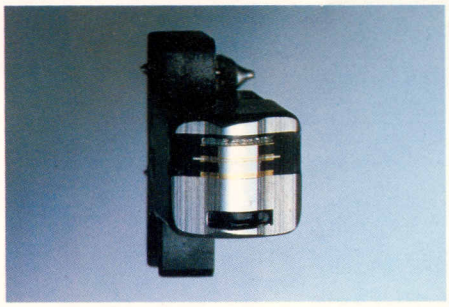
Crystalloy Record Head

Metal tape requires almost twice as much bias and recording flux as do conventional tapes. Ordinary recording heads are unable to handle this much magnetic flux without saturating. Nakamichi's exclusive R-8L record head has been designed especially for metal-tape recording. Its Crystalloy core is highly resistant to poletip saturation, and an extremely sharp critical recording zone is possible. With this extraordinary capability, the R-8L generates less distortion with conventional tapes too.



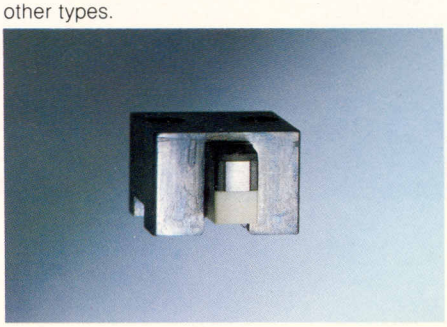
Crystalloy Playback Head

The essence of Nakamichi's Discrete-Head technology is the physical and magnetic separation of the recording and playback heads. Since each must be very tiny, fabrication is difficult, but, with Nakamichi's computer-controlled precision manufacturing, we can achieve this goal. The P-8L playback head also uses Crystalloy cores, capitalizing on the excellent low-level linearity (low distortion) of this material. An extremely fine magnetic gap assures outstandingly flat frequency response to 20 kHz.



Dual-Gap, Direct-Flux Erase Head

As difficult as metal tape is to record, it presents an even more formidable technical problem when erasing. Anticipating this difficulty even before metal tapes became available, Nakamichi set out to develop a radically new erase head—the Dual-Gap, Direct-Flux design. The E-8L head—the latest version of this unique technology—uses a combination of magnetic materials and a transformer-like magnetic design to achieve complete erasure of metal tape as well as all other types.



NAKAMICHI 480—2-HEAD CASSETTE DECK

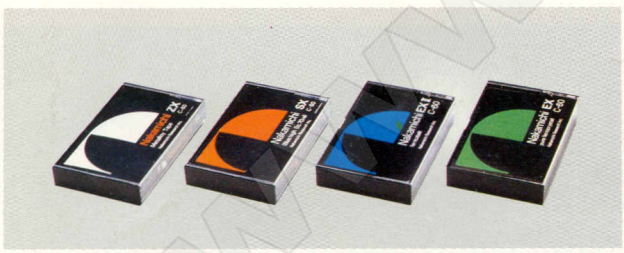
480 Major Specifications: • Frequency Response...20-20,000Hz • Wow & Flutter...0.06% WRMS • S/N...Better than 62dB at 400Hz, 3% THD, WTD rms, Dolby NR in • THD...Less than 1.0% at 400Hz, 0dB (ZX Tape)

481/482 Specifications

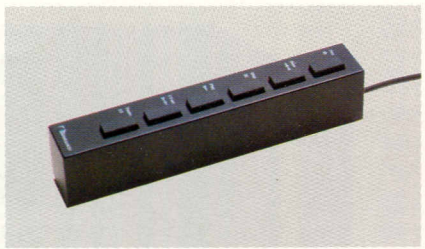
Power Source	100, 120 120/220-240, 220 or 240V; 50/60Hz (according to country of sale)
Power Consumption	23W Max.
Tape Speed	$1\frac{7}{8}$ ips (4.8cm/sec) ±0.5%
Wow-and- Flutter	Less than 0.11% WTD Peak, 0.06% WTD rms
Frequency Response	20-20,000Hz (−20dB Rec. Level)
Signal-to-Noise Ratio (Dolby NR in, 70 μs)	Better than 63dB at 400Hz, 3% THD, WTD rms
Total Harmonic Distortion	Less than 0.9% at 400Hz, 0dB, (ZX Tape) Less than 1.0% at 400Hz, 0dB, (SX, EXII Tapes)
Erasure	Better than 60dB below saturation level at 1kHz
Separation	Better than 36dB at 1kHz, 0dB
Crosstalk	Better than 60dB at 1kHz, 0dB

Bias Frequency	105kHz
Input	50mV, 30K ohms
Output Level	600mV (400Hz, 0dB) 2.2K ohms
Headphone	10mW (400Hz, 0dB) 8 ohms
Dimensions	450(W) × 135(H) × 289(D) millimeters $17\frac{23}{32}$(W) × $5\frac{5}{16}$(H) × $11\frac{3}{8}$(D) inches
Approximate Weight	6.4 kg, 14 lb 2 oz

- Specifications and appearance design are subject to change for further improvement without notice.
- Dolby NR under liscense from Dolby Laboratories.
- The word "DOLBY" and the Double-D Symbol are trademarks of Dolby Laboratories.



ZX Cassette Tape C-60, C-90
SX Cassette Tape C-60, C-90
EXII Cassette Tape C-60, C-90
EX Cassette Tape C-60, C-90



RM-100 Remote Control

DM-10 Head Demagnetizer

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