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# Nakamichi

## DRAGON

Auto Reverse Cassette Deck



**NEW**



# The Nakamichi DRAGON, 3 World-First Innovations For Unprecedented Reproduction Precision

To use an automotive analogy, the DRAGON is the world's fastest racing machine with a top-performance turbocharger. The turbocharger corresponds to the DRAGON's revolutionary automatic playback azimuth correction system—NAAC (Nakamichi Auto Azimuth Correction). And the engine is a dual-capstan transport with both capstans directly driven via independent Super Linear Torque DD Motors for transport stability and precision that simply cannot be improved upon with present-day technology. This is also the first system of its type to offer auto reverse operation with a Discrete Three Head reproduction system. Naturally this unique combination of revolutionary features completely eliminates the conventional weak points of auto-reverse transports — especially the difference in reproduction quality in the forward and reverse directions. The DRAGON also provides for manual calibration of the left and right channel bias and record/playback for optimum matching with any type of tape, and offers the very finest Nakamichi sound technology throughout. The Nakamichi DRAGON is without a doubt a new standard in top-performance cassette reproduction.

## Fully Automatic Playback Azimuth Alignment—the NAAC System—Means the Best Possible Playback Performance with Any Tape

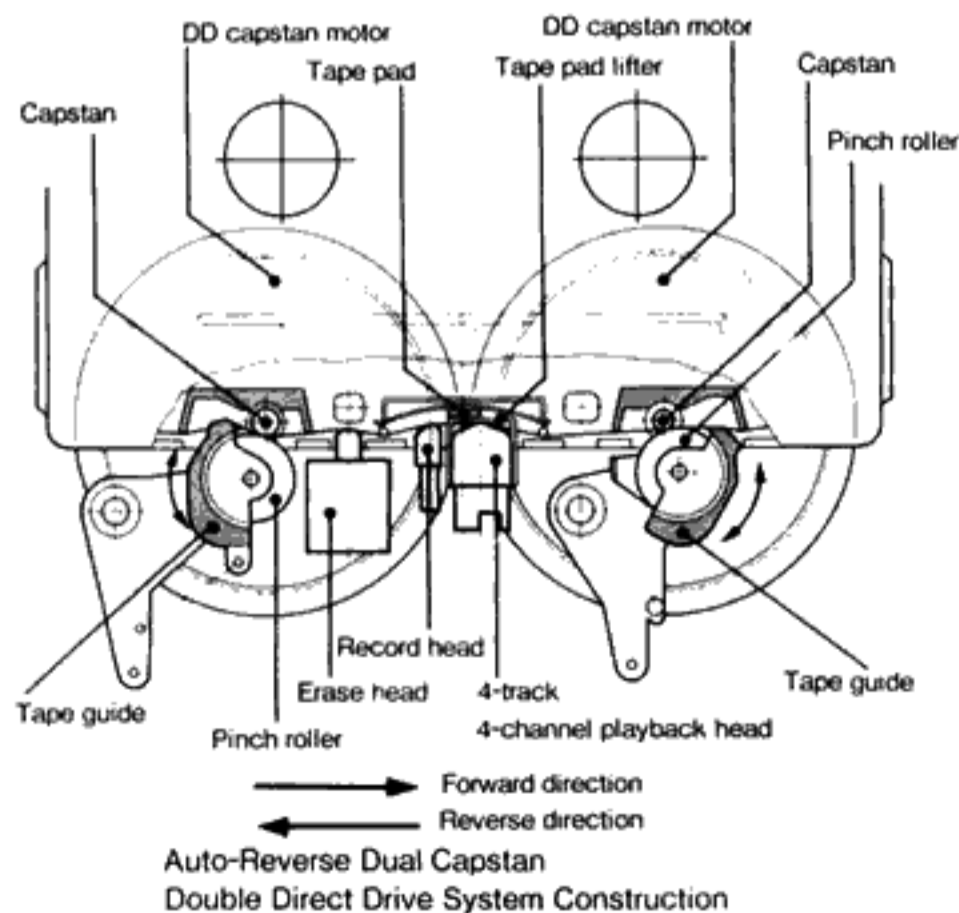
Tape head azimuth alignment is an extremely important factor in achieving the best possible reproduction quality. For this reason the utmost care is taken in ensuring absolute azimuth alignment in all Nakamichi decks. The DRAGON with its NAAC system, however, is the finest so far. No matter what tape you play, you get the best possible reproduction frequency response. Tapes borrowed from a friend, commercially available music tapes, or even tapes with slightly "warped" housings can all be reproduced with the very finest performance the tapes themselves are capable of providing.

## The World's First Discrete Three Head Auto-Reverse System with Identical Performance in Both Directions—Thanks to NAAC

All other auto-reverse cassette decks suffer from a problem: sound quality in one direction is generally much worse than in the other direction due to differing azimuth alignment. The NAAC system, however, completely eliminates this problem so you get the full performance benefits of Nakamichi's unmatched Discrete Three Head reproduction system in both directions.

## Dual Direct Drive Capstans—Performance that Defines the Limit of Present-Day Technology

The key to the "super-tuning" that has made the Nakamichi ZX-9 even more popular than the best-selling ZX-7 is the Nakamichi Super Linear Torque Direct Drive Motor. This top-performance motor effectively eliminates flutter that can modulate the music fundamentals and thereby degrade sound quality.

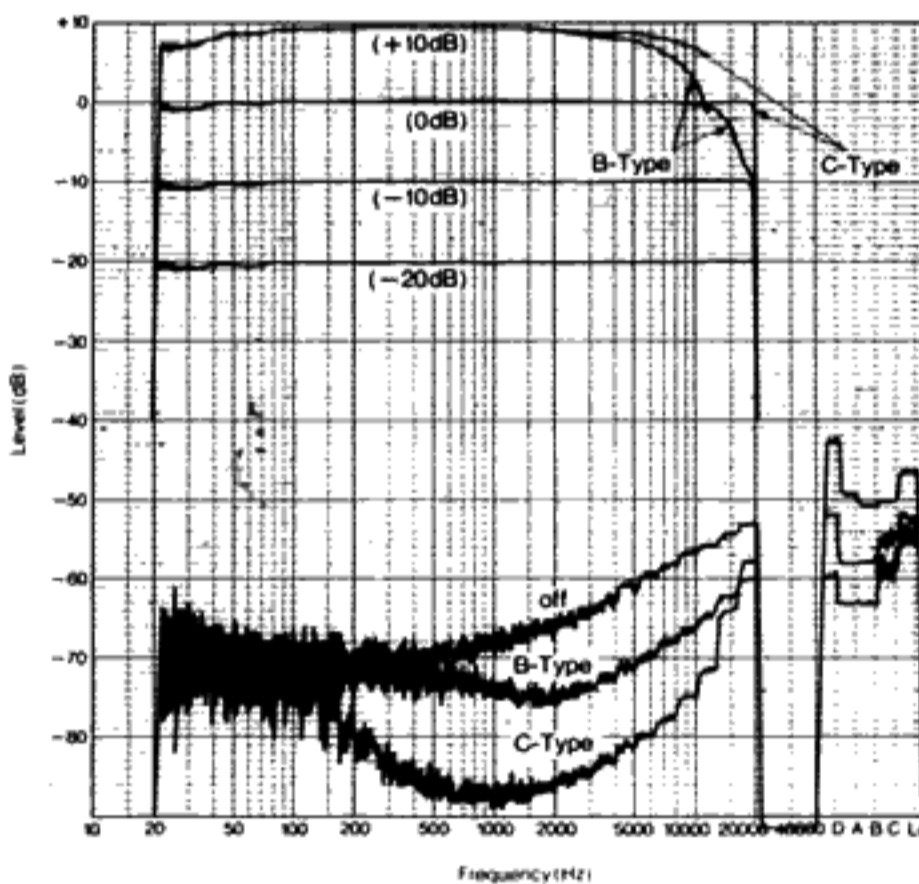


The DRAGON uses two of these superb motors—one for each capstan. The tape in the critical head area is isolated from vibration and tension irregularities occurring in the cassette, and tape travel is handled with the utmost precision. The capstans have even been designed with differing diameters so resonance that can add to flutter is cancelled.

This unique system has actually made it possible to reach the physical limits of wow/flutter reduction.

## Manual Bias and Level Calibration Makes it Possible to Get 100% Performance from Built-In Dolby C Type NR

Dolby C-Type NR is a very precise noise reduction system capable of extremely high performance. Unless reproduction conditions are ideal, however, the superb noise reduction capabilities of this system will not be realized. The broad variations in the characteristics of different tapes must therefore be precisely adjusted for in order to achieve optimum reproduction conditions. For this purpose, the DRAGON has manual calibration controls for left and right channel bias level as well as for left and right channel record/playback level. Moreover, these controls are provided independently for each tape selector position. Once you hear the astonishing difference proper calibration makes, you'll never record "uncalibrated" again.



Frequency Response/Noise Analysis  
Deck: DRAGON / Tape: ZX (Metal) / PB Eq: 70µs

## Auto Rec Pause Adds Convenience to Superb Sound

With the Auto Rec Pause switch on during recording, the transport will automatically stop and enter the Rec Pause mode any time a break of more than 10 seconds is detected in the program being recorded.

## Other Features

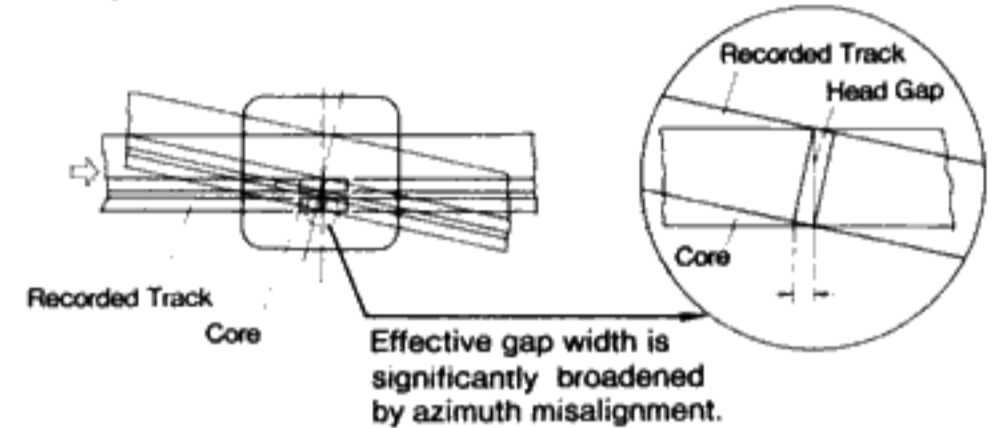
- Extremely sharp focusing of record head flux permits precise reproduction over an exceptionally broad frequency range.
- Narrow-gap playback head delivers playback frequency response to 22kHz, ±3dB.
- High-efficiency double-gap erase head ensures clean erasure with absolutely no modulation of the audio signal during record or playback.
- All amplifier circuitry including record and playback equalizers are double NF design achieving a state-of-the-art 0.005% distortion figure for absolute reproduction purity. A total of six playback equalizers are provided: two for forward playback, two for reverse playback and two for the NAAC system.
- Vibration-absorbing mechanism featuring resin-coated aluminum construction effectively damps out mechanical vibration that can adversely affect sound quality.
- Real-time motor-drive mechanism control system incorporates a microprocessor for sure, silent transport operation.
- Easy cueing feature permits aural cueing at 1/3 or 1/6

the usual fast-wind speed in both forward and reverse directions.

- Dolby B-C Type noise reduction.
- Switchable MPX filter.
- Switchable subsonic filter.
- Wide range -40dB to +10dB peak level meters.
- 2-speed auto-fader function.

## The Importance Of Azimuth

The narrower the gap of a playback head can be made, the higher its reproducible frequency limit. However, even the slightest deviation from perfect 90° gap alignment in relation to the tape broadens the effective width of the gap considerably, as shown in the illustration below, and therefore degrades high-frequency reproduction capability. Slight, unavoidable deformation of cassette shells makes a single "ideal" azimuth setting unfeasible, so the only alternative is to match the playback head alignment to the tape.



The DRAGON does this continuously during playback, using the recorded music signal to actually measure and compensate for any azimuth misalignment. For the first time, reproduction quality is always ideal.

## Specifications

Track Configuration	4 tracks/2-channel stereo (playback auto reverse)
Heads	3 (erase head × 1, record head × 1, 4-track, 4-channel playback head × 1)
Motors	<ul style="list-style-type: none"> <li>• TRANSPORT: Quartz PLL DC, brushless, slotless, coreless, Super Linear Torque D.D. motor (capstan drive × 2), DC motor (reel drive × 1)</li> <li>• AUTO AZIMUTH CORRECTION: DC motor × 1</li> <li>• MECHANISM: DC motor × 1</li> </ul>
Power Source	100, 120, 120/220-240, 220 or 240V AC; 50/60Hz (According to country of sale)
Power Consumption	45 W max.
Tape Speed	1-7/8 ips. (4.8 cm/sec.)
Wow-and-Flutter	Less than 0.019% WTD RMS
Frequency Response	20Hz ~ 22,000Hz ± 3dB (recording level -20dB, ZX tape) 20Hz ~ 21,000Hz ± 3dB (recording level -20dB, SX, EX II tape)
Signal-to-Noise Ratio	Dolby C-Type NR on ~70µs, ZX tape: Better than 72dB (400Hz, 3% THD, IHF A-WTD RMS) Dolby B-Type NR on ~70µs, ZX tape: Better than 66dB (400Hz, 3% THD, IHF A-WTD RMS)
Total Harmonic Distortion	Less than 0.8% (400Hz, 0dB, ZX tape) Less than 1% (400Hz, 0dB, SX, EX II tape)
Erase	Better than 60dB (100Hz, 0dB)
Separation	Better than 37dB (1kHz, 0dB)
Crosstalk	Better than 60dB (1kHz, 0dB)
Bias Frequency	105kHz
Input (Line)	0mV, 50kΩ
Output (Line)	1V (400Hz, 0dB, output level control at max.) 2.2kΩ
(Headphones)	45mW (400Hz, 0dB, output level control at max.) 8µ
Black Box Series DC Output	± 10V, 125mA max.
Dimensions	450(W) × 135(H) × 300(D)mm 17-3/4(W) × 5-5/16(H) 11-13/16(D) inches
Weight	Appr. 9.5kg 21 lb

- Specifications and appearance design are subject to change for further improvement without notice.
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