

NAKAMICHI BX-300

£645

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Of the Nakamichi range, the BX-300E is in my view the top domestic recorder. Above lie machines with professional facilities but little extra performance. Inevitably, it uses a dual-capstan transport for speed stability, with direct drive to the main capstan. A unique pitch control changes speed by around +/-6%.

Three heads are fitted (record, playback and erase), the record and playback heads being positioned next to each other, but not siamesed together. It is these dual, high performance heads that account for the BX-300's exceptionally low distortion and wide frequency response.

The transport is operated by touch plates that are linked into logic circuits. Operation is almost totally silent. This gives the machine an uncanny air, as it whisks a tape forward or backward at high speed, with just a vague clinking sound from the cassette itself. There are no sudden clanks at Stop or Start, just the lightest click.

A number of simple but useful facilities, like automatic zero stop, user adjustable bias (chrome, ferric and metal) for tape tuning, variable output level and timer operation are fitted. Least helpful as far as the average user is concerned are entirely separate bias and equalisation selector buttons. Together with Dolby B/C, this gives a lot of buttons to press, promoting error.

SOUND QUALITY

Using That's MR-X Pro metal, which was ideally compatible, recordings (Dolby B) were nearly identical to original programme, no matter how good the source. There was a trace of smear to images and the slightest reduction in clarity, plus a small amount of character to the treble. Occasionally, with piano there was some pitch indecision in notes, but this was probably from the cassette.

Chrome compatibility was average, only Maxell XL-II giving a near flat response, irrespective of bias tuning. There was some softening out of transient edges, resulting in slight loss of speed, attack and definition. Bass developed a rumbling quality. Otherwise, results were again impressively similar to the original.

Ferric compatibility was average, like chrome. That's FX proved most suitable. Response imbalance gave emphasised bass, some warmth to vocals and a little high treble forwardness, which introduced a sense of character. Otherwise, results were impressive, with a superb sense of clarity and stability not normally associated with ferric tape.

The sound quality of pre-recorded cassettes was transformed, both deep bass and high treble being revealed to produce a wide, open and dynamic sound with solid imaging. Results were exceptional in this area.

SUMMARY

The BX300 offers astonishing results with metal tape, but exhibits small matching errors

with chrome and ferric, where it could be better. Pre-recorded tapes are transformed, giving excellent sound quality.

TEST RESULTS

REPLAY (pre-recorded tapes)
frequency response (-2dB) 40Hz - 20kHz
speed accuracy +0.4%
hiss (70uS, Dolby out) -65dB

RECORDING (blank tapes)
frequency response (IEC Primary Refs.)
ferric (IEC I) 20Hz - 6kHz
chrome (IEC II) 20Hz - 20kHz
metal (IEC IV) 20Hz - 20kHz
separation (1kHz) -47dB
distortion (315Hz) 0.4%
hiss (70uS, Dolby out) -58dB
speed variations (DIN total) 0.03%
modulation noise (1k-3k) -45dB
flutter energy (3k-3.13k) -36dB

MOL/SAT (IEC Primary Refs) 315 / 10k
IEC I (ferric) +5dB / -6dB
IEC II (chrome) +3dB / -8dB
IEC IV (metal) +7dB / -1.5dB

TECHNICAL PERFORMANCE

A downward response trend made tape matching difficult. This is seen in the metal tape graph, but was also present with chrome and ferric tape. TDK MA-X (metal) was flat at -4 bias, as was That's MR-X Pro at centre bias.

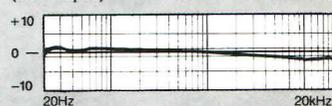
Chromes were more problematical, all except Maxell XL-II suffering up to -2dB droop in the upper midrange, irrespective of bias setting. This gives a warm sound. Ferrics had a similar problem, That's FX being most compatible. Nakamichi should improve the BX-300's tape matching by altering record eq.

The heads provide superbly extended frequency response at low and high frequencies, as the graphs show. This applies to pre-recorded tapes as well as recordings on blank tape. Distortion was

incredibly low, measuring 0.3% at 40Hz - ten times less than most decks! Hiss levels have been reduced and are now extremely low. In conjunction with high head overload figures (MOLs and SATs), the BX-300 has around 5dB more dynamic range than most other decks.

The speed stability analysis, Fig 1, clearly reveals that little drift (0.05%), wow (0.03%) or flutter (0.06%) is produced by Nakamichi's direct drive, dual capstan transport mechanism. It bears comparison with the CR-7 and Dragon.

RECORDING FREQUENCY RESPONSE (blank tapes)



REPLAY FREQUENCY RESPONSE (pre-recorded tapes)



FLUTTER & WOW

