



AKAI GX-9 CASSETTE DECK

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THE Akai GX-9 is a three-head, dual-capstan cassette deck with Dolby B and Dolby C noise reduction, automatic bias optimization for each individual tape, and a host of other automated features that contribute to its ease of use without compromising its performance.

In the transport section of the GX-9, the pulling capstan is driven by a direct-coupled d.c. servomotor. As is usual in dual-capstan designs, the rear capstan is belt-driven and rotates at a slightly slower speed to provide proper tape tension within the closed tape loop. A separate d.c. motor powers the spool hubs during fast forward and rewind. Additional d.c. motors are used for the head-gate mechanism and also for a cam system that replaces conventional solenoid-activated controls for quieter, smoother operation.

The GX-9's separate record and playback heads are made of Akai's very durable GX material, a glass-and-ferrite formulation, and should last the life of the deck. Conveniently, monitoring is automatically switched from source to tape when playing or recording begins. A manual switch can be used for instant comparisons between the incoming signal and the recorded result, a capability that is a principal advantage of separate-head designs.

While the GX-9 has a typical-looking cassette well, there is no separate pushbutton to open and

close its door. Instead, the stop button is coupled to the cassette-eject mechanism. Pressing this button when the tape is already stopped alternately opens and closes the door after momentarily applying a small amount of take-up torque to eliminate any tape slack.

The record-pause button also plays a dual role by automatically activating the GX-9's bias-tuning circuitry. Three short, low-level (-25 -dB) beeps are recorded and analyzed in about 2 seconds to optimize the bias and record equalization for each individual tape. If you make large changes in the record-level setting, pressing the TUNING CLEAR button resets the deck for a new optimizing run, and at any point you can manually override the auto bias setting. While we didn't find it necessary to use the override option, those who wish to fine-tune the bias by ear can switch the peak-reading record-level display from its normal use to a display of the high-frequency and low-frequency spectral balance.

The fluorescent record-level display has twelve segments per channel and is calibrated from -25 dB to $+8$ dB. Since the same indicators are used for both peak level and spectral balance, at the top end two scales actually overlap. Thus, the $+8$ -dB marking is actually $+12$ dB referred to the deck's regular 0-dB calibration mark. The inconsistency in the numbers is of small conse-

quence, however, compared with the ability to read the record level in 2-dB increments in the range where tape overload could be experienced. Complementing the record-level display is a four-digit tape counter, which can be switched to show either arbitrary counter units, elapsed time, or remaining time.

Additional visible pushbuttons are used for memory rewind/play, scanning the beginnings of successive selections, auto fade in/out, and record cancel. The last function stops a recording in progress, rewinds the tape to where you previously ended a selection, inserts a 4-second blank space, and then puts the deck in record-pause mode.

The Akai GX-9 measures 17½ inches wide, 14½ inches deep, and 4 inches high, and it weighs 15¼ pounds. Price: \$500. Akai America, Ltd., Dept. SR, 800 W. Artesia Blvd., P.O. Box 6010, Compton, CA 90224.

The playback frequency response of the GX-9 was extremely flat and smooth, deviating no more than ± 1.2 dB throughout the 31.5- to 18,000-Hz range of our calibrated IEC-standard BASF test tapes.

On an overall record-playback basis, frequency response at the customary -20 -dB level was, if anything, even flatter. It measured between $+0.5$ and -1.5 dB from 25 to 20,000 Hz with either TDK AD-X (ferric) or TDK MA (metal). TDK SA (CrO_2 -equivalent) showed a very slight (2-dB) and gradual rise in the highest frequencies. Of particular note was the low-frequency response, which on most decks falls

off rapidly below 50 Hz. The Akai GX-9 measured only -3 dB at 20 Hz, partly because of its direct-coupled amplifier design and partly because it employs the proper record equalization. While LP's and broadcasts almost never capture the lowest musical octave(s), making their loss unnoticeable in dubbing from these sources, Compact Discs do include the low bass.

At a 0-dB recording level, the overall response with the metal tape was good, though not exceptional, in the highest octave (10,000 to 20,000 Hz) and very good when Dolby C was used—as it surely would be for dubbing Compact Discs. Also noteworthy was the very good performance of TDK AD-X, a premium-grade ferric oxide that we selected over Akai's suggested Maxell UD, an older formulation whose curve closely resembled that of TDK SA (CrO₂).

Signal-to-noise ratios for the GX-9 were good, as were its wow-and-flutter measurements. The latter slightly exceeded the rating of 0.025 percent wrms, a specification that seemed unreasonably optimistic for a deck in this price class, but there was no *audible* wow-and-flutter in any case.

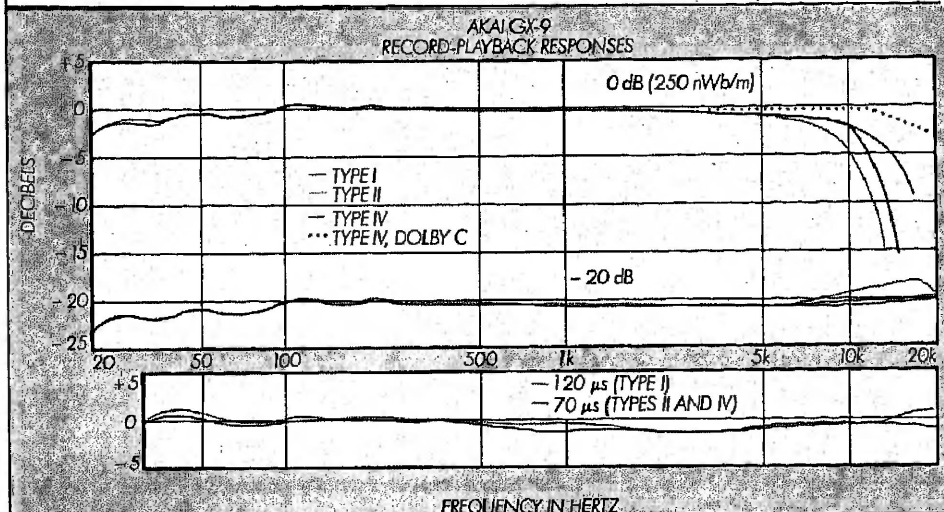
Dolby tracking at both -20 dB and -30 dB was in some respects even better than our good measurements suggest, since the error we found was in the form of a low-frequency (below 400 Hz) "shelf" that a slight amplifier bass adjustment could easily eliminate to restore flat response. Speed accuracy was very good, and line sensitivity and output were entirely normal.

Comments

The Akai GX-9 is a pleasant exception to the rule that full-featured cassette decks are hard to use, worse to look at, and impossible to afford. It is tastefully uncluttered in appearance, and we found it a pleasure to use. The automatic bias-adjustment feature proved highly accurate and required no operator intervention at all. While the deck does not automatically erase its very brief, low-level setup tones, we found we could do so very easily with the record-cancel feature, though this use is unexplained in the manual.

FEATURES

- ☐ Separate glass/crystal record and playback heads
- ☐ Dual-capstan, direct-drive, four-motor transport
- ☐ Automatic or manual bias optimization for each tape
- ☐ Four-digit fluorescent counter displays hub rotations or elapsed or remaining time
- ☐ Peak-reading record-level display can be switched to show spectral balance
- ☐ Dolby B and Dolby C noise reduction
- ☐ Memory-rewind and intro-scan program selection
- ☐ Cam-activated mode-change mechanism
- ☐ Playback level control
- ☐ Selectable two-speed auto fader
- ☐ Switch-selected FM multiplex filter
- ☐ Optional timer and remote-control operation



LABORATORY MEASUREMENTS

Fast-forward time (C-60): 82 seconds

Rewind time (C-60): 82 seconds

Speed error: -0.2%

Dolby tracking error: Dolby B, +0, -2.0 dB; Dolby C, +0, -3.0 dB

Wow-and-flutter: 0.043% wrms; 0.064% DIN peak-weighted

Line input for indicated 0 dB: 63.5 mV

Line output at indicated 0 dB: 0.37 volt

Meter indication at IEC-standard 0 dB: +2 dB

☐ **Tape:** TDK AD-X (Type I, ferric)

IEC 0-dB distortion: 0.34%

Meter indication at 3% third-harmonic distortion: +8 dB

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	53.3	58.2	55.4
Dolby B	60.6	67.2	65.5
Dolby C	62.6	73.7	74.5

☐ **Tape:** TDK SA (Type II, chrome-equivalent)

IEC 0-dB distortion: 0.94%

Meter indication at 3% third-harmonic distortion: +4 dB

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	54.1	59.8	57.7
Dolby B	60.6	68.1	67.6
Dolby C	61.5	74.1	75.4

☐ **Tape:** TDK MA (Type IV, metal)

IEC 0-dB distortion: 0.95%

Meter indication at 3% third-harmonic distortion: +4 dB

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	53.5	59.5	57.5
Dolby B	60.6	68.2	67.6
Dolby C	62.2	74.0	75.5

Both playback and recording quality were good, with clear highs and unmuddled lows even in dubs of CD's onto the ferric TDK AD-X. In sum, the Akai GX-9 manages to combine the high performance that will appeal to the serious recordist

with the kind of automation and convenience that will be appreciated by all but the obsessive knob-twister. And in a cassette deck that lists at \$500, that's an impressive accomplishment.

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