



KENWOOD®

KD-5100

QUARTZ DIRECT-DRIVE
FULL-AUTOMATIC TURNTABLE



The KD-5100: computer-guided operation and highly accurate music reproduction.

- Microprocessor tonearm "brain"
- Rigid low-mass straight tonearm
- Fail-safe automatic operation • Electronic touch-keys
- Quartz PLL, sample-and-hold motor speed control
- Anti-resonance base • Wow-and-flutter less than 0.03% (WRMS)
- Rumble better than -75dB (DIN wtd)

As soon as you see and operate the KD-5100, you will instantly recognize it as a minor masterpiece in turntable design.

It takes only the lightest finger pressure on a touch-key to cue the tonearm into its smooth, firm glide in the direction commanded. In fact, Kenwood's microprocessor electronic "brain" and digital-optical sensor system are responsible for every precision movement the slender, straight tonearm makes.

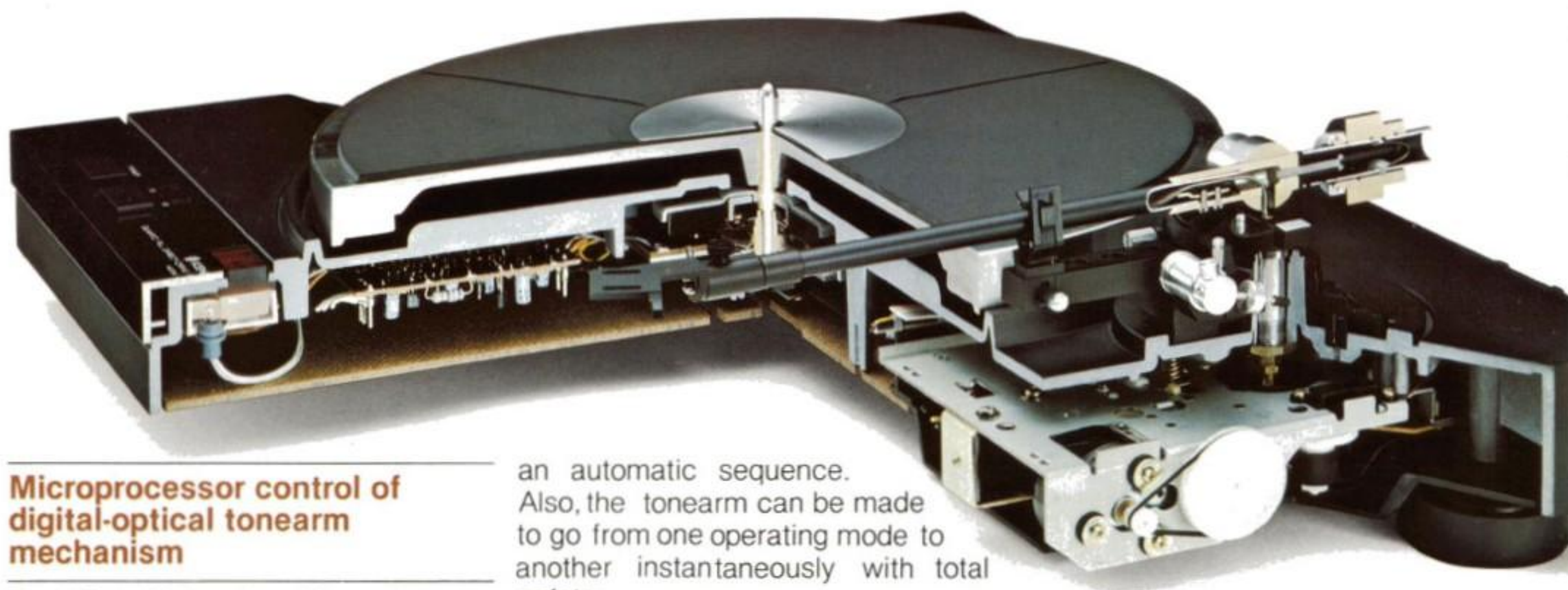
But computer-guided control is by no means the only merit of the KD-5100. There's the newly designed, low-mass tonearm with its carbon-fiber headshell: one of the most successful of its kind in terms of freedom from resonance problems and superb tracking ability.

In its direct-drive system too, the KD-5100 excels. Its quartz-referenced phase-locked loop servo feedback system, advanced sample-and-hold phase detector and heavy, high-inertia platter provide both accuracy and stability, even in the face of transient load fluctuations.

Moreover, its new ARB base is specially designed for anti-resonance, a vital consideration for any turntable.

With its controls arranged for easy accessibility along the front control strip and its handsome wide-and-low styling, the KD-5100 is destined to take pride of place in any hi-fi system.





Microprocessor control of digital-optical tonearm mechanism

The KD-5100 has the ultimate in automatic-tonearm control systems. First, it incorporates a Kenwood microprocessor that governs all of the actions and movements of the fully automatic tonearm. This is also what gives the controls the superb feel of a precision instrument. Second, the tonearm mechanism is not a "mechanism" at all in the usual sense. In fact, it is an optical sensor system that uses LED's and photo-transistors to effect changes in arm movement. Since there are no mechanical linkages to break down or wear, the system is utterly reliable, flexible and error-proof. For example, the tonearm can be operated by hand even during

an automatic sequence. Also, the tonearm can be made to go from one operating mode to another instantaneously with total safety.



The "brain" that controls tonearm action.

will not lower itself even if automatic operation is started. Such comprehensive error-prevention methods give you the total security you need to protect valuable records and stylus.

Full-auto or auto-return operation

Naturally, fully automatic operation is given priority. But for those who prefer manual loading, the KD-5100 offers the convenience of auto-return. In fact, the KD-5100 can change from full-automatic to manual operation or back at any time.

Transient accuracy with high-inertia platter

Kenwood engineers were among the first to fully understand the effects of transient load fluctuations on the accuracy of reproduced music signals. Such fluctuations have little to do with conventional wow-and-flutter measurements and motor-speed accuracy. Rather, they are created dynamically. For example, when the stylus is tracing a record groove, a heavily modulated signal can cause a momentary braking

Digital-Optical Sensor



This is the KD-5100's non-mechanical arm activator. It has the great merits of being utterly smooth and totally error-proof.

Easy, error-proof operation

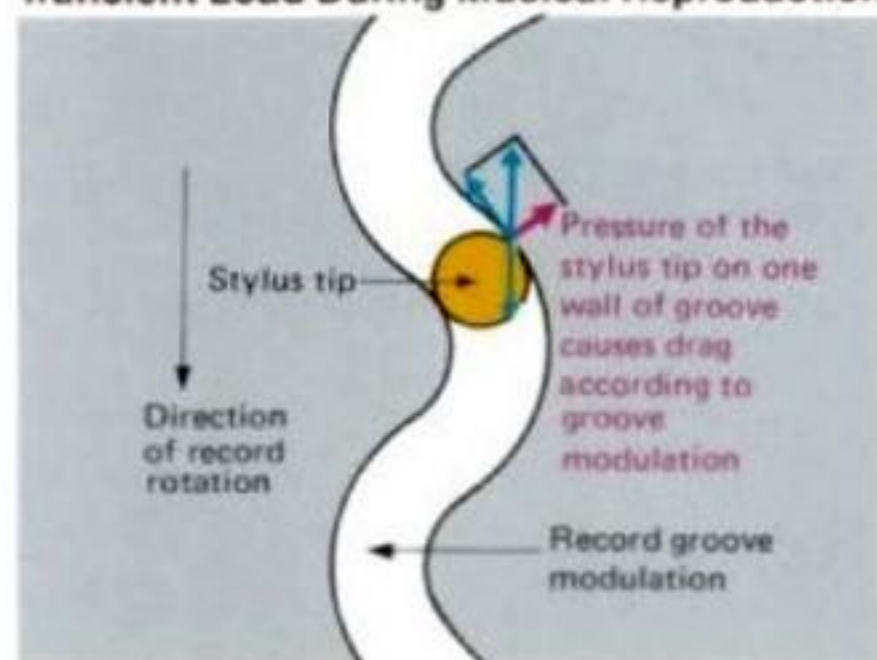
Only the lightest finger-touch is needed on the PLAY/CUT key to activate the tonearm into a smooth, firm glide to the record's edge. Similarly, a second light pressure will instantly raise the tonearm and send it back to rest. But there's more to electronic control than this. For example, unless the record-size selector is indicated, if the PLAY/CUT touch-key is pressed accidentally with no record on the platter, the tonearm simply returns to rest without lowering. In the same way, the electronic cueing control is designed to interrupt automatic operation at any position, without causing the tonearm to return. In addition, unless the record-size selector is pressed, the tonearm



Touch-key electronic controls make the KD-5100 easy to operate. Controls include Power "on" and speed select; repeat play, cueing, disc-size select and play/cut. Quartz-lock indicator is at center.

effect on platter rotation. The fact that these fluctuations occur at random, according to both amplitude and duration of the signal, means that they are difficult to control. Moreover, other externally created disruptions in platter rotation can also degrade the signal. Combined vibrations from within the system are an example. Kenwood's solution to this often-ignored problem is the heavy, high-inertia platter. Designed to produce a moment-of-inertia of $330\text{kg}\cdot\text{cm}^2$, the KD-5100 platter can absorb the minutest fluctuations to maintain constant platter rotation speed.

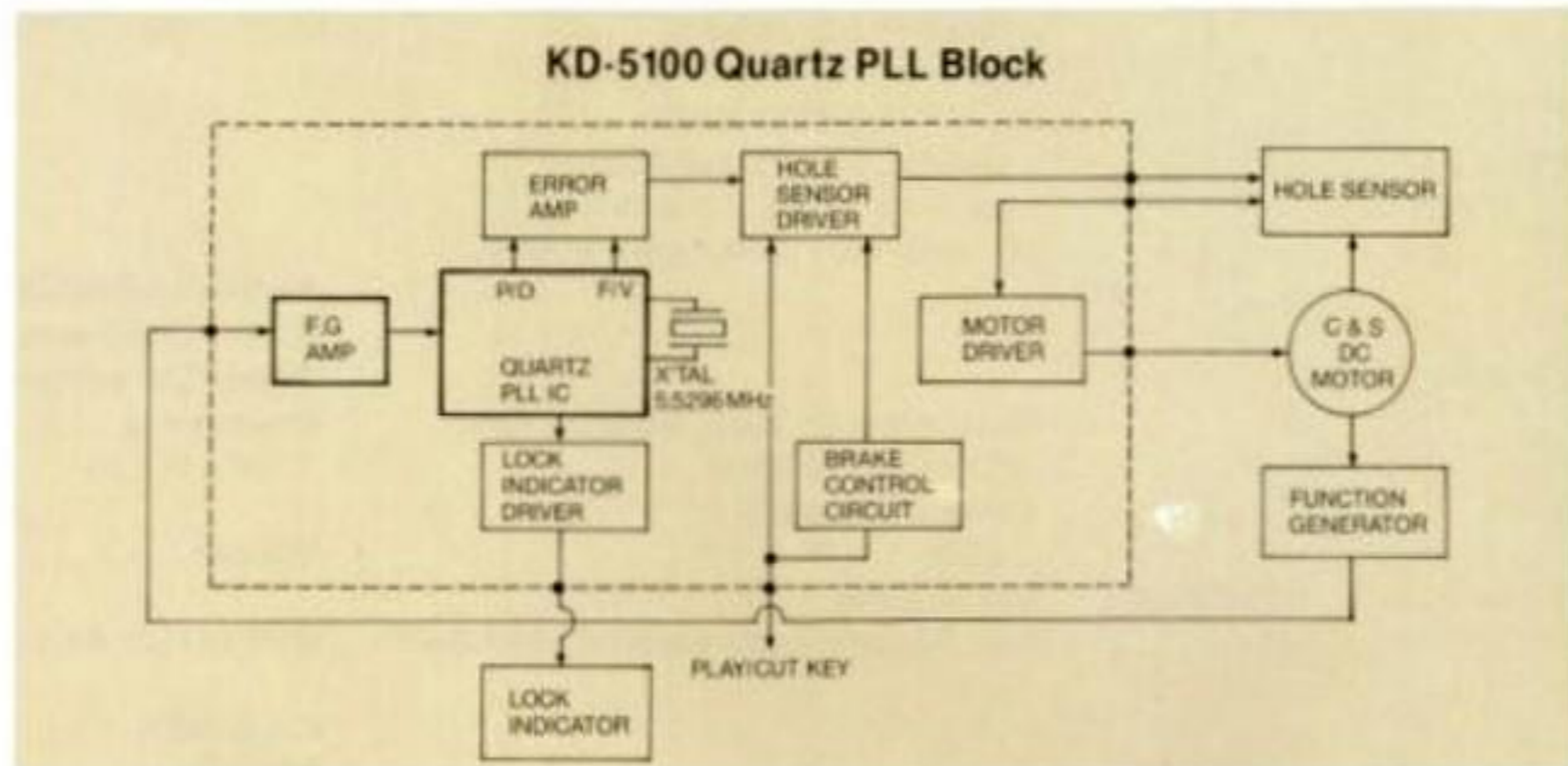
Transient Load During Musical Reproduction



A heavily modulated signal can cause a momentary braking effect on platter rotation. The high-inertia platter resists such fluctuations.

Quartz PLL motor-speed control with sample-and-hold phase detector circuit

Strict control of motor speed is another vital aspect to achieving accuracy in record reproduction. Any motor is subject to changes in speed caused by ambient factors such as temperature and relative humidity, or changes in viscosity resistance of the oil in the bearing system, caused by heat. Also, changes in phase can occur, since line voltage is often unstable. All of these factors can add up to audible degradation of sound quality. To avoid this, Kenwood engineers have incorporated one of the most effective speed control systems available today. It includes

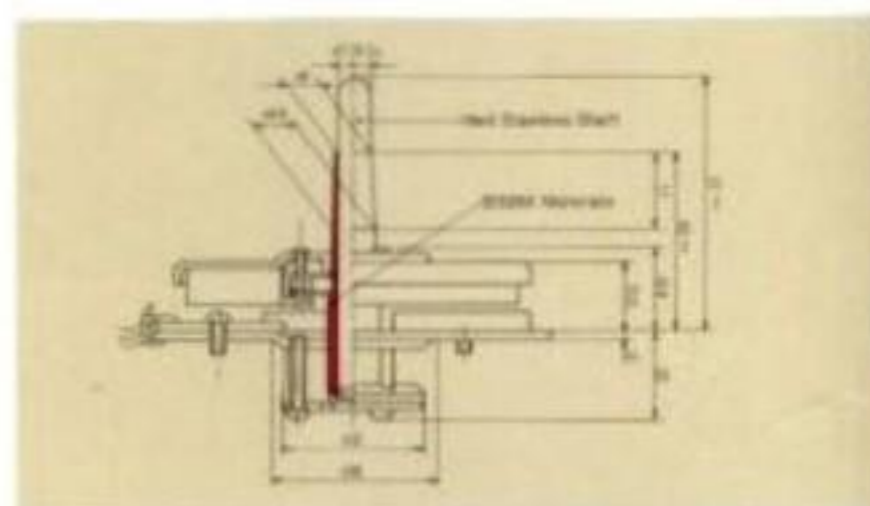


The KD-5100 employs one of the most advanced speed/phase control systems of any turntable.

a quartz-referenced phase-locked loop circuit that governs a DC direct-drive servo-motor whose slotless and coreless design significantly contributes to the low wow-and-flutter spec. of 0.03%, WRMS. "Cogging"—or uneven energy delivery of conventional motors—is practically absent. The rotation speed detector providing servo-feedback is also highly advanced. Its all-integrated circuit using a special, 90-slot, high-precision cut gear produces a speed control signal that is far more linear than ordinary detector systems using machine-stamped slits or magnetic coating. Last, but certainly not least, Kenwood engineers have incorporated an advanced sample-and-hold phase detection circuit that efficiently solves the problem of phase changes that many listeners can easily perceive.

Extra stability from rugged shaft design

As the pivot on which the entire direct-drive system relies, the center shaft also has a key role in the creation of accurate music reproduction. This is why Kenwood engineers have designed a wider diameter center shaft with extra impedance, made of high quality, hard stainless steel, rotating in a brass shaft.



This is the kind of engineering quality that really pays dividends in terms of accurate music reproduction.

New, straight tonearm designed with low mass for excellent tracking ability

In the chain of command that sends the music signal from the cartridge pickup to the amplifier, the tonearm assembly is clearly a potential weak link. In fact, conventional lightweight tonearm design can even contribute to resonance due to torsional flexing or "shimmy" of the arm. For example, even a relatively mild warp in a record can cause mistracking and generate audible distortion. In order to improve tonearm tracking ability, Kenwood engineers have designed a new slender, straight tonearm that has significantly lower effective moving mass, yet which retains the rigidity to resist the effect of partial vibrations. The result of this design is exceptionally smooth tracking of the grooves. The tonearm, in a sense, can "ride out" the warps and reso-



Anti-resonance design provides the new straight-arm tonearm with its accurate, smooth tracking ability.

nances and reproduce music signals with great accuracy. The secret of its success lies in two common problem areas, outlined next.

Stable, anti-resonance pivot

The three vital parts of the pivot assembly are the pipe holder, pivot ring and bracket. These are made of rigid brass material and die-cast zinc (bracket). For increased strength, the holder is pressure-fitted to the pivot ring. This structure has sufficient static mass to resist partial vibrations.

Headshell and its holder incorporate carbon-fiber

Carbon-fiber is an expensive material. But the Kenwood design team be-

came convinced that only this kind of material could provide the KD-5100 tonearm with sufficient rigidity to avoid partial vibrations, while at the same time lowering effective mass.

Anti-resonance cabinet

The turntable cabinet is also a frequent source of vibration problems. To avoid these, the KD-5100 has a base compounded of several materials including calcium carbonate and glass fiber in a synthetic stone structure. This provides both rigidity and a resonance frequency that is below the audible range.

Extra-rigidity with tonearm/turntable connection

In tests made at Kenwood research laboratories, it became clear that precise and rigid positioning of the

two critical pivot points (tonearm and motor shaft) leads to improved reproduction. This is why these two pivots are connected by a short metal rib, so that the entire structure represents a solid, united front against vibration.

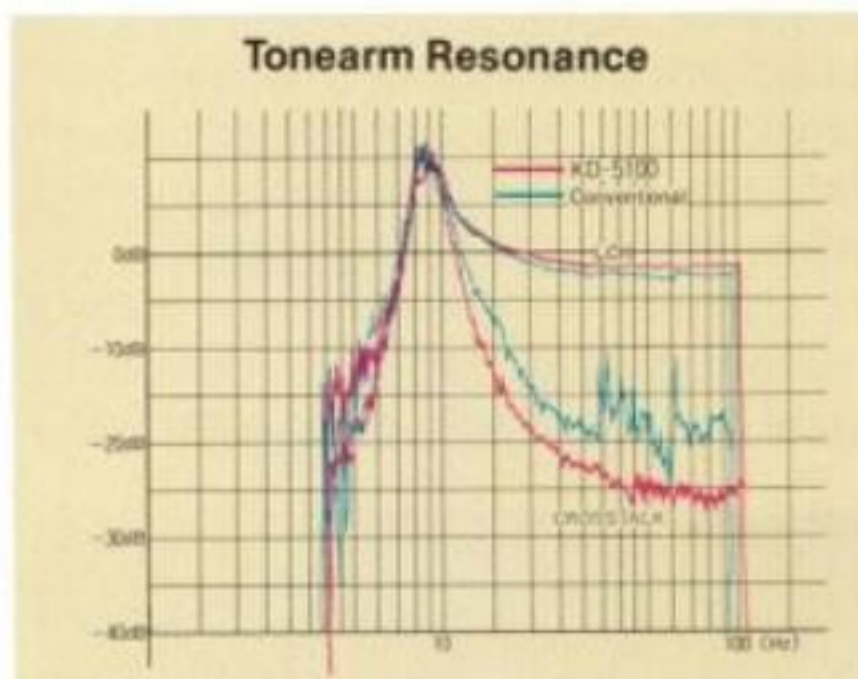
More highlights of the KD-5100

Anti-skating control

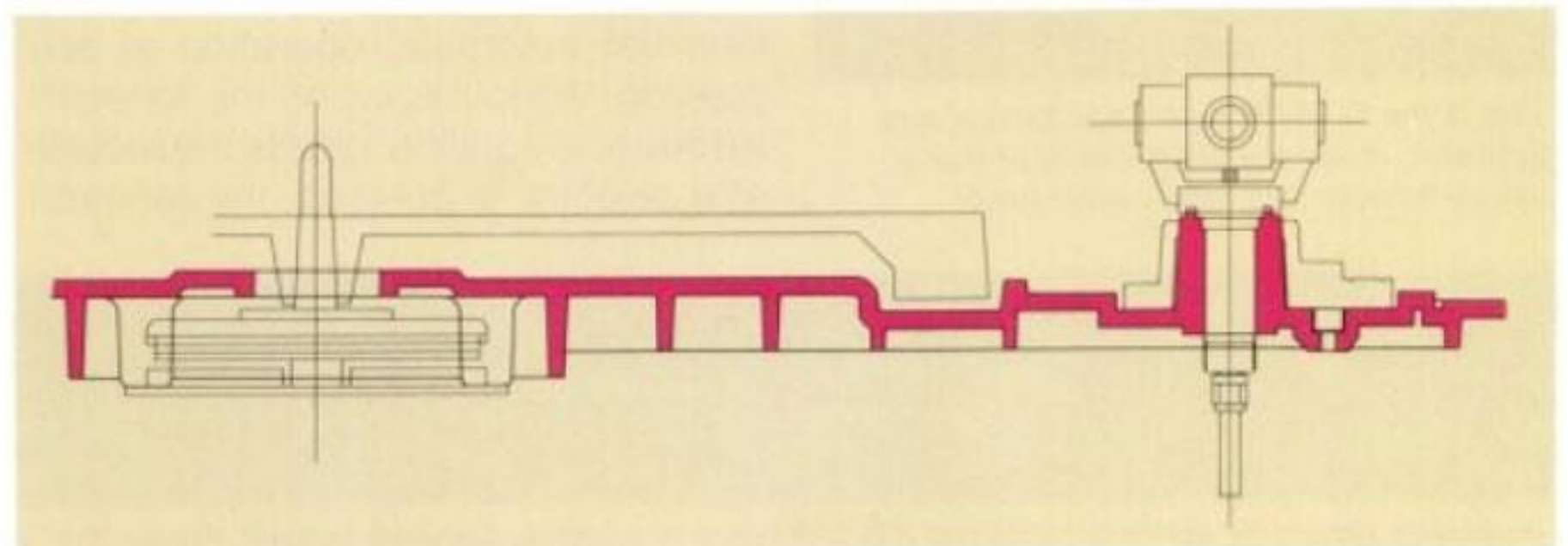
Low-resonance anti-skating control uses nylon thread to block possible transmission of vibrations to the tonearm.

Remote control facility

The KD-5100 is designed to accommodate the optional RC-500 remote control system. This can effect automatic operational modes by the handheld controller. Another advantage: the entire stereo system can be pre-programmed to shut off after the tonearm has returned to rest.



Graph shows resonance reduction of the KD-5100 tonearm with its carbon-fiber headshell. Its tracking ability compares favorably with a leading low-mass tonearm.



Extra-rigidity comes from connection of tonearm assembly with motor shaft.

KD-5100

SPECIFICATIONS

MOTOR & TURNTABLE

Drive System.....	Quartz PLL Direct-Drive
Motors	Coreless & Slotless DC Servomotor (For platter drive), 2-Pole, 3-Slot DC Motor (For automatic functions)
Turntable Platter	31.6cm (12-7/16 inch) Diameter Aluminum Alloy Die-Cast Weight: 1.5kg (3.3lbs) Moment of Inertia: 330kg·cm ² (Including rubber sheet)
Speeds	2 Speeds, 33-1/3 and 45rpm
Wow & Flutter	Less than 0.03% (WRMS)
Rumble.....	DIN weighted better than -75dB

TO NEARM

Type	Static-Balance Type, Straight Arm
Effective Tonearm Length	225mm (8-7/8 inch)
Overhang	15mm (9/16 inch)
Tracking Error	+3°24' ~ -1°
Stylus Pressure Variable Range ...	0 to 3 grams
Usable Cartridge Weight	4 to 9 grams (with supplied headshell)

ADDITIONAL FEATURES

Fully Automatic Tonearm System by Microprocessor (Automatic Lead-In/Return/Cut/Repeat),
Illuminated Quartz-Lock Indicator,
Anti-Skating Device,
Oil-Damped Cueing Device with LED Indicator,
Disc-size Selector with LED Indicators,
Speed Selector Switch with LED Indicators,
Headshell and 45 rpm Adaptor Stand,
Stylus Pressure Direct Readout Counter

MISCELLANEOUS

Power Requirement	AC 120V, 60Hz
Power Consumption.....	19 watts
Dimensions	W 470mm (18-1/2") H 142mm (5-9/16") D 407mm (16")
Weight	9.0kg (19.8lbs)

SUPPLIED ACCESSORY

45rpm Adaptor

CABINET

Material

Construction of cabinet is of Anti-Resonance Base (ARB). This massive ARB is injection molded from polyester resin, glass and calcium carbonate fibers, etc.

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

U.S.A. and Canada models are not equipped with cartridge which must be purchased separately.



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