



NEW PRODUCTS

1984

TURNTABLES

HAYDEN

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Dual CS 514

**HiFi semi-automatic deck.
L.M. tonearm. Belt drive.
Automatic tonearm return.
Shock absorbing sub-
chassis.**

*To quote: Stereo The Magazine:
"Dual have had to make some
compromises to keep down the
cost but it can't be beaten at
the price!"*

- L.M. tonearm in special XM 300 alloy. No deflection resonance. No torsion resonance. Improved stereo separation.
- Dual DMS 239 L.M. tonearm/cartridge system. Antiskating.
- Dual belt drive. High operating security thanks to flat precision-ground belt.
- Electronic speed switching.
- Full-size 304-mm platter with special mat.
- Viscous-damped cue control operated by light push buttons.
- Automatic tonearm return and motor stop.
- Front controls.
- Colours: metallic satin only.
- Dimensions: 440w x 111 h x 364 d (mm).



Dual CS 515

HiFi semi-automatic deck. U.L.M. tonearm. Belt drive. Automatic tonearm return. Shock absorbing sub-chassis. Detachable head-shell.

A better arm, a better cartridge plus pitch control for only a slightly higher price. Amazing Value.

- U.L.M. tonearm in special XM 300 alloy. No deflection resonance. No torsion resonance. Improved stereo separation.
- Gimballed tonearm suspension. Minimum-mass tracking.
- Dual/Ortofon U.L.M. 65 E ultra-lightweight tonearm/cartridge system with elliptical stylus. Antiskating.
- Dual belt drive. High operating security thanks to flat precision-ground belt.
- Electronic speed switching. 12% fine pitch control.
- Full-size 304-mm platter with special mat.
- Viscous-damped cue control operated by light push buttons.
- Illuminated stroboscope.
- Automatic tonearm return and motor stop.
- Front controls.
- Colour: metallic anthracite only.
- Dimensions: 440w x 111 h x 364 d (mm).



To develop a new turntable is more of a challenge than ever

Today, there are millions of long-playing records in private collections alone. It is going to be more and more important in the future to make the right choice of turntable. For two reasons. First, we are going to have to wait several years before there are enough recordings on compact discs around. And in the meantime you are going to want a really good turntable, whose musical reproduction comes as close as possible to the brilliance of laser technology. Secondly, it will from now on be even more important to have

Dual Products are available from over 500 dealers nationwide including all branches of Lasky's.

If you have any queries relating to Dual Hi Fi Products please ring us on

*Gerrards Cross
(0753) 888447*

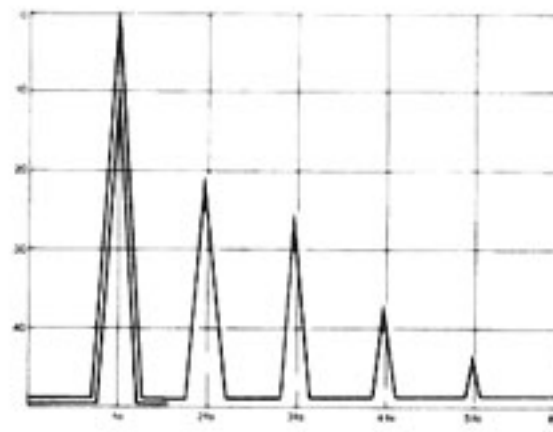
Shock-Absorber Chassis

Footsteps and acoustic feedback are the most frequent causes of outside interference. Vibrations are transmitted through the furniture to the turntable whenever someone walks about in the room. And the sound energy from the loudspeakers is also reflected onto the turntable. The unwanted results are feedback, hum at high volume levels, crackles and uncontrolled movements of the stylus. They cause poor reproduction and damage to the grooves on the record.

Such interference used to be counteracted by the mass of the equipment: the chassis and platter typically weighed several kilos, and many still do. The Shock-Absorber Chassis employs a new technique that does not need mass. It is internally supported on four shock absorbers that are proof against footsteps; the damping factor has been calculated by computer. This new technique offers the advantage of completely isolating the chassis from the tonearm, the platter and the drive motor. Vibration can no longer reach the platter. Footsteps and acoustic feedback are no longer transmitted to the stylus.

The tonearm

U.L.M. and L.M. tonearm technology constitutes the most significant advance made in recent years. Now, the effective tonearm mass, at 7 to 9 gr., is 50% less than that previously found on traditional top-of-the-range turntables. Less mass means smaller inertia forces generated during record playing, and so closer contact

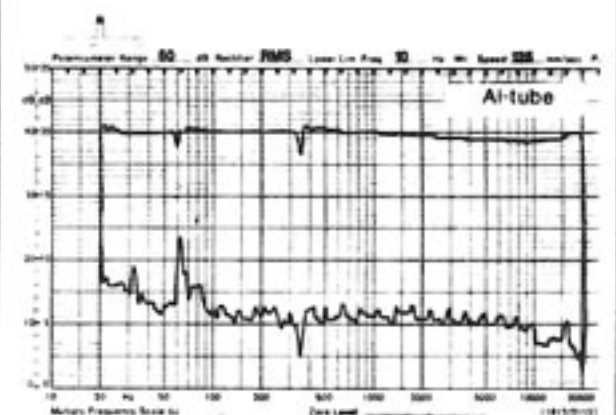
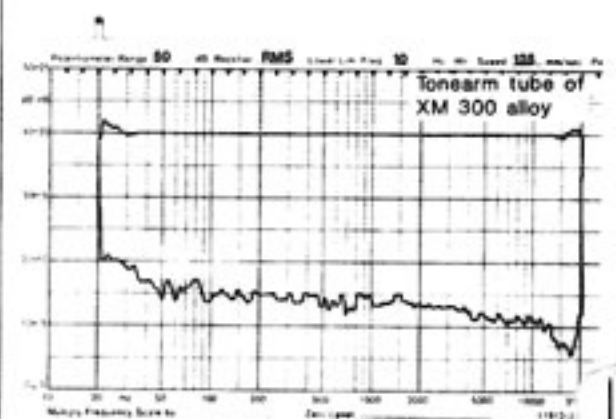


Harmonic distortion factor relative to tonearm mass; tracking force 0.9 p (9 mN); Amplitude 80 μ .
fo = 300 Hz, vertical warp ± 0.5 mm.
Red line: tonearm mass 18 gr, distortion factor 11.5%. Blue line: tonearm mass 6.5 gr, distortion factor 0.56%.

between the stylus and the groove. This is especially important for the transients that occur on all records, and in particular when the record is severely warped. In such cases, low effective tonearm mass offers a number of benefits: less sensitivity to interference, significantly lower harmonic distortion, and extended life for the stylus and records.

The special XM 300 alloy

The tonearm is the link between the arm bearing and the cartridge. This link must meet exacting physical requirements. It must be very rigid, because an underdimensioned tonearm would superimpose audible resonances on the tracking frequency. It must be very effectively damped, for with insufficient damping parasitic



frequencies would be freely transmitted through the bearing to the cartridge. As in aeronautical engineering, aluminium-based alloys have proved the best solution. We use XM 300 alloy. It is better than any previously-known material for weight, rigidity and internal damping.

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