

# Hi-Fi Myths: *Part 7*

PMC'S PETER THOMAS LOOKS AT THE CURIOUS EVOLUTION OF VINYL REPLAY TECHNIQUES

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A surprising statistic from last year was that turntable sales grew faster than most other audio products in the UK. While the figures do indeed include the current crop of cheap plastic USB turntables, which plug directly into your computer (and incidentally capture a dreadful copy of your vinyl collection), it doesn't disguise a genuine increase of interest in vinyl as a whole, and the subsequent growth in the quality turntable, tonearm and cartridge markets.

Current designs owe much to a revolution that occurred in the 1970s. Did those upheavals in design really leave us with superior equipment with which to play our vinyl? As often happens, history tends to get rewritten, and our perception of classic turntable designs today often differs considerably from the views held at the time.

The 1960s were quite a turning point for vinyl reproduction. Stereo recordings had become standard by the end of this decade, and cartridge and tonearm design had been developing fast to cope with the extra challenges of stereo playback. Turntables became ever more diverse in their methods of supporting and spinning vinyl discs at the correct speed. Extremely low wow and flutter figures became a major yardstick and figures as low as 0.025% were often quoted (ironically at a time when the best lathes could cut discs with no better than 0.035% wow and flutter).

Isolation of the platter from unwanted energy and low frequency noise had become even more essential, as the introduction of stereo cartridges had revealed severe weaknesses in the rumble figures of very well respected turntables. Stereo cartridges reproduced the vertical as well as the horizontal movement in the groove, which unfortunately therefore now included vertical rumble from the platter, its bearing and the motor drive system. Goals of -70dB (weighted) were not uncommon at this time, and a new holy grail was set in motion to reduce this noise further.

Garrard, probably the most recognisable UK high street brand at the time, continued developing its idler wheel platter drive, culminating in the high performance 401 turntable in 1965 (*Fig1*). It's worth noting that the majority of turntables were idler wheel drive up until this time. The all-in-one record decks fitted to Dansette-type record players (*Figs2* and *3*) from Collaro, BSR and Garrard were all idler wheel designs, but so were most of the high end designs from Europe, such as the Thorens *TD124*, the Elektro-Mess-Technik (EMT) *927*, and the Lenco *GL70* and *GL75*.



*Fig 1. Garrard 401*

Garrard had entered the market in 1918, making high performance spring motors for a fast growing gramophone industry. It subsequently moved into the full scale manufacture of record players, eventually developing its own electrically powered motors in 1928, a complete turntable by 1930, and idler driven autochangers by the 1940s.

The motor was usually mounted on flexible rubber mounts and springs to decouple it from the turntable chassis, driving the platter via an intermediate 'idler' wheel, made of rubber or a compliant polymer (*Fig4*). The design challenge was to prevent motor vibration from reaching the platter either through the idler wheel or from the chassis. Careful design of the idler material, low vibration motors, well isolated motor mounts and high mass plinths all allowed this type of design to compete with the best designs. In fact many believe that idler driven turntables sound better than many current designs, particularly in bass performance.



*Fig 2 left. Dansette Record Player*

*Fig 3 above. Idler wheel on Dansette Record Player*

