

GETTING HI-FI SOUNDS FROM YOUR VINYL RECORDS



MID-ATLANTIC ANTIQUE RADIO CLUB
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WHY RECORDS?

RECORDS HAVE CAPTURED SOME OF THE BEST MUSIC AND PERFORMANCES OF ALL TIME!



Not all turntables are created equally



Good



Bad

Two Types

All-in-one



Thorens TD-160

Component



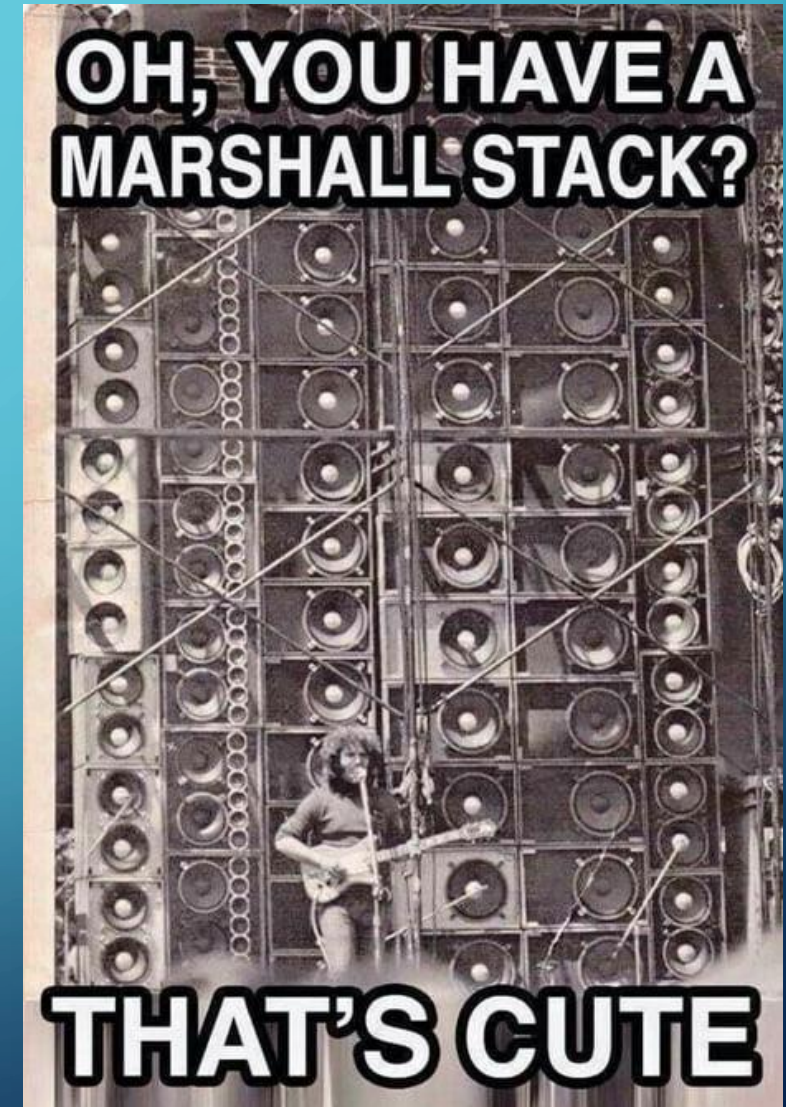
Garrard 301

Advantages of all-in-one –

- “matched” components
- plug-and-play
- cost i.e., usually less expensive

Disadvantages –

- performance is not at the highest levels
 - when found (yard sales, Goodwill, etc.) not in best condition
 - Not upgradeable (for the most part)
 - parts hard to find
 - repair is expensive



Some of the quality all-in one tables can achieve very good results, however for the better ones the prices are rising with the new vinyl revival.

Such examples include Dual models 1019 and 1219, Empire, Thorens TD-160, and the Technics 1200-series turntables.



The Thorens TD-160 is showing a huge jump in price and mods are becoming available for this table.

One of the first “hi-fi” turntables was the AR turntable and was the first introduction for many hi-fi enthusiasts to a good record player. However it was not all that good then or now. It was also a table that introduced a new paradigm for turntables to follow, particularly the Rega tables.



These too are going up significantly in price with numerous mods and upgrades, but this is just another case of putting lipstick on a pig as there is a minimal ROV and performance.

Advantage of components -

- can match the best new turntables
- readily available components
- diy-able construction
- large community of builders
- increases knowledge base
- bang-for-buck
- highest fidelity playback (?)

Disadvantages –

- some components very expensive!
- chasing perfection!
- when only the best will do!



Two classes of component turntables –

- vintage hi-fi consumer turntables, includes the Garrard 301/401, Thorens TD-124, & many Rek-o-Kut turntables, such as the Rodines (belt-drive) and idler drive versions.



Garrard 301, Thorens TD-124, Rek-O-Kut
These range from expensive (\$2000+) to affordable (<\$500).

Broadcast turntables, including Russco, Rek-o-Kut, EMT, Gates, and others. These turntables can help achieve amazing results when properly restored and care is chosen with tonearm choices and cartridges.

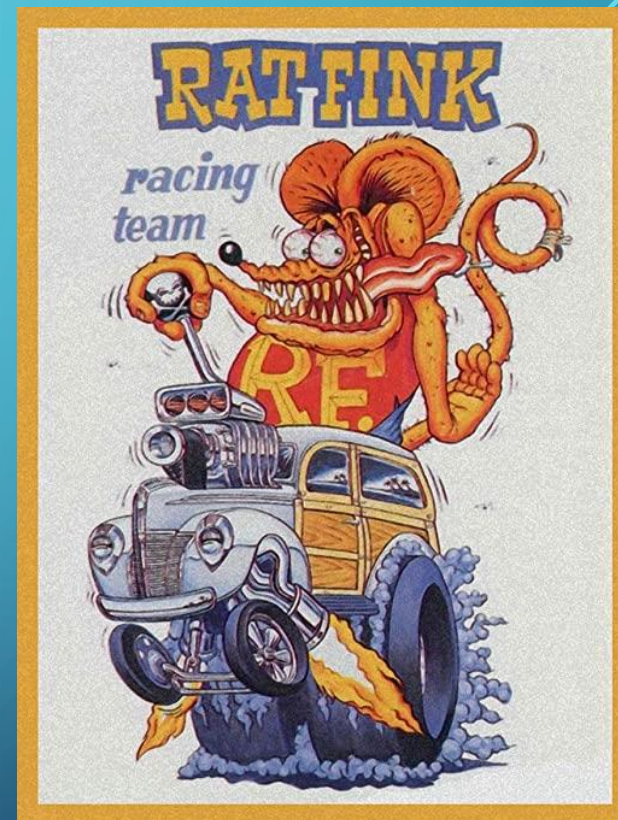




Rek-o-Kut, American Steel!



Gates CB-77





EMT 948



Telefunken, oh my!

The official MAARC turntable



What, you thought I was kidding?



Many of the broadcast-type turntables would have come without a tonearm, allowing the user or broadcast facility to choose the one most suitable for their application. Also, some of these tables did see service in hi-fi systems, particularly the Rek-o-Kut tables, which had both a commercial line and a consumer line. Now, most of these old broadcast tables have been repurposed to serve as a high-quality turntable in a high fidelity system. Many of these tables make great monophonic systems, but several, such as the Russco/QRK tables were used in studios that broadcast in stereo and used the Micro-Trak wood tone arm and Stanton 500 and Shure M-44 cartridges.



By H. H. FANTEI

Choosing a De Luxe Hi-Fi Tone Arm

THE BASIC FUNCTION of the tone arm in a phono system is to carry the pickup across the record. This is not as simple as it may seem at first glance, since it involves a host of acoustical and physical problems. The better tone arms come extremely close to solving these difficulties.

An arm must provide correct stylus pressure and conditions of groove tracking and non-resonance that will allow the best possible interaction between pickup and record. Only a very good arm gives the pickup a chance to "read out" all the tonal information from a record groove without omitting or distorting any part of it. Ideal conditions, of course, can only be approximated. The changers and manual players shown last month (pages 71 to 76) offered a good approximation, quite well matched in quality to many hi-fi home installations.

In the equipment shown here, the approximation to the ideal is as close as modern precision technology can provide. The remarkable engineering achievement attained in these fine instruments becomes apparent in view of the factors involved in their design.

Tracking the Grooves

Accurate tracking of the record grooves is the main task of the tone arm. Some fine points of geometry are involved, however, which make this apparently simple task quite difficult. The recording head which originally cut the spiral groove on the record moved across the record face in a straight radius line. It could do so because the record-cutting lathe guided the cutter across the record on a supporting bridge, which functions somewhat like an overhead traveling crane. The tone arm cannot follow this straight line across the record.

For the ultimate in record reproduction, select one of these carefully designed and precision-manufactured arms

Since it is pivoted at one end, the arm's path is necessarily curved. The difference between the straight and the curved path is known as the "tracking error." To assure good reproduction, this path divergence must be kept at a minimum. In other words, the tip of the tone arm should be approximately tangent to the record groove at all points of the recorded surface.

Theoretically, this problem has a very simple solution. In an infinitely long arm, the tracking error would approach zero. But since infinity is a hard place to reach with a screw driver, more practical solutions had to be found. A curved or angled tone arm, if correctly pivoted, will stick much closer to a true tangent line on its way across the record than a straight arm. For this reason, all modern tone arms are either curved or set off at an angle, as shown in the photographs.

Also, if the arm does not lead the pickup directly toward the center spindle, but to a point slightly ahead of center, two tangent points instead of one occur within the tracking arc, resulting in a marked decrease of mean and maximum tracking error. In this way, the maximum tracking error in the arced path of the tone arm can be kept down to four degrees, and the mean tracking error to two degrees.

The distance between the turntable

October, 1955

Examples of some vintage tone arms



The one that started the Gold Rush...



The Jean Nantais Lenco and Arthur Salvatore (high-endaudio.com)

While many users had stayed with their Garrard 301, even more continued with their Thorens TD-124 turntables with SME 3009 tone arms. It was Jean Nantais and his modified Lenco turntables that really brought home how good these old turntables could be with proper modification and restoration. This is documented on the “Lenco Heaven” webpage.

The logo for "Lenco Heaven" features the text in a white, serif font against a rectangular background of a cloudy sky.

Also of importance is the matching of tone arms to these vintage tables as many tables respond well to classic arms, such as the SME 3009/3012, the Gray 108, Micro-Trak 303, and many others.



The basics of restoring one of these beauties includes a teardown of the large motors often found in these tables, replacement of motor mounts, and the installation on large and heavy plinths made from multi-ply Birch plywood. The heavy plinths help in reducing rumble in these tables and add stability to those tables having thin or small metal plinths, such as the Rek-o-Kuts. This has become such an important feature of rebuilding that there are vendors on ebay that make and sell plinths for your favorite table!





Finally, matching a proper tonearm to the table is important as from many sources it is recommended to use a heavier tonearm, such as the Gray 108, with an older broadcast turntable. Also, the use of a vintage cartridge, such as the Stanton 500 and the Shure M-44 is recommended, especially for use in the SME and Micro-Trak arms. Also popular is the classic Denon DL-103 cartridge as well as more modern-production mono cartridges. Proper matching of a low-compliance cartridge in a heavy tone arm is a must for best sound.



The sounds played in heaven!





RESTORING THE DUAL 1219 TURNTABLE



When only the best will do!

