Subject: Cartridge adjustment
Posted by Bill Epstein on Mon, 05 Feb 2007 09:22:17 GMT
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I've spent the last week getting my DV 10x5, which I've owned for nearly 2 years, properly adjusted. Giving credit where it's due, I was inspired to do so by one of the FAQ's at that other board. I went looking for help because it occured to me that my tables inability to get a particular track right might be due to improper set-up instead of another equipment problem.The track in question is on Union Station New Favorite, "Let Me Touch You For Awhile". At the end of each chorus, when first Allison alone and then with Dan go louder and higher there was an edginess, no, outright distortion that sounded terrible. Be advised that there is still a slight edginess after I have accomplished my purpose but it is either beyond the ability of my equipment to resolve or simply part of the recording. I say this because getting this passage as right as possible has resulted in all the music I play sounding incredible.First thing I did was to get the Turntable Basics mirror protractor to work. The problem with all of that type is knowing when the line that is meant to point at the tone arm pivot is really on target. I taped a pencil to the line that extended out past the mirror so that the point just missed touching the pivot. Now, for the first time, I knew the protractor was properly aligned. Any small error at the spindle results in being way off at the arm. That settled, I found that I needed to make a rather large change in pivot/stylus distance. The $9 purchase of a 3X hand held lighted magnifier was essential to getting this, and other parameters, right. Next I went after VTA/SRA. Its important to know that setting Vertical Tracking Angle is simply a means of getting Stylus Rake Angle right, i.e., raising or lowering the arm to find the VTA "sweet spot" you read so much about is worthless by itself. You make this adjustment to get the Stylus Rake Angle, SRA, as near the same as was the cutterhead that cut the record. You want the top of the stylus to be a bit farther from the pivot than the tip; 1 or 2 degrees. I tried a macro foto as above, cropped and enlarged to be able to see the stylus but it wasn't resolving enough. The use of the magnifier with its 6X inset was the only way to really see it. Once I had this done I re-measured the tracking force with the Shure SFG-2 beam balance. Instead of just setting the tracking force to the manufacturer's recommendation as in the past, I listened for a change in the music, adjusting the weight until I found an improvement. This exercise revealed that incredibly tiny increments made large changes in the sound and revealed what needed to be done with the other set-up parameters. It was the proverbial light bulb!I also discovered that adjusting the tracking weight in small increments in one direction was slow and inefficient. It's better to make a larger change, listening after to see if it's better or worse. If better, you're closer to the ideal all at once. If worse, you simply go back a bit, again listening, and you're also closer to getting it right. It's important to note that I found that increments as small as the thickness of a fingernail made an appreciable difference.Finding the 'right' tracking force led me to adjust the anti-skate in the same way. Interestingly, the tracking force is now somewhat higher than Dynavectors recommendation and the anti-skate, somewhat less.I knew from reading the FAQ that changing the tracking force would change the VTA/SRA. Sure enough, I could see with the magnifier that the angle had changed. I lowered the arm a bit to compensate but this time, I knew to listen after the adjustment. Using the same methodology as with tracking weight, I made gross adjustments, reversing somewhat as the listening revealed that the change was worse until I got the best sound, i.e., lowest distortion of the passage, possible. That exercise showed me that setting the rake angle by eye merely got me close and that the best sound could only be achieved by listening. DUH!The last parameter, Azimuth, was the most difficult to set and most important, as well. I don't care how well you can see, it can't be done without a magnifer. I began by getting the sides of the cartridge

body at 90 degrees to the record. The magnifier then showed that the cantilever was off from perpendicular by quite a bit. I twisted the cartridge so the cantilever was close to perpendicular as I could and then began to listen as before. I found that even smaller increments as with tracking force yielded major differences in sound. The result was that, even tho' the stylus appeared straight when looking at the cartridge alone, the cartridge top was well off from parallel. Furthermore, the best sound occurred with the cantilever away from perpendicular, as you can see in the foto, but the stylus appears to be at 90 degrees. Even the magnifier leaves some doubt as to the azimuth of the stylus which makes setting parameters by ear, not by instruments or eye, even more crucial.In the end, achieving zero-distortion on the test track proved impossible. The improvement, however, was not small and resulted in all my albums sounding absolutely wonderful. For the first time, I know what Linnie's (my Ariston is essentially the same design, only better) are talking about when they describe their tables, once properly adjusted, as having PRAT (a notion I scoffed at) and conveying the reality of a performance beyond the ability of other tables to match. Attending a performance of The Cleveland Orchestra at Severance Hall Friday night gave me a new appreciation of what a stereo system can and can't do. While the rest of you were watching the Super Bowl last night, I was listening to Tommy (no, the Clevelanders didn't play that) and hearing it as never before.I have now quit viewing the Turntable listings on Audiogon every 5 minutes and trying to figure out how to come up with the $$$ for a Basis, Nottingham or Michell.

Cartridge set-up