



## Wayner's Cartridge Alignment Tools

For Technical Assistance please Contact:

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**Sponsoring Link:**

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Thank you for purchasing Wayner's Cartridge Alignment Tool. It has been printed very accurately on 140lb. card stock for durability and years of service. The print is directly generated by a CAD program, not printed in bulk. We do this to maintain accuracy. Every card is made by myself and checked for accuracy.

There are 3 popular null point sets that are used today. One is usually referred to as Baerwald's curve (or Lofgren's "A" curve) and we will refer to it from now on as Baerwald's curve, another is referred to as Lofgren's "B" curve. There is also a third curve called Stevenson's, but it has a rather high distortion level at the beginning of the record, but almost no distortion at the end of the record.

The values used for the Baerwald or Lofgren "A" curve are: **65.998mm** for the inner null point and **120.891mm** for the outer null point. The values for Lofgren's "B" curve are **70.285mm** for the inner null point, and **116.604mm** for the outer null point. The values for Stevenson's curve are **60.325mm** for the inner null point and **117.420** for the outer null point.

The thing to remember here is that not all turntables or arms can achieve all of the alignments, because they are simply restricted by their arm length and cartridge mounting slot length. Because the Lofgren B curve puts the stylus out the farthest, it is the one alignment that may not work for your table. If you perform step 1 on the alignment card, you will soon find out if your table/arm combination can achieve this alignment.

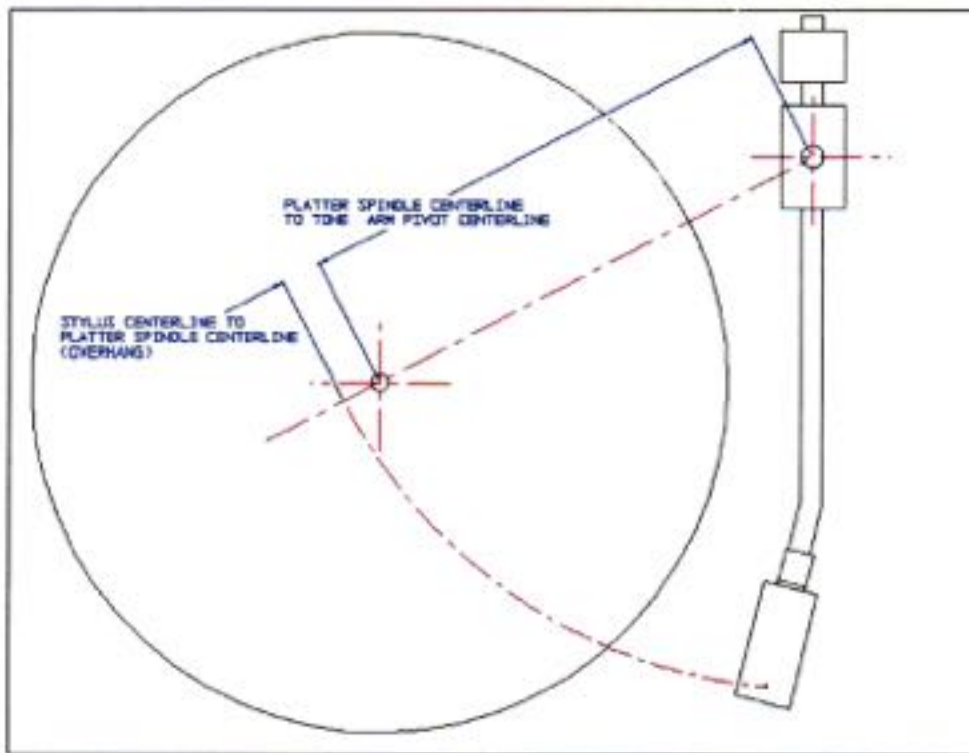
The cartridge alignment tool has the 3 alignment sets pre-printed for you to use immediately. The **Baerwald dots are colored in green**, the **Lofgren B dots are colored in red** and the **Stevenson dots are colored in blue**.

Before starting the alignment process, it is suggested that you inspect your cantilever, so that it is square to the world. A cantilever that is going off at an angle will make accurate alignment impossible. Also set your VTF (vertical tracking force) to the weight you want your cartridge to track at. If your cartridge manufacturer gives a range, pick the middle or high middle weights. If your table has azimuth adjustment, make sure the cartridge is at 90°.

### **The Alignment Process:**

The process has been divided into 2 steps, and if you want, you can even skip step 1, but it will save you time in the long run if you don't skip it. The alignment process is simple. Place an old used record on your turntable; place the alignment tool over the spindle on top of the record and **Turn the anti-skate feature off until the alignment portion is done**. If you observe your cartridge, it more than likely has a straight, front surface. This was done on purpose, to help the user align the cartridge.

**Step 1:** This step "roughly" sets your cartridge's overhang distance. What is "overhang"? It is the distance the stylus goes past the record spindle (to the left of it) and is an important distance, along with the distance between the record spindle and the pivot center of the tone arm, in determining the alignment for the cartridge. See the illustration below:



It is suggested that you tape your platter of the turntable down to the plinth to keep the platter from moving during this part of the process. The first thing to do is to aim the arrow on the alignment card towards the tone arm pivot center (see illustration "A"). Then locate the colored dot for the alignment you are after (see illustration "B"). In the example used, a Lofgren B alignment was desired, so the red dot was the target. Move the tone arm over the alignment card and move the cartridge in or out so that the stylus touches the red dot of the Lofgren B alignment. There is a chance that your tone arm and table geometry will not allow you to physically get to this alignment, in that case, chose another one such as the Baerwald alignment. After achieving a good target on the dot, step 1 (the rough-in) portion is complete. **Remove the tape that was securing the platter to the plinth.**

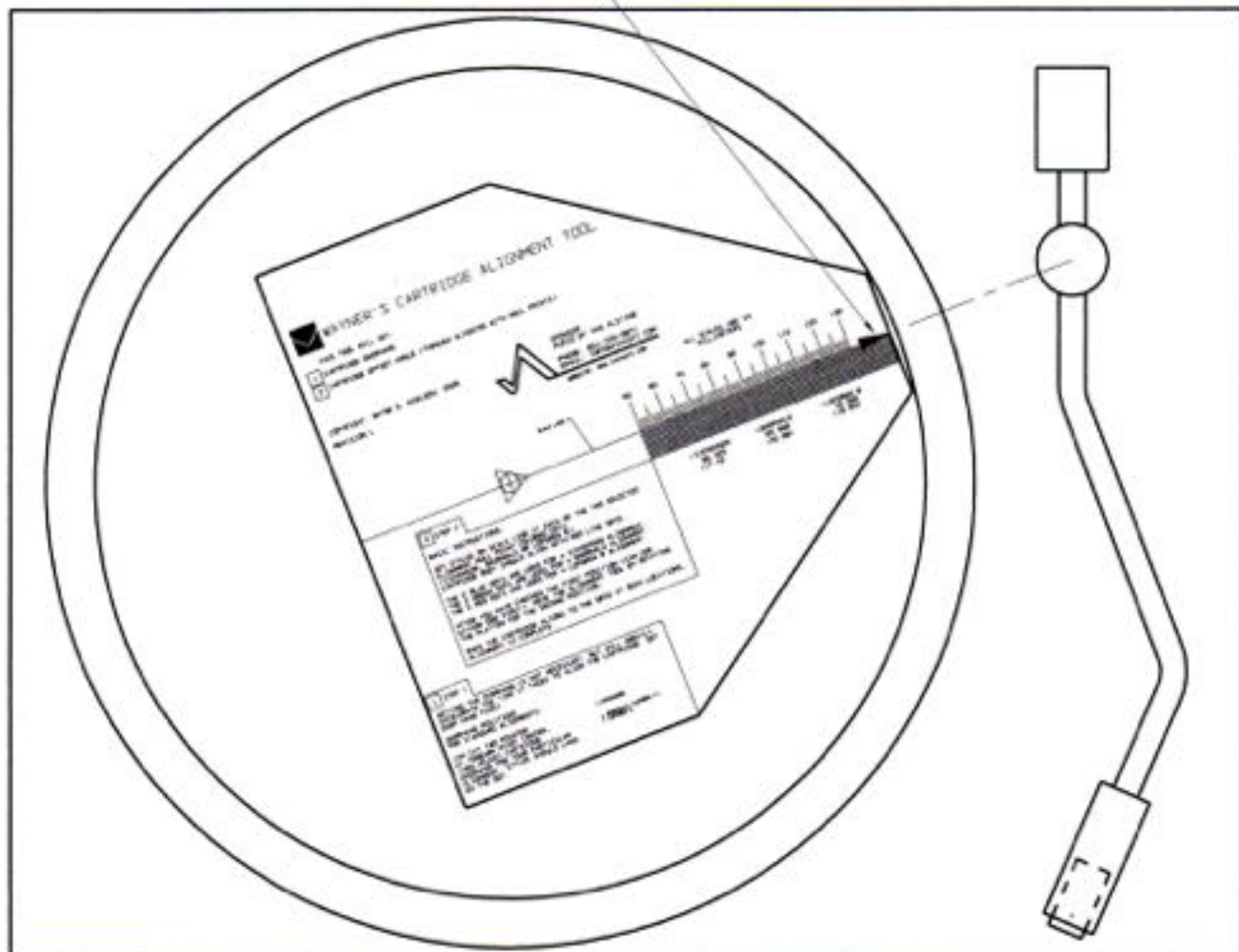
**Step 2:** The object is to make sure that the front end and/or sides of your cartridge is parallel to the grid that is in front of the colored dots. You must have the same appearance at each of the two locations. The normal alignment process involves going back and forth between the 2 dots (rotating the platter to get at the second dot), several times to make this happen. You will have to loosen and tighten your cartridge mounting screws several times as well. What this process does, is twofold. First, it sets the proper "fine tuned" overhang for your particular arm and alignment and secondly, sets the offset angle. When these two criteria are met, the cartridge will be aligned. Start with the outside null point location, using the colored dot of the alignment you want (see illustration "C"). Next, move the arm and platter so that you can set it on the inner null point dot (see illustration "D"). When you are finished, tighten the mounting screws for the last time and then set your anti-skate according to your table/arm's instructions.



STEP 1: SETTING ROUGH OVERHANG

ARROW

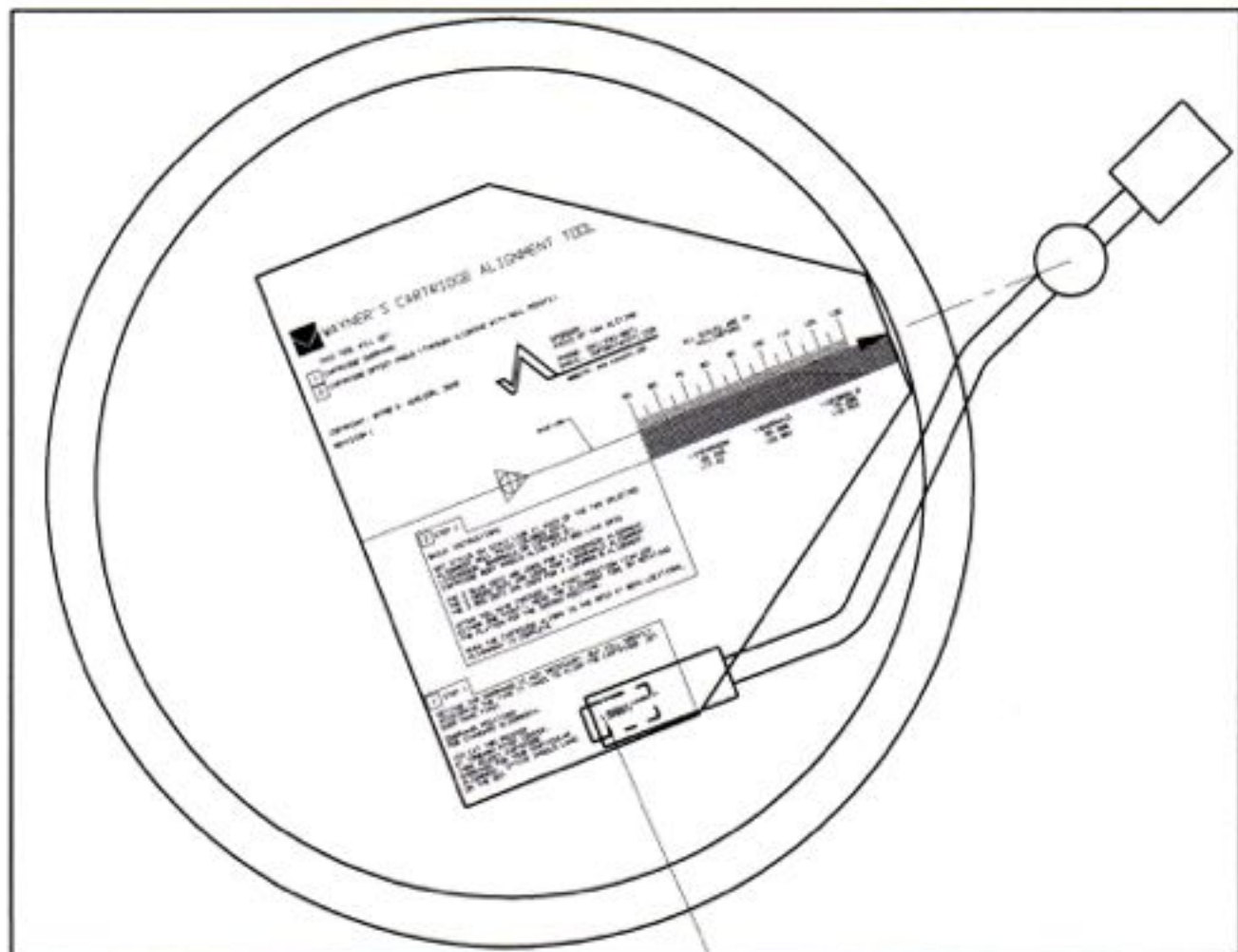
ILLUSTRATION A



POINT ALIGNMENT CARD AT TONEARM PIVOT CENTER

STEP 2: SETTING ROUGH OVERHANG.

ILLUSTRATION B

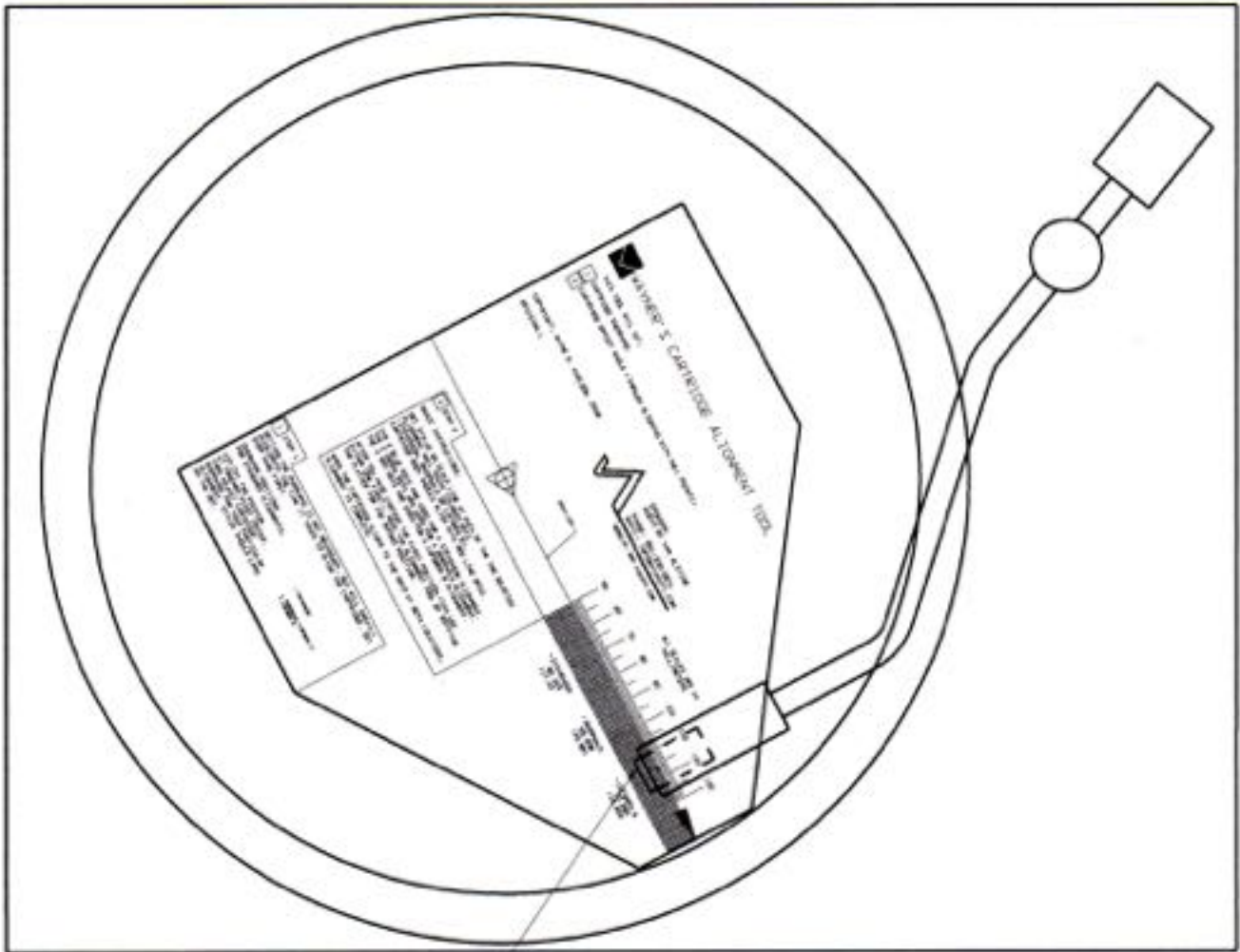


ADJUST CARTRIDGE SO THAT STYLUS IS LOCATED ON ONE OF THE ALIGNMENT DOTS (THIS EXAMPLE IS ON THE LOFGREN B DOT IN RED COLOR).

STYLUS ON RED "LOFGREN B" DOT

STEP 3: ALIGNING TO NULL POINTS

ILLUSTRATION C

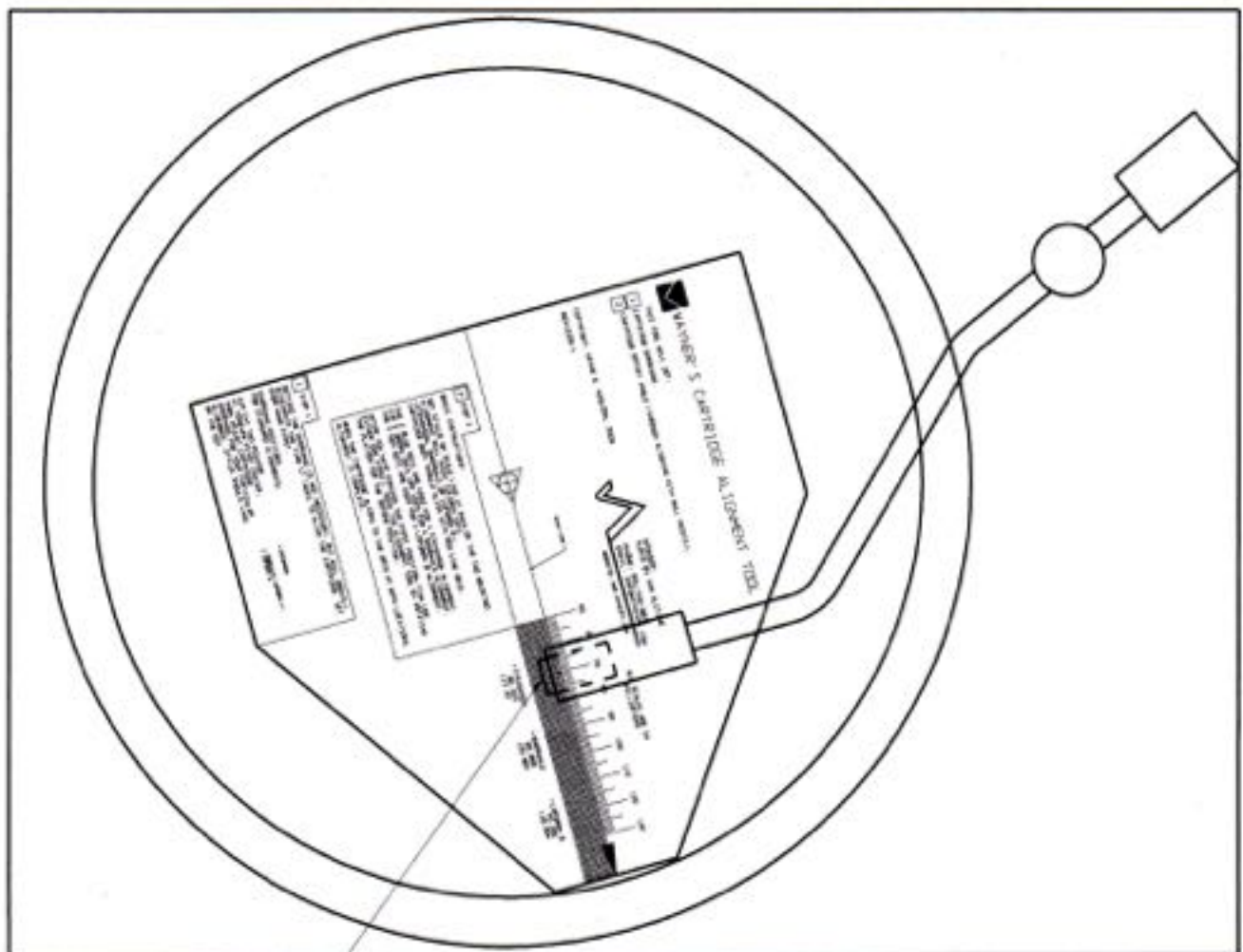


ROTATE CARTRIDGE  
UNTIL  
CARTRIDGE FACE IS  
PARALLEL TO GRID

PLACE STYLUS ON FIRST NULL POINT  
DOT. (EXAMPLE USES RED "LOFGREN B"  
DOT).

STEP 4: ALIGNING TO NULL POINTS

ILLUSTRATION D



CARTRIDGE FACE SHOULD BE PARALLEL WITH GRID

PLACE STYLUS ON SECOND NULL POINT DOT. (EXAMPLE USES RED "LDFGREN B" DOT).





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Thank you for purchasing Wayner's **optional Anti-skating Calibration Tool (ACT)**. It is part of **set #1** and is **set #3**. It is made from polycarbonate for durability and years of service. Always store it in its protective sleeve and keep it stored in the flat position. Please try to keep it clean.

The ACT is a very useful tool. It will immediately let the user know if the anti-skate feature of the turntable works, and if it does, how it relates to the numbers on the dial of the table's anti-skate setting.

**Use:** To use the ACT disc, simply place the disc on top of your mat (if it is a plain, flat mat) or if your mat (or you don't use one) has features and details that would prevent the ACT from laying flat, place it on top of an old record that you have put on the turntable. Your cartridge needs to be aligned and the vertical tracking force needs to be set because both of these features affect the arm's movement. Set your table's anti-skate setting according to your table manufacturer's settings, start the turntable and lower the arm with the cue lever so the stylus sits on the disc's surface. At this point there needs to be some caution. If your anti-skate doesn't work or has little effect at the current dial setting, the arm will race to the spindle. You need to be prepared to lift the arm with the cueing lever at any moment. You then should add more anti-skating effect by increasing the dial position and trying the procedure again. You will have success when the arm seems to stand still on the disc as it is turning, and in most cases, the arm will stand still at any point from the record edge to the label area. With some turntables, we have noticed that the arm will have a slight drifting inward or outward, depending on placement, and in this case, the arm will not behave in this manner. It will not be a problem if you try to get the arm to stand still in the middle of the playing area. If you have an automatic or semi-automatic turntable, extra care must be taken near the label area as the arm may go into retract mode.

The final position of your anti-skating dial is up to you and of course, we recommend that you give the anti-skate setting some listening to determine if the sound field is centered and there is no apparent torque on the cantilever assembly.

**Do not use the disc for long periods of time. Clean the stylus after using the disc. And of course, while we use the disc all of the time to set our turntables, we are not responsible for any accidents to the cartridge, table, records or the user in any way, shape or form, whatsoever. Use at your own risk.**