



## **INTRODUCTION**

Thank you for your purchase!! The Nerve Audio Cartridge Alignment Protractor is a precision instrument that is hand crafted and assembled in the U.S. This device is used to precisely align a phono cartridge on turntables to permit effective arm length adjustments. Based on the Dennesson Geometric Soundtracktor and using the same Baerwald geometry, the Nerve Audio Alignment Protractor features a machined grid with a center bulls-eye alignment point that allows you to quickly and accurately align a cartridge to achieve optimum sound production from all your records. This is the most accurate cartridge alignment device of which we are aware.

## **FEATURES**

- Utilizes Baerwald/Dennesson geometry
- Manufactured from stock bar aluminum and precision machined to 0.003" accuracy
- Suitable for tonearms between 8" and 12" effective length
- Very accurate and simple to use
- Bulls-eye alignment point for accurate setting of stylus overhang
- Machined alignment grid for easy adjustment of offset angle

## **SET-UP**

**NOTE:** Proper cartridge alignment is a delicate process that often requires numerous repetitive steps to achieve optimum results. Be well rested before starting, take your time, and do not get in a hurry. If you get frustrated, take a break. Most of all, have fun.

1. Before starting, thoroughly review this manual to familiarize yourself with the cartridge alignment steps and the parts of the Nerve Audio Cartridge Alignment Protractor (see Figure 1).
2. To prevent unwanted platter rotation, disconnect the turntable from the mains power supply.
3. Mount the cartridge and connect the headshell leads in accordance with the cartridge manufacturer's specifications. DO NOT completely tighten the mounting screws – snug them enough to hold the cartridge in place, but leave them loose enough that the cartridge can be repositioned in the headshell.
4. Balance the tonearm and set vertical tracking force (VTF) and antiskate force as recommended by the cartridge manufacturer.
5. Place a record on the platter, lower the tonearm to place the cartridge stylus in the groove, and adjust vertical tracking angle (VTA or tonearm height) following tonearm and cartridge manufacturers' directions so that the tonearm armtube is parallel to the record surface. Remove the record from the platter.
6. Assemble the Nerve Audio Cartridge Alignment Protractor. Insert the base of the Protractor Arm into the Base Plate. Snug the Base Plate Set Screw, but do not completely tighten.
7. Place the assembled Protractor onto the turntable platter by inserting the platter spindle through the Spindle Hole in the Base Plate.
8. Ensure that the Base Plate is flat and level with the platter surface. If the platter has a recessed area around the spindle to accommodate a record label, it may be necessary to fabricate a thin wedge by folding a note card or piece of paper to the desired thickness.  
**TIP:** Thin wood window shims available at most hardware stores/home improvement warehouses or small foam cosmetic wedge applicators can be used to keep the Base Plate flat.
9. Loosen the Pivot Pointer Set Screw, raise the Pivot Pointer, and snug the Set Screw.
10. Loosen the Base Plate Set Screw enough to allow the Protractor Arm to slide. Adjust the Protractor Arm so that the Pivot Pointer is directly above the tonearm pivot point and tighten the Base Plate Set Screw.
11. Loosen the Pivot Pointer Set Screw, lower the Pivot Point to contact the top of the tonearm pivot point/bearing assembly, and re-tighten.
12. At this stage, the Alignment Point on the Base Plate of the Nerve Audio Protractor is set up and in the proper position for accurate cartridge alignment.

**TIP:** Immobilizing the platter will help to keep the Protractor in the proper position during the alignment process. Insert one or two small foam cosmetic wedge applicators between the platter and plinth to prevent the platter from rotating.



### **CARTRIDGE ALIGNMENT**

1. Cue the tonearm "Up" and carefully move the tonearm over the Alignment Grid. Lower the tonearm so that the cartridge stylus contacts the Alignment Grid. Make sure that the Pivot Pointer is still directly over the tonearm pivot, and reposition as necessary.
2. Note the position of the stylus relative to the Alignment Point.
3. If the Stylus tip does not touch the Alignment Point, raise the tonearm and move the cartridge body forward or backward in the headshell, check the position of the Pivot Pointer, lower the tonearm, and recheck the position of the stylus in relation to the Alignment Point.

**TIP:** It can be difficult to see the stylus of cartridges that have a short cantilever. Try viewing the cartridge from the side or the front to check stylus position. Using a flashlight or desk lamp to provide some backlight can help to make the stylus more visible.

4. Repeat Step #2 until the stylus EXACTLY touches the Alignment Point. Overhang is now properly set.
5. Without raising the tonearm, check that the Pivot Pointer is still in position over the tonearm pivot point, and then look directly down at the cartridge from above.
6. Note the position of the sides and front of the cartridge in relation to the lines of the Offset Grid lines. If the sides and front of the cartridge are parallel to the Offset Grid, proper offset angle has been achieved.
7. If the sides and front of the cartridge are NOT parallel to the Offset Grid, raise the tonearm and carefully twist the cartridge in the headshell being careful not to move the cartridge fore or aft in the headshell. Lower the tonearm, recheck the alignment of the sides/front of the cartridge relative to the Offset Grid, and check that the stylus is centered on the Alignment Point.
8. Repeat Step #6 until the sides/front of the cartridge are parallel to the grid WITH the stylus centered on the Alignment Point.

**TIP:** Patience is key for this step. Proceed using very small incremental changes, and take your time.

9. Raise the tonearm and snug the cartridge mounting screws. **DO NOT OVERTIGHTEN!!**
10. Lower the tonearm and recheck the alignments of both the cartridge body/Offset Grid and the stylus/Alignment Point.
11. Since movement of the cartridge may have affected arm balance, recheck and adjust VTF.
12. Since changing VTF can result in a small change in effective arm length, we recommended that you recheck cartridge alignment each time VTF is adjusted.

**CONGRATULATIONS!! YOUR CARTRIDGE IS NOW ALIGNED!! ENJOY YOUR RECORDS!!**

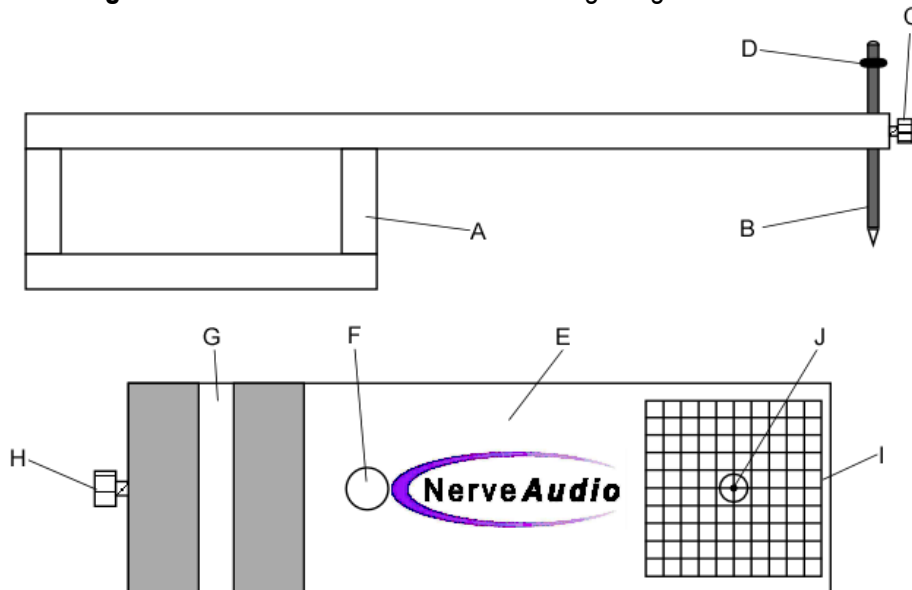
### **WARRANTY**

This device is fully warranted against failure for a period of 1 year from the date of purchase. Your original sales receipt is used as your proof of purchase date. Damage due to improper use, modifications, or acts of nature are not covered under this warranty. This warranty covers parts and labor only. We do not assume any liability for damages to any other component or equipment due to a improper use of this device. If you believe your Cartridge Alignment Protractor is malfunctioning, please contact the dealer where you purchased the unit; or contact:

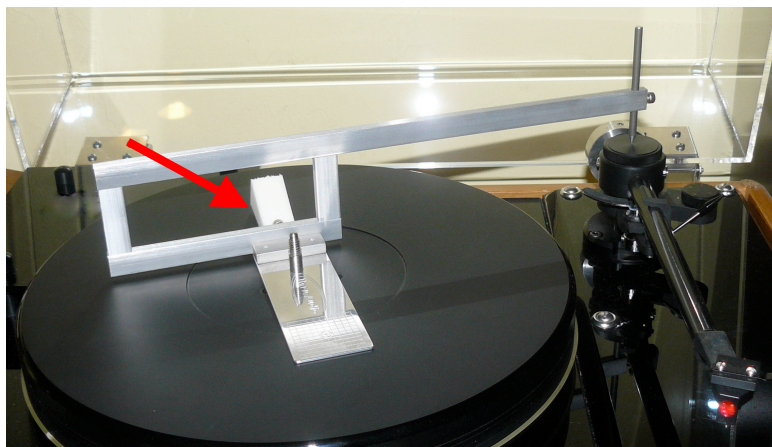
Nerve Audio  
c/o Audiophile Answers  
822 SW 75th Way  
Gainesville, FL 32608  
Telephone: (404) 585-1129  
Email: [nerveaudio@gmail.com](mailto:nerveaudio@gmail.com)

If the need to return the device for repair, contact Nerve Audio at the number above and you will be issued a Return Authorization (RA) number. You must send the device (packed in its original box) back pre-paid to Nerve Audio.

**Figure 1** – Parts of the Nerve Audio Cartridge Alignment Protractor



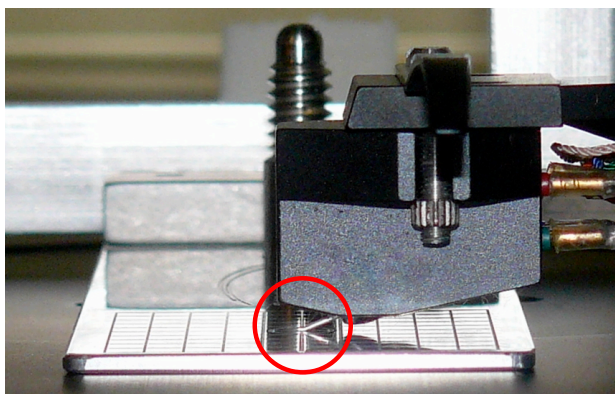
- |                                |                         |
|--------------------------------|-------------------------|
| A. Protractor Arm              | F. Spindle Hole         |
| B. Pivot Pointer               | G. Protractor Arm Slot  |
| C. Pivot Pointer Set Screw     | H. Base Plate Set Screw |
| D. Pivot Pointer Keeper O-Ring | I. Offset Grid          |
| E. Base Plate                  | J. Alignment Point      |



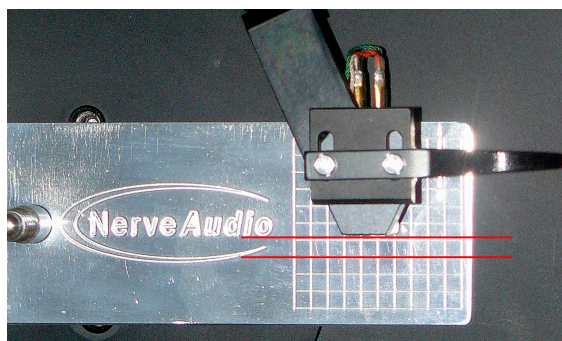
**Figure 2** – Nerve Audio Cartridge Alignment Protractor installed and ready to align cartridge. Note foam cosmetic wedge applicator used to keep protractor level and plumb (arrow).



**Figure 3** – Close-up of Nerve Audio Cartridge Alignment Protractor showing Pivot Pointer centered on top of tonearm bearing assembly.



**Figure 4** – View from side showing overhang is properly adjusted. Note stylus centered on Alignment Point (circle).



**Figure 5** – Offset is now adjusted. Note parallel lines of front of cartridge and Offset Grid. Time to snug the mounting screws, recheck everything, re-set VTF, and spin some vinyl??