

BASIS

BASIS AUDIO, INC.

VECTOR MODEL 4 TONEARM

USER'S GUIDE

Congratulations! You have bought one of the finest performing, most “true to the original music” tonearms made, surpassed only by the BASIS SuperArm. In addition to superb sonic performance, the unique bearing system and proper damping result in exceptional tracking ability, thus causing lower record-wear than any other tonearm.

The Vector Model 4 has several improvements over previous models:

- The counter weight shaft material has been changed to make the shaft more rigid, thereby lowering the tonearm *internal* resonant frequency (not to be confused with the more commonly discussed tonearm/cartridge resonant frequency) below 4 HZ.
- The pivot bearing tolerances have been decreased to levels so small they are difficult to measure, giving even more precise tracking ability.
- Pivot housing geometry has been changed to insure more positive azimuth bias, and azimuth adjustment is preset to zero at the factory for ease of tonearm installation and set-up.

Please follow the instructions, but if you are not fully versed in tonearm-cartridge setup please have a qualified technician perform the installation for you. **TO NEARMS HAVE DELICATE BEARINGS AND WIRES** and cartridges are easily damaged. Each tonearm pivot and wiring is checked numerous times at the factory, and **DAMAGE TO BEARINGS OR WIRES IS NOT COVERED UNDER WARRANTY.**

NOTE: The jewel bearing in the Vector tonearm will last a lifetime. However, if the pivoting assembly is dropped or bounced against the male pivot, damage will occur. Always **GENTLY** place the arm pivoting assembly onto the male pivot when working with the tonearm.

1. Remove the base cup assembly from the upper left corner of the foam pack.
2. Find the appropriate hex key (3/32 hex key for all Basis models, except Debut with armboard requires 5/64 ball driver) that fits into the tonearm VTA lock screw on the back of the turntable behind the tonearm mount area. Loosen this screw until the tonearm mounting hole is clear.
3. Gently place the base assembly into the hole. With the cueing mechanism pointing forward toward the front of the turntable lightly tighten, using the VTA lock screw on the rear of the turntable to hold the tonearm base in place. **NOTE: on the DEBUT turntable with armboard** the lock screw hole is directly to the right of the tonearm. The hole exits the armboard along the right edge of the armboard.
4. Locate the tonearm wires in the foam pack, and note that they are permanently connected to the pivoting assembly. When handling the pivoting assembly you must always cradle the wires in the other hand. **THE WEIGHT OF THE WIRES COULD DAMAGE THE WIRING WHERE IT ENTERS THE ARM IF ALLOWED TO HANG FROM THE ARM. Such damage is not covered by warranty.** Lift the pivoting assembly and wires from the foam pack.
5. Mount the cartridge into the tonearm, leaving the mounting screws slightly loose for later alignment.
6. Remove the counterweight from other upper right corner of the foam pack.
7. Slide the counterweight onto the counterweight shaft of the pivoting assembly. Note that the cutout area of the counterweight must always be oriented toward the left when viewing the

tonearm from the headshell end, with the slot running in a vertical direction. This side-weights the tonearm causing the arm to always ride against the unique Vector stabilizing bearing.

8. **GENTLY** place the pivoting assembly onto the male pivot in the base assembly. Adjust the counterweight so that there is minimal tracking force. **WHEN ADJUSTING COUNTERWEIGHT, PICK THE PIVOTING ASSEMBLY UP SLIGHTLY OFF OF THE PIVOT SO THAT THE PIVOT WILL NOT BE DAMAGED** by the excess pushing forces and movement naturally caused by adjusting the counterweight.
9. Locate the acrylic cable block which is attached to the wires. If you have the cable isolation system, mount this cable block on the cable support rod. Adjust the tonearm wires into a smooth loop between the tonearm and the cable support. If necessary, loosen the set-screw for the cables and rotate or otherwise dress them to achieve a smooth vertical loop, with no kinks. If you do not have the cable isolation system, peel the adhesive liner strip and stick the acrylic cable block to the rear of the turntable, with the block running horizontally so that the holes for the wires run vertically, and so that the closest edge of the acrylic hanger is 5.5 inches (14cm) from the right edge of the subchassis. This places the wire loop as close as possible to the pivot of the tonearm while keeping the wires free from the counterweight and anti-skate mechanism. Note that the adhesive strip you peeled was on the back side of a Velcro strip, whose mating strip was adhered to the acrylic wire mount. To remove the wire mount in the future to service the arm, or to interchange pivoting assemblies you may simply separate the 2 Velcro strips. **NOTE: ON THE DEBUT TURNTABLE**, the acrylic wire hanger will be mounted on the back edge of the subchassis (the top, 2 inch acrylic plate), even with the top edge of the subchassis, such that the cables exiting the hanger will be **directly behind** the tonearm.
10. Adjust cartridge overhang using the alignment template. Place the template over the spindle, and after adjusting VTA (Vertical Tracking Angle) to a neutral setting (level armtube when the stylus is cued onto the record) swing the tonearm over the template, adjusting both tonearm and template until the tonearm outline is directly over the engraving of the tonearm on the template. Then adjust the cartridge until the stylus is at the cross, and the reflection of the cantilever is parallel to the long line of the cross. A flashlight and magnifying glass or jeweler's style magnifying loupe will make this easier. If you are not familiar with adjustments as just described you should have a technician perform this procedure. **AT ALL TIMES DURING THIS PROCEDURE YOU SHOULD MONITOR THE TRACKING FORCE TO BE SURE THAT CARTRIDGE MOVEMENTS, AND THE ASSOCIATED CHANGE IN TRACKING FORCE THAT NATURALLY RESULT FROM CHANGING THE POSITION OF THE CARTRIDGE, HAVE NOT RESULTED IN EXTREME TRACKING FORCE THAT COULD RUIN THE CARTRIDGE.**
11. Adjust tracking force to the cartridge manufacturer's specifications.
12. Recheck the overhang setting.
13. Readjust tracking force if you changed the overhang setting.
14. Remove the pivoting assembly, carefully removing the acrylic cable block from the turntable first (from the cable support rod or the Velcro connection) and place the pivoting assembly in a safe place.

Locate the small bottle filled with silicone fluid in the foam pack. Fill the cup of the tonearm base assembly until the silicone fluid is level and even with the **bottom** of the ball bearing located toward the bottom of the male pivot shaft. (The ball bearing is a rotating assembly consisting of 2 races ((steel hoops)) and many miniature balls contained within the assembly. The entire assembly is called a "ball bearing". It is 1/4 inch in diameter and looks like a steel wheel. If you look closely you can see the miniature balls between the inner and outer races.)

15. Again place the pivoting assembly on the pivot, and reattach the acrylic cable block to the turntable. Note that if the wires become slightly loose in the acrylic block use the 1/16 hex key to tighten the pinch screws that hold the wires in place. **Very lightly** screw in the wire lock screws in the acrylic block until you barely feel contact with the wires. **OVERTIGHTENING THE SCREWS WILL RUIN THE WIRING AND IS NOT COVERED UNDER WARRANTY.**
16. Remove the last small rubber o-ring from the end of the rod on the anti-skate assembly. Loop the black anti-skate thread over the rod and replace the rubber o-ring. Now the anti-skate is activated. (**NOTE:** In case you lose one of these rubber rings, extras are included with your tonearm. Find the small bag in the packing that contains extra rings as well as a small hex key.) Anti-skate is adjusted by sliding the silver anti-skate weight up or down the shaft after loosening the lock screw with the .050 inch hex key. Moving the weight up toward the **free end** of the shaft will **increase** anti-skate force. Moving the weight down toward **pivot** of the anti-skate mechanism will **lower** the anti-skate force. Note that there are many philosophies on adjusting anti-skate force. A detailed summary of these philosophies is beyond the scope of this text. One simple, effective method is as follows:
 - A. Obtain a blank record (no grooves).
 - B. Cue the tonearm down on the rotating record.
 - C. Adjust anti-skate force to the point where the stylus glides slowly outward when cued down on the rotating blank record.
 - D. If you cannot obtain a blank record you could use a record with a generous lead-out area toward the center. Cue the stylus down onto the area between grooves and watch the tonearm motion during the time between the cue-down and the point where the groove hits the stylus.
17. Adjust the height of the cueing assembly using the small hex key supplied with the arm (.035 inch "L" key). The proper height will result in the stylus being cued up approximately 3/16 inch (5mm) from the record surface when the cueing lever is in the up position. You may adjust this to suit your personal taste.
18. Azimuth is preset to zero at the factory, so only **minor adjustments** should be made to azimuth. The factory setting is extremely precise so you may play the arm as set, just as you would if you were using one of the many arms without adjustable azimuth. Azimuth is adjusted by inserting the .050 inch hex key into the adjustment screw hole located in the pivot housing part of the pivoting assembly, toward the right side of the turntable. **Please observe that there is a screw and lock nut visible on the very bottom of the pivot assembly. THIS IS NOT THE AZIMUTH ADJUSTMENT SCREW. THIS NUT MUST NOT BE LOOSENED FOR ANY REASON.** Adjust the azimuth so that the headshell is parallel to the record, or according to your favorite method. If you have to turn the azimuth adjustment more than two turns, **STOP!** Something may be set-up incorrectly. Usually only quarter turn size adjustments are needed.

19. VTA: So far VTA (vertical tracking angle) has been discussed only in terms of adjusting the height of the rear of the tonearm to obtain a level armtube (parallel to record) when adjusting overhang. Now that all adjustments have been made the most frequent “tuning” adjustment (in terms of “tuning” the sound to your liking) made by audiophiles (which may be a different group from music lovers) is the VTA adjustment. The VTA discussions in print magazines and chat forums would fill volumes of bound books if chronicled. It would be hard to imagine a more useless volume of printed matter. If you purchased the Vector VTA Micrometer option, please refer to the instructions for VTA adjustment.

The Vector tonearm has proven that the issue of VTA adjustment is very small when compared to the design factors of the Vector which make it superior to other arms. Any well designed cartridge installed in the Vector, with the Vector armtube set level (parallel to the platter), will outperform the same cartridge in any other tonearm regardless of how many hours the other tonearm has been “tuned” to the “ultimate VTA setting”.

While Basis Audio will not enter into a deep debate on the importance of VTA, factors which make a “perfect” VTA setting impossible in the real world include the following facts:

- A. Record thickness varies significantly from record to record.
- B. There is no standardization of cutter head rake angle, during record production, from record to record.
- C. There is no way to know the actual cutter head angle referred to in “B” above.
- D. The thickness of a single record changes from the outer grooves to the inner grooves.
- E. Small changes in stylus pressure force make large differences in cantilever/suspension deflection, grossly changing effective VTA.

For the above reasons, Basis Audio encourages all Vector users to set the armtube at a level position. Enjoy the music for several days in this position. At some point when you desire to experiment mark the level VTA setting with a pencil line on the arm base at the point the arm base enters the subchassis or armboard. Then lower or raise the VTA a significant amount. Listen to the same records you have been recently playing. Note your impressions of any differences in sound due to the change in VTA. DO NOT feel any pressure to hear any large differences! Despite having decades of listening experience and listening frequently for very small changes in sound involving constant experimentation at Basis, the Basis listening panel frequently hears no important differences due to large VTA changes. If you do happen to note important changes due to moving the rear of the tonearm up or down you may continue moving in the desired direction of VTA change to arrive at an optimal setting. Keep in mind that a variety of records should be used to arrive at this optimal setting unless you intend to move the VTA to an optimal position for each record.

In closing it should be noted that with over 30 years of experience selling and producing analog equipment the designer of the Vector, Armando (A.J.) Conti noted that most listeners who feel they need to change VTA for each record “burn out” after a few years of such behavior. In most cases a neutral, single setting (most often represented by a level armtube in the Basis reference system) results in totally satisfying music reproduction at a level not attainable with any other tonearm.

USER'S GUIDE FOR THE VECTOR VTA MICROMETER SYSTEM

The Vector VTA Micrometer will allow you to precisely determine vertical tracking angle changes from a “neutral” position predetermined by your preference for your cartridge and system.

To use the VTA micrometer:

The adjuster knob has eight digits inscribed on it, and the black top plate has an index line. You will use this knob to set the VTA Micrometer, and hence your Vector tonearm's vertical tracking angle, at your neutral or baseline setting. Thereafter the VTA Micrometer will be used to change VTA up or down from the baseline.

Turning the VTA knob from one engraved number to the next in either direction will change VTA by approximately 0.03 degrees. Turning the knob one full turn will change VTA by approximately 0.25 degrees. The numbers on the knob will be used to keep track of VTA settings.

1. Set up your Vector in the normal manner as described in the Vector User's Guide.
2. Turn the VTA Micrometer knob fully counter-clockwise. This will raise the VTA Micrometer shaft so that it will be out of the way until the end of cartridge setup. NOTE: If you are using a Debut, see the special Debut instructions for the VTA Micrometer following this section.
3. Perform your cartridge setup. Set the VTA as described in the main Vector instructions so that the tonearm tube is parallel to the record when the stylus is cued down onto the record. This will be the “neutral” or “baseline” VTA setting.
4. Alternatively, if you are familiar with your cartridge in the Vector and know that you have a preference for it to be slightly “tail high” or “tail low” then estimate your desired setting based on your experience. Lock the tonearm using the VTA lock screw on the rear of the subchassis per the main instructions.
5. Turn the VTA Micrometer knob clockwise until the support foot of the VTA Micrometer mechanism touches the turntable subchassis surface.
6. Your VTA Micrometer system is now at the neutral or baseline setting. Note the number on the VTA Micrometer knob opposite the hash mark on the black top plate. You will return the knob to this setting anytime you want to return to the baseline VTA setting.
7. During record play, you should retract the VTA Micrometer support foot so that it is not contacting the subchassis. Doing this eliminates a possible resonance path. Simply turn the VTA Micrometer knob counter-clockwise for a portion of a turn.
8. To change VTA in the future, turn the VTA Micrometer knob clockwise until it contacts the subchassis. The setting on the knob should now be your baseline value. Next, loosen the VTA lock screw on the rear of the subchassis. Your Vector tonearm will now remain supported by the VTA Micrometer instead of dropping when the lock screw is loosened.

Adjust the VTA height to your new setting by turning the VTA knob, keeping track of the number of revolutions if you turn it more than 1 revolution. This will allow you to return to baseline at any time.

Turning the VTA knob from one engraved number to the next in either direction will change VTA by approximately .03 degrees. Turning the knob one full turn will change VTA by approximately .25 degrees.

9. Turn the knob up or down depending on your preference. After making the height adjustment support the tonearm damping cup with one hand, keeping it “square” to the turntable top, while tightening the VTA lock screw with the other hand.
10. The Vector VTA micrometer is unique in the industry as it is the only such device to not deleteriously affect the sound signature of the tonearm. This step assures identical performance to the non-VTA version by decoupling the VTA micrometer from the turntable surface. Simply turn the VTA knob counter-clockwise for a portion of a turn. This will lift the shaft off of the surface of the turntable. The next time you change VTA simply turn the VTA knob clockwise until the shaft contacts the turntable before loosening the VTA lock screw. Then proceed to step 8.

Additional instructions for use on Debut Series turntables with armboard

1. When the Vector is mounted on the Debut armboard it must be mounted in an orientation such that the cueing mechanism bracket faces directly forward on the turntable within a few degrees and such that the VTA Micrometer faces directly left on the turntable.
2. After mounting the tonearm on the Debut note that the small diameter support shaft clears the edge of the armboard and will contact the top of the subchassis if the VTA knob is adjusted.
3. Note that with the Debut turntable, turning the VTA Micrometer knob clockwise while the VTA lock screw is tightened will cause the VTA Micrometer shaft to lift or tilt the armboard. The VTA micrometer is to be used only to support the arm while tightening the VTA lock screw and to determine the VTA setting. It should then be retracted slightly while playing records. Failure to retract the mechanism during record playback will result in compromised tonearm performance.

FREQUENTLY ASKED QUESTIONS

Q. My arm is not stable in the azimuth direction: I cannot adjust it so that it will sit at one azimuth.

A. Double check to see that you have rotated the counterweight per instruction #7: **Note that the cutout area of the counterweight must always be oriented toward the left when viewing the tonearm from the front (headshell end), with the slot running in a vertical direction. This side-weights the tonearm causing the arm to always ride against the unique Vector stabilizing bearing.**

Q. There is no screw in the hole of the pivoting assembly for the adjustment of the azimuth.

A. To allow for a full range of azimuth adjustment a screw that comes out to the edge of the hole cannot be used. There is a screw in the hole. The small size of the hole makes it difficult to see the screw. Insert the .050 hex key and you will feel the driver engage into the socket in the top of the screw. Then adjust azimuth per instruction #18.

Q. Which way is the weight moved to lower anti-skate?

A. Per instruction #16: **Moving the weight up toward the free end of the shaft will increase anti-skate force. Moving the weight down toward pivot of the anti-skate mechanism will lower the anti-skate force.**

BASIS AUDIO, INC.

LIMITED TEN (10) YEAR WARRANTY

BASIS AUDIO, INC. warrants this product to be free from defects in workmanship and materials for a period of 10 years from date of purchase.

Purchaser must submit to **BASIS** within 30 days of purchase the completed, signed, and dated warranty registration form and a copy of the bill of sale for this warranty to become valid. Failure to provide the warranty registration form to **BASIS** within the thirty day period shall render this limited warranty void and inapplicable. This information is for warranty purposes only, and will only be seen by Basis Audio. We never sell, trade or share customer information.

This warranty is subject to the following conditions: This warranty applies only to the original purchaser/owner. Warranty is void and not applicable if this product is or has been operated or handled in any way not consistent with the guidelines set forth in the owner's manual.

Warranty is void and inapplicable if product has been abused/damaged as a result of negligence, or damaged in shipping/handling.

Warranty is void and inapplicable if this product has been modified, repaired or tampered with by anyone other than **BASIS** or an authorized service representative.

Should this product fail to meet the above warranty purchaser assumes obligations to re-package and return the unit to the dealer, **BASIS AUDIO, INC.**, or a designated service representative at his/her own expense.

Where the above conditions have been complied with, **BASIS AUDIO, INC.** shall without charges for parts and/or labor, repair the defect and return the unit to purchaser **FREIGHT COLLECT**.

Implied warranties related to the above are limited to the duration of this warranty.

Warranty is not extended to cover ANY incidental or consequential costs or damages to the purchasers.

Certain states do not allow limitations on how long an implied warranty lasts, or exclusion or limitation of incidental or consequential damages, so the aforementioned limitations and exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.