audio-technica

AT-CAP4

Multi-Function Cartridge Alignment + Stroboscope Disc

User Manual

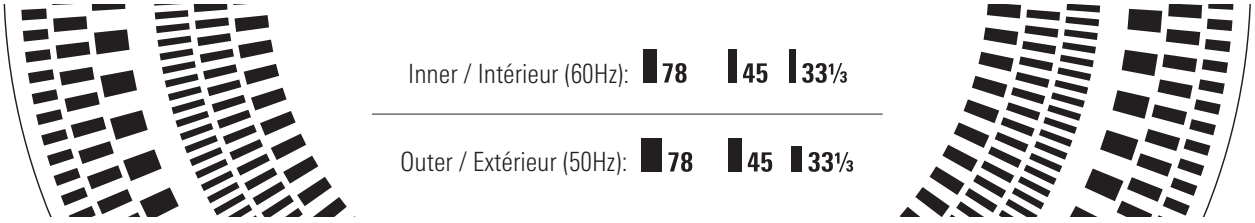
English

Safety precautions

- Keep the product out of the reach of small children.
- Do not put the product in a location where it is exposed to direct sunlight, near heating devices, or in places with high temperatures, high humidity, or high concentrations of dust.
- Do not subject the product to strong impact.
- When aligning the cartridge, handle the stylus and tonearm gently to avoid damage.
- Turn off the turntable during alignment to prevent accidental movement, which could damage the stylus.

About the stroboscope disc

- This stroboscope disc allows you to select between 50 Hz and 60 Hz, depending on your local power frequency. The tool also provides calibration for different speeds: 33-1/3, 45, and 78 RPM.
- An incandescent light (a desk lamp is a good option) or strobe light is required to illuminate the spinning disc. Most modern LED lights will not flicker at the correct frequency or may have continuous output, making them ineffective for stroboscopic use.
- Your turntable must have an adjustable speed control to make use of the stroboscope disc.



How to use the stroboscope disc

1 **Place the stroboscope disc on the turntable platter.**

2 **Set the turntable to the desired speed (33-1/3, 45 or 78 RPM) and start the platter spinning.**

3 **Illuminate the spinning disc with your incandescent light (e.g., desk lamp) or strobe light.**

4 **Observe the markings for your local power frequency (50 or 60 Hz) and chosen speed (33-1/3, 45 or 78 RPM).**

- The three innermost rings are for speeds at 60 Hz (common in the U.S., Canada, and parts of South America). The three outermost rings are for speeds at 50 Hz (common in Europe, Asia, and other parts of the world).
- For example, if your power frequency is 60 Hz and you're checking 33-1/3 RPM, watch the third ring of markings from the spindle.

5 **Adjust the turntable speed until the markings appear to be stationary.**

- As the turntable spins, the markings you're observing should appear to be still. If the markings drift forward (in the direction of rotation), the turntable is spinning too fast. If the markings drift backward (against the direction of rotation), the turntable is spinning too slowly.
- Use your turntable's speed or pitch control to adjust the speed until the markings appear to be stationary.

About the cartridge alignment disc

This Audio-Technica cartridge alignment disc includes null points for four different alignment geometries: Baerwald, Stevenson, Löfgren B, and UNI-DIN. Proper cartridge alignment is crucial for optimal tracking, minimal distortion, and even wear on your vinyl records. Different alignment geometries adjust the cartridge's angle and position at various points across the record surface. These methods offer unique benefits based on your turntable's tonearm design and your playback preferences. Below are the four geometries featured on this disc and their key characteristics.

Baerwald (66.0 mm and 120.9 mm null points)

- Purpose: Baerwald alignment minimizes overall tracking error by balancing distortion at two key null points: 66.0 mm (inner) and 120.9 mm (outer).
- Advantages: Provides a well-rounded compromise between inner and outer groove distortion, reducing distortion evenly across the entire record. This makes Baerwald ideal for listeners who want balanced performance, whether their records feature critical content at the beginning, middle, or end.
- Best for: Listeners who play a wide range of genres and want a versatile alignment that minimizes distortion throughout the record.

Stevenson (60.3 mm and 117.4 mm null points)

- Purpose: Stevenson alignment focuses on reducing distortion at the innermost grooves, where distortion tends to be most noticeable. The null points are positioned at 60.3 mm (inner) and 117.4 mm (outer).
- Advantages: Stevenson reduces inner-groove distortion, which is more pronounced as the stylus approaches the center due to tighter groove spacing.
- Best for: Classical, jazz, or any music with critical content closer to the label, where distortion is more likely.

Löfgren B (70.3 mm and 116.6 mm null points)

- Purpose: Löfgren B alignment reduces overall distortion by shifting the null points to 70.3 mm (inner) and 116.6 mm (outer), resulting in lower average distortion than Baerwald, particularly across the mid-grooves.
- Advantages: Löfgren B sacrifices slightly higher inner-groove distortion for lower overall distortion, providing smoother playback across the majority of the record. The final grooves, however, may experience more noticeable distortion.
- Best for: Listeners who prioritize superior sound quality across most of the record's surface, while accepting a bit more distortion near the inner grooves.

UNI-DIN (63.3 mm and 112.5 mm null points)

- Purpose: UNI-DIN is a modern alignment geometry designed specifically for modern records, with a focus on minimizing distortion in the mid-to-inner grooves. The null points are set at 63.3 mm (inner) and 112.5 mm (outer).
- Advantages: Emphasizes reducing distortion in the critical mid-section and inner grooves. UNI-DIN offers an approach to reducing distortion by balancing between the Baerwald and Stevenson emphases.
- Best for: Listeners who prioritize modern music, such as pop or rock, where critical content often lies in the mid-to-inner grooves.

About the overhang adjustment section

The cartridge alignment disc also features an overhang adjustment section located near the spindle, which helps you set the correct distance the stylus should extend beyond the spindle when the tonearm is positioned directly over it. Overhang is essential for ensuring proper tracking and minimizing distortion across the record's surface. Incorrect overhang can lead to increased tracking error, particularly in the inner and outer grooves.

How to adjust the overhang

- Reference your turntable's user manual for the recommended overhang distance.

1 **Place the cartridge alignment disc on the turntable platter.**

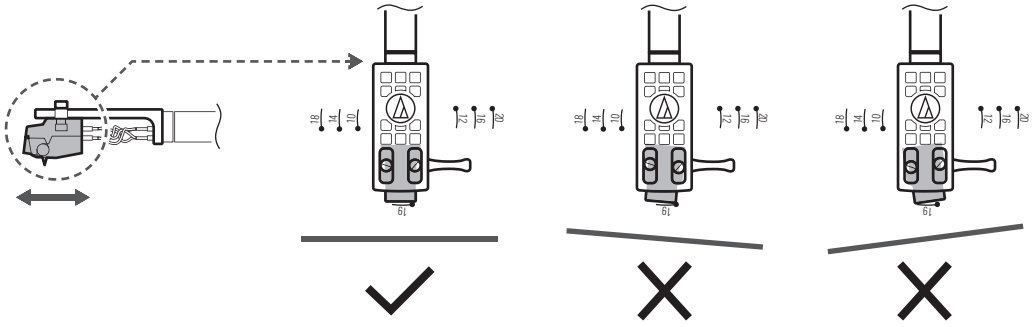
2 **Loosen the screws securing the cartridge to the headshell.**

- Loosen the screws just enough to allow the cartridge to be adjusted (forward or backward).

3 **Position the tonearm so the stylus hovers over the overhang adjustment markings near the spindle.**

4 **Adjust the cartridge as necessary to align the stylus with the manufacturer's specified overhang distance.**

- Align the stylus with the dot located just below and to the side of the number on the disc.
- Move the cartridge forward or backward in the headshell as needed to achieve proper overhang.



5 **Recheck the overhang.**

- Raise and lower the tonearm again to confirm proper overhang.

6 **Tighten the mounting screws to secure the cartridge to the headshell.**

How to use the cartridge alignment disc

Check and, if necessary, adjust the overhang before aligning the cartridge.

1 **Make sure the turntable is level.**

- Use a bubble level to check both the platter and the surface where your turntable sits.

2 **Place the cartridge alignment disc on the turntable platter.**

3 **Loosen the screws securing the cartridge to the headshell.**

- Loosen the screws just enough to allow the cartridge to be adjusted (forward, backward, or rotated slightly).

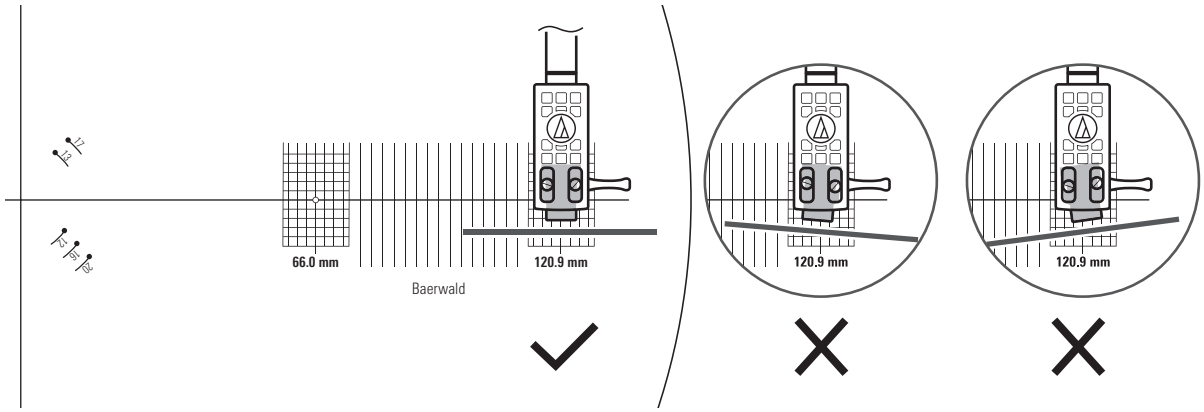
4 **Choose the alignment geometry you wish to use.**

5 **Align the cartridge at the inner null point of your selected geometry: Baerwald (66.0 mm), Stevenson (60.3 mm), Löfgren B (70.3 mm), UNI-DIN (63.3 mm).**

- Move the tonearm so the stylus rests on the null point. Ensure the stylus tip aligns precisely with this point and check that the cartridge body (or cantilever) aligns with the grid lines on the protractor. Move the cartridge forward/backward or adjust the angle to make it parallel with the grid lines.

6 **Align the cartridge at the outer null point: Baerwald (120.9 mm), Stevenson (117.4 mm), Löfgren B (116.6 mm), UNI-DIN (112.5 mm).**

- After aligning the cartridge at the inner null point, move the tonearm to the outer null point and align there as well.



7 **Recheck the alignment at both null points.**

- Keep making fine adjustments at each null point – moving the cartridge forward or backward or rotating it slightly – until you achieve perfect alignment at both points. It may help to use a magnifying glass.

8 **Tighten the mounting screws to secure the cartridge to the headshell.**

- Hold the cartridge in place while you tighten the screws. Do not overtighten as this could move the cartridge out of alignment.

Specifications

Thickness	2.0 mm (0.079″)
Diameter	300 mm (12″)
Spindle hole diameter	7.3 mm (0.29″)
Weight	165 g (5.8 oz)

- For product improvement, the product is subject to modification without notice.

株式会社オーディオテクニカ
〒194-8666 東京都町田市西成瀬2-46-1
www.audio-technica.co.jp

Audio-Technica Corporation
2-46-1 Nishi-naruse, Machida, Tokyo 194-8666, Japan
www.audio-technica.com
©2025 Audio-Technica Corporation
Global Support Contact: www.at-globalsupport.com
ver.1 2025.11.01