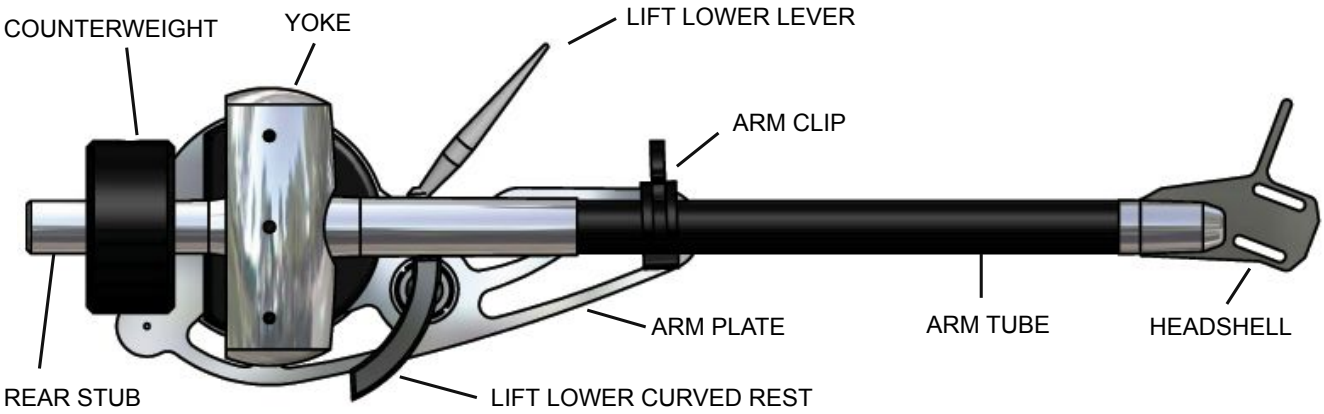
essential reading

Instructions for

THE ENTERPRISE C

Instructions by Origin live 11/2016©



INTRODUCTION

Thank you for ordering the Origin Live Enterprise. We trust you will enjoy getting closer to the original sound and appreciating your music in a new way.

Please give special attention to underlined text in these instructions.

Notes:

a) It may seem there is “play” in the bearings - this is a design feature. The dual pivot bearings for vertical movement allow for a great deal of arm movement but always re-centre themselves.

The conventional bearings for horizontal arm swing are very high grade. However they are “floated” inside the vertical bearing house to allow slight movement rather than rigidly coupling it to the structure. Again these bearings are self centering so you need not be concerned about apparent movement.

b) You should handle the arm in exactly the same way as a conventional gimballed arm.

c) The sound of new arms and rewires will improve significantly over the first 40 to 100 hours of running time as wires burn in.

Mounting Requirements

Arm mounting varies depending on the make of your turntable. This section caters for various scenarios.

Geometry & dimensions

You do not need a mounting template.

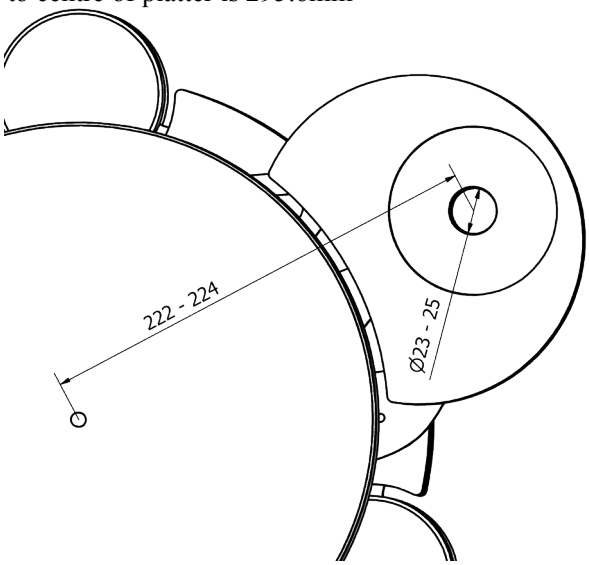
For standard Origin Live arms with effective length of 9.5 inch (240mm)

The arm mounting hole diameter should be 23mm to 24.5 mm.

Centre of mounting hole to centre of platter should be 222mm (plus or minus 1mm tolerance).

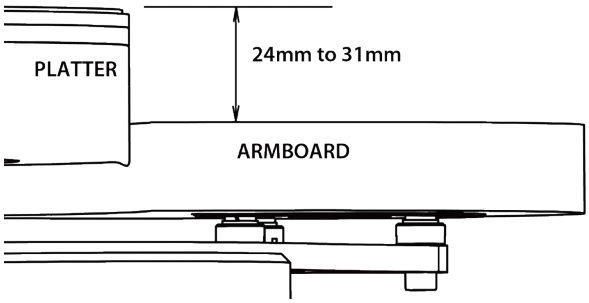
For 12 inch arms (309mm)

Dimensions are same as above, but mounting hole to centre of platter is 295.6mm



Height consideration

Origin Live arms can be raised by approx 16mm using VTA adjsutement. However performance is optimized with the arm raised as little as possible. Ideally the height from the top of armboard to top of platter should be 24mm but not lower.



If this dimension is significantly larger on your deck, you can use spacing washers – a 4mm Acrylic washer is included for this purpose. This should be placed directly on top of your armboard before fitting the arm.

There are other methods of adjusting armboard height which may be advised by your turntable manufacturer.

Achieve Mounting Conditions

If your deck already has correct mounting dimensions then skip the next section and read “Mounting the Arm”.

If your deck does not yet have the correct geometry then alternatives are as follows.

Modify your existing armboard

You can probably modify your existing arm board to achieve the required geometry. Please refer to our web site – on any tonearm page see right side menu “fitting guidance” tab.

Obtain a compatible armboard

Origin Live arm geometry is identical to that of Rega arms. This means they are perfect drop in replacements for all Rega arms.Many deck manufacturers cater for mounting Rega arms and can supply you with a Rega geometry armboard that will perfectly fit your Origin Live arm.

If necessary ask how to fit an “old style Rega geometry, threaded base mounting”? This is easier than the newer 3 point mount and may save you money. They should understand what is required.

Note that although newer Rega arms have a 3 point mounting, their armboards always have a central 24mm diameter hole and this is all you need to mount Origin Live arms.

If your arm has an SME nount there is an adaptor plate available on the Origin Live website – see Accessories > Vinyl > Adaptors

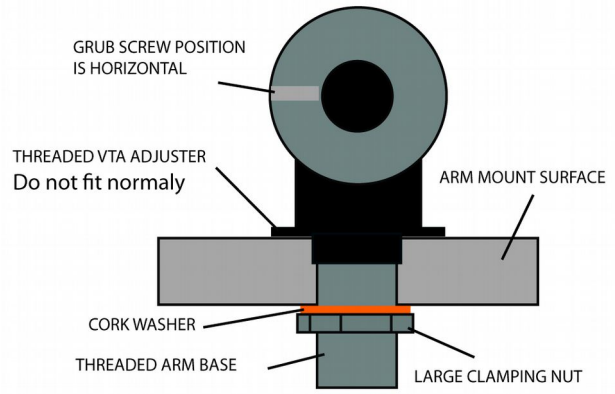
Mounting the Arm

Refer to diagram below.

1. Insert arm through mounting hole in the armboard.
2. Fit cork washer underneath the armboard.
3. Follow this with the large clamping nut and tighten to just finger tight.

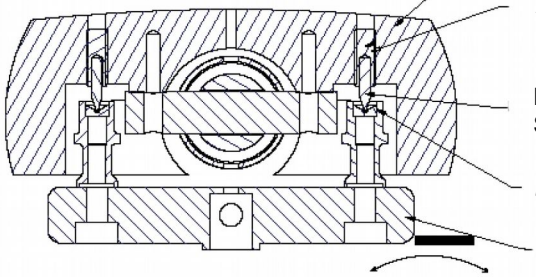
The mistake is often made of over tightening this nut with the result that the music sounds deadened. Simply tighten to finger tight - as hard as you can. If you do not have a strong grip then use a spanner, pliers or mole grips to “nip” the nut a fraction tighter.

24 - 25mm ARMBOARD HOLE WITH VTA ADJUSTER

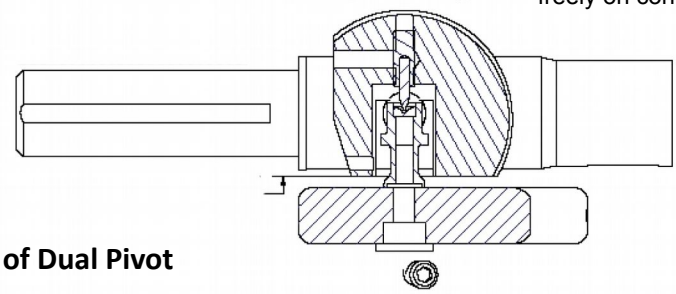


Enterprise Front View of Dual Pivot Arrangement

NOTE
It's not necessary to understand these diagrams. They're for information only.



When arm is horizontal – bottom surface of the yoke should be roughly parallel with turret plate in side view.



Side view of Dual Pivot

UNDERSTANDING DUAL PIVOT

Why dual pivot?

The innovative dual pivot bearing is one of the secrets behind this arms leading performance.

Similar in many respects to uni-pivots, the arm sounds fluid, easy on the ear, and transparent. These are the characteristics of low friction, well decoupled bearings.

The problem with uni-pivot arms is that they're fiddly to set up and produces mediocre bass due to their instability.

Dual pivots on the other hand have all the advantages of uni-pivots but none of the drawbacks.

- No wobble
- Easier set up
- Improved performance
- Better handling

How dual pivot works

The above illustration shows the dual pivot bearing which enables vertical arm movement.

Note that the horizontal axle is free to move a little in all directions within the “bearing cups”(except downwards). This may be a little disconcerting at first but confidence sets in after a little experience.

It's also reassuring to know the arm cannot be knocked off it’s bearings or come loose in any way. You can turn the arm upside down and nothing will fall off as it would in the case of a uni-pivot arm!

Minimal friction design

The pivot bearings are designed to reduce friction to an absolute minimum. To achieve both a robust design whilst maintaining extremely low friction, a sharp tungsten point locates on a shallow radiused bearing cup. Although the points can be forced to move sideways in the cup they always return to centre by gravity.

The “self centring” of the points in their cups may vary by 0.01mm or so which accounts for the slight deviance in tracking force of up to $\pm$0.06 grams. In practice this has no effect on performance and is also common among certain uni-pivot designs with very low friction bearings.

Some may argue that a very sharp point in a deep V shaped cup would restrain sideways movement better. However this increases friction levels significantly and unipivots employing this approach are exceedingly fragile.

CONNECT THE ARM

Fit Cable Clip

For optimal performance, support the arm cable with a clip fastened underneath the plinth. This helps prevent vibration feeding into the arm.

Leave a slight droop in the cable so it's not tight.

Clipping the cable is not always possible or convenient so may be ommited.

Connect the arm to your Phono stage / Amplifier

Plug the arm lead phono plugs into your phono stage or amplifier. These can occasionally be a very tight fit to sockets due to variations in plating thickness etc.

If this is the case, the manufacturers of plastic bodied plugs advise you to heat the plugs with a hair dryer (or similar) to soften them slightly till they fit easily onto your phono stage / amplifier phono sockets without causing potential damage or aggravation.

Avoid overheating the plugs to the point where they are too hot to touch easily. Once fitted, you do not need to reheat the plugs in future as they will maintain the correct tightness.

The earth lead should be connected to the earth of your phono stage, pre-amplifier or amplifier.

Additional notes on connections

Avoid pulling the external wires at the base of the arm as they are not indestructible and can become detached if excessive force is used to manipulate them. This also applies to the cable joints in the phono plugs.

If you have XLR plugs, you will not get both plugs through the mounting hole for the arm.The hole is too small to allow the 2nd plug to go through as the 1st cable wire takes up space.

For this reason we normally fit only one XLR plug and leave you to fit the other. Full instructions on how to fit the other XLR are available on our web site - see top navigation bar > Support > Solving problems > Tonearms then scroll down to near end of page.

Freeing the yoke

To protect the pivot points in transit, the Yoke is “lifted”away from the turret plate using a 3mm thick cork packing piece. With the yoke wedged up in this position the pivot points cannot contact the bearing cups and avoid potential damage.

It’s advised to wait till the arm is mounted before removing the cork for extra safety.

To lower the points into the cups so that the arm can operate correctly, slide out the 3mm thick cork packing piece from under the yoke - KEEP IT WITH THE PACKING BOX IN CASE IT'S NEEDED. There may come a time when you need to dispatch the arm for sale, repair, or upgrade. The cork is essential to prevent damage to the delicate pivot points so always remember to insert it if you post or pack the arm.

Fit Cartridge

If you're not familiar with fitting cartridges then please read the detailed section “Hi-Fi Cartridges explained” found towards the end of this manual.

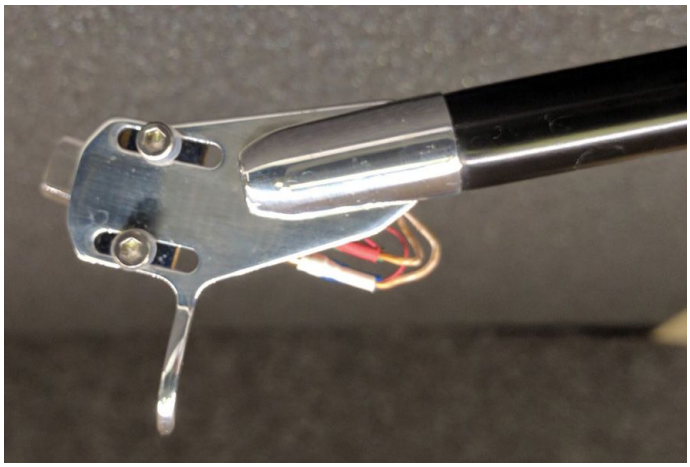
Mounting

Mount the cartridge in the headshell using mounting screws (usually 2.5mm allen bolts).

At this stage the headshell screws should be just tensioned sufficiently to hold the cartridge against the headshell, but loose enough for the cartridge to be rotated and moved.

Set the initial position of the cartridge with mounting bolts approximately midway along the slots as shown below.

INITIAL POSITION OF CARTRIDGE



Carry out the set up procedure outlined below without deviating from sequence. Each step affects the next — change the order and setup will be wrong.

Notes on cartridge mounting

Once cartridge is later aligned, mounting bolts should be tight. Stainless steel allen bolts are best for mounting cartridges – the aluminium or brass ones supplied with some cartridges are OK but difficult to tighten in comparison to allen heads. Avoid steel bolts as they are magnetic and degrade your cartridge magnets.

It's safest to fit the cartridge with the stylus guard in place but it may be necessary to remove for phases of installation. If you do so, replace it as soon as possible.

Be especially careful when the stylus guard is off, as many MC cartridges have a strong magnetic field at the base of the cantilever. This can attract the tip of a steel-bladed screwdriver with irresistable force and destroy the stylus! To be safe, use a non-ferrous screwdriver, or keep the stylus guard on when you're using the screwdriver near it.

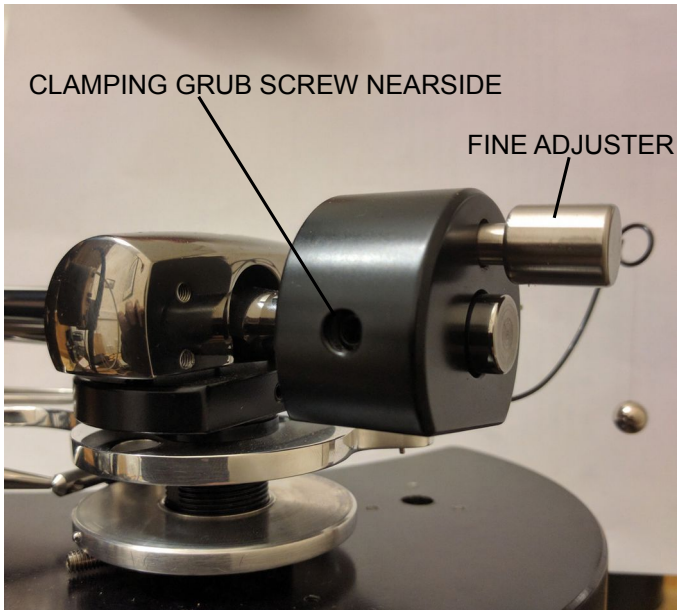
Fit the Counterweight

Fit the counterweight over the rear stub of the arm as shown in below photo.

The counterweight is deliberately a loose fit on the stub for best performance. Lightly clamp it onto the rear stub by turning the clamping allen grub screw in the side of the counterweight such that it just "nips" tight. This way the counterweight has a little friction to hold it before later sliding it backwards and forwards.

Once final tracking force is set, this grub screw should be firmly tightened to secure the counterweight tightly.

Ensure that the clamping Allen grub screw is oriented at the nearside of the arm as shown (not the top).



Mis-understandings of lift lower devices.

The lift lower device should need no adjustment and will only work properly once the arm height is correctly set for VTA (see later).

Some people mistakenly think variables such as cartridge body height affects the setting of the lift / lower device.

Another misunderstanding is that if the platter height changes with the addition of say a platter mat, that the lift lower needs adjustment.

These misconceptions can cause a great deal of frustration. The lift / lower is factory set and works properly once the arm height is set correctly. Correct means the arm tube sits parallel to the surface of the record when the cartridge is on the record.

Correct operation of Lift lower device

When the lift / lower lever is in the raised position the lever must travel past vertical to stay up. The arm will remain in this position with the cartridge lifted above the surface of the record.

Once you pull the lever back down to just past it's vertical point, the arm will gently fall till the stylus lands on the record surface.

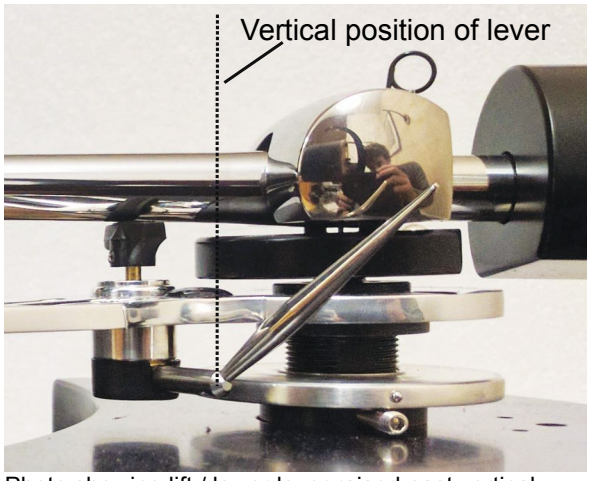


Photo showing lift / lower lever raised past vertical

Take care **not** to pull the lever down further once it's gone past vertical. This can stop the device functioning properly. Rather, once you've taken the lever past vertical just let the arm fall under its own weight.

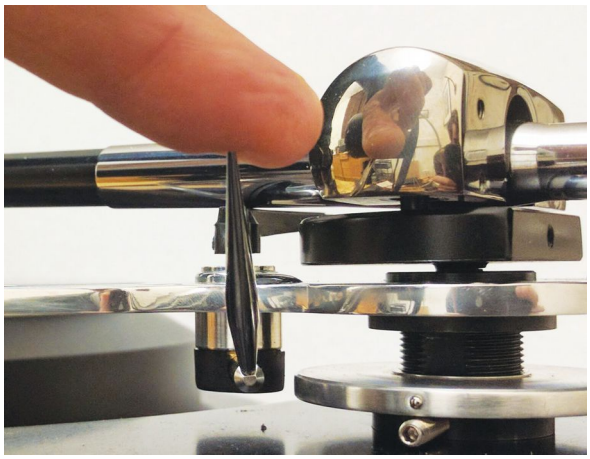


Photo showing lever at release point, just past vertical.

Descent rates vary on lift lower devices but a quick rate of descent is not a bad thing. This is similar to hand queuing records, which offers a very fast rate of descent. Notably hand queuing results in no degradation of records even when carried out mid track, hundreds of times. Slow descent on the other hand is more likely to "graze" a record and cause slight degradation.

Set initial tracking force

Set tracking force to manufacturers recommendation.

Measure Tracking Force

To measure tracking force, use a stylus force guage under the cartridge stylus as shown below.

If you find the armtube is far from level, it may render tracking force measurements impossible so adjust arm height accordingly. Read how to set arm height in next section.

Notes on Stylus Force guages

Most stylus force gauges work on the same principle as a set of scales or balances. For example with the Ortofon Stylus Force Gauge, first place the stylus on the inscribed or graduated portion of the scales. Then try the stylus at different points until you find the point where the beam “balances” freely in a roughly level position. You then read the force that is being exerted.

From this number you can assess whether you need to increase the tracking force or vice-versa. Move the tonearm counterweight accordingly and re-measure the tracking force. Repeat this procedure until the correct reading is obtained.

A digital force gauge works slightly differently so follow the manufacturer’s instructions.

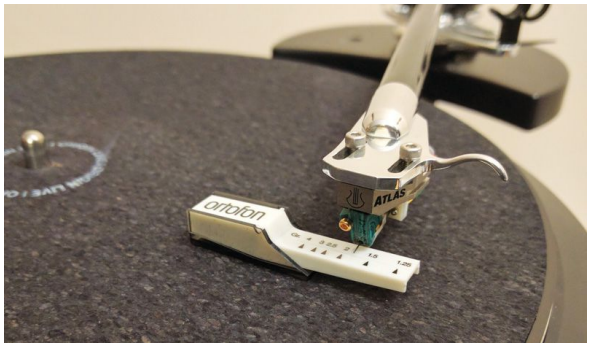


Photo of stylus force guage to set tracking force

Adjusting tracking Force

First screw in the fine adjuster on the rear of the counterweight in as far as possible.

To adjust tracking force slide the large counterweight to approximately the correct position on the rear stub. Sliding the counterweight towards the cartridge increases tracking force and away decreases it.

Set the tracking force to within 0 to 0.35 grams OVER the correct reading.

Then to obtain the correct force, screw the fine adjuster outwards.

Notes on counterweight adjustment

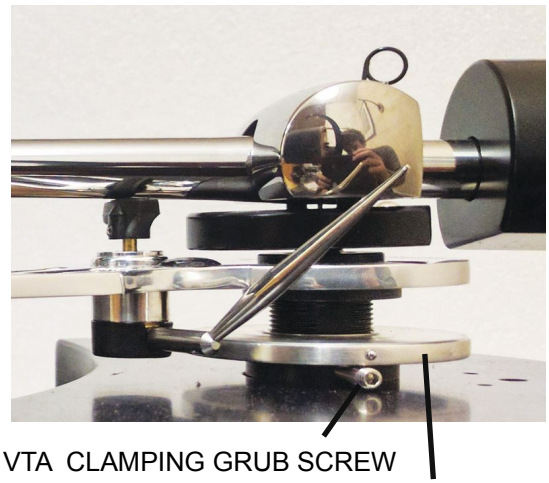
The trick to precise positioning of the counterweight is to lightly nip the grub screw when you get close to your desired reading. Then gently twist the counterweight slightly while pushing it in the desired direction till it gives the correct reading. Once this is achieved, clamp firmly and recheck the reading.

Tracking force will likely need re-setting later so don't worry about getting it too exact at this stage - within 0.3 grams of recommended tracking force is fine.

Set arm height

How to raise and lower arm base to set VTA

To raise or lower the base of the arm use the VTA adjuster wheel – see diagram below.



The arm must be unclamped for the vta wheel to work. So slacken“vta clamping grub screw” half a turn or so using the Allen key provided.

Just under the arm plate is the thin silver vta height adjuster wheel – To raise the arm, turn the wheel clockwise (anti-clockwise to lower it). The wheel has a dimple so that you can see how far you turn it - each half revolution of the wheel is equivalent to a 0.5mm change in height.

Judging correct arm height is described later but once achieved, clamp the arm firmly using the clamping grub screw.

The final clamping stage is to turn the VTA adjuster wheel clockwise and tighten – this prevents the arm from “rocking” and ensures absolute rigidity

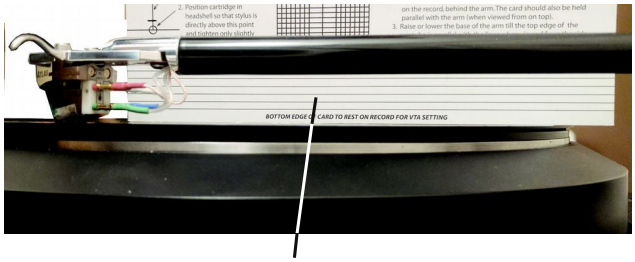
The wheel is capable of raising the arm around 16mm.

Adjust VTA

Set the arm height so that the arm tube is parallel to the surface of the record. This is fundamental for VTA and for the lift lower to work correctly.

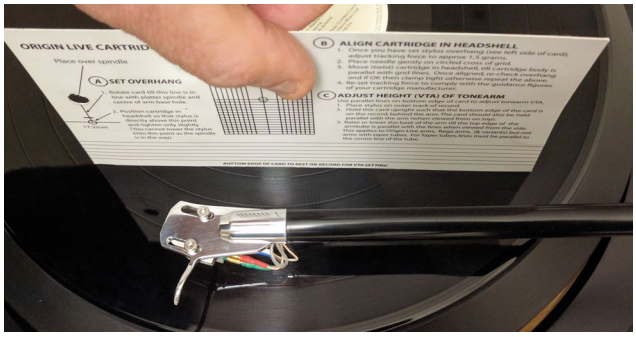
To check arm height, lower the cartridge onto a flat record. Use a track position approx midway across the record.

Looking sideways across the arm, see if the arm tube is parallel to the horizontal lines on the alignment guage. If the arm is down at the rear then raise the base of the arm and vica versa.



HORIZONTAL LINES ON ALIGNMENT GUAGE

To obtain an accurate assesment on parallel you must hold the card parallel to the arm tube in both planes as shown below.



Above photo shows correct orientation of alignment card

Above photo shows incorrect orientation of alignment card

Notes on VTA fine tuning

Cartridge suspensions "bed down" over the first 40 hours. There are also manufacturing variations in stylus angle tolerances.

For these reasons, final vta tuning is best carried out by ear after this time period. There is a detailed Youtube video on how to do this on our Youtube channnel.

Experimentally set the optimum arm height by listening to different vta settings. If the arm base is too high, the sound is usually slightly on the bright side and lacking body in the bass – too low and it veers on the dull side.

For the sake of speed in vta setting, we recommend you leave the arm unclamped during the comparisons. However it will sound FAR better clamped, once you have arrived at the vta "sweet spot".

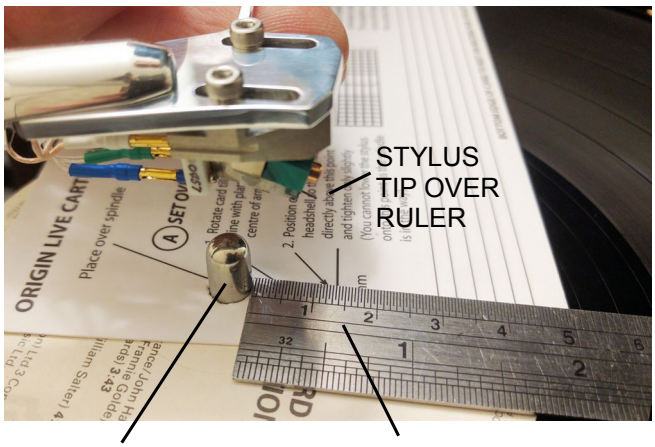
Align Cartridge

If you have never carried out cartridge alignment, there are numerous Youtube videos which some may find easier than reading.

Set overhang

First set cartridge overhang to 17mm unless you have a 12 inch arm in which case the overhang is 13.2mm.

Overhang is the measurement from centre of platter to tip of stylus (see below). When measuring this ensure the armtube is positioned with it's centre line directly over the centre of the spindle as shown.

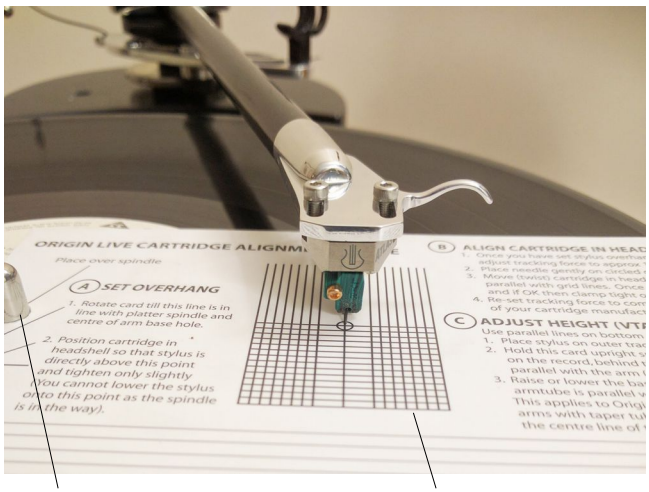


Use the alignment guage or a ruler to judge this measurement. In the above photo, notice that the ruler is butted against the spindle although it's the centre of the spindle that we need to measure from. To compensate for this simply add 3.5mm (half the diameter of the spindle) to meausrement readings. This is easier than trying to align the ruler with the centre of the spindle.

Note that when you later twist the cartridge to align it, the overhang position must be maintained and checked at the end of the whole procedure.

Align Cartridge

Once overhang is set, place the alignment guage on the platter as shown below.



RECORD SPINDLE

ALIGNMENT GUAGE

Gently lower the cartridge onto the alignment guage and follow the instructions printed on it. Twist the cartridge body in the headshell till body or stylus aligns with grid then re-check overhang. Repeat proceedure if necessary till desired result is achieved.

When all adjustments are correct, carefully tighten down the cartridge mounting screws keeping a firm grip on cartridge and headshell together so nothing shifts.

Gradually tighten each screw in turn until tight. Tightening one screw fully before tightening the other is almost certain to move the cartridge out of alignment. However careful you've been, always check the alignment again after tightening.

Ensure the headshell wires are bent so they are clear of the record surface.

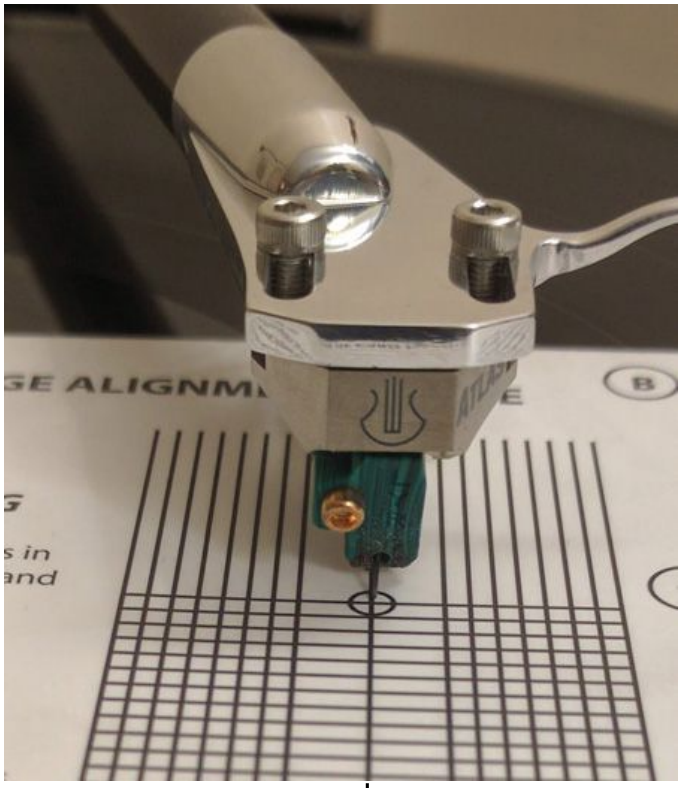
Align stylus or cartridge body?

Most cartridge bodies have faces that are perfectly aligned with the cantilver so you can align the cartridge body on the guage.

However this does not apply to all cartridges and some brands do not build their stylus aligned symetrically with the body.

In these cases align stylus along centreline of the card. This takes precedence over carridge body alignment in the case of Lyra, Soundsmith and other cartridges.

ALIGN STYLUS AS THE PRIORITY



CENTRE LINE OF ALIGNMENT GUAGE

Reset tracking force if necessary

Now that your cartridge is adjusted you will almost certainly find that your initial tracking force reading has changed.

Re-set the tracking force to it's correct reading using the same proceedure as before.

Enterprise Adjustments

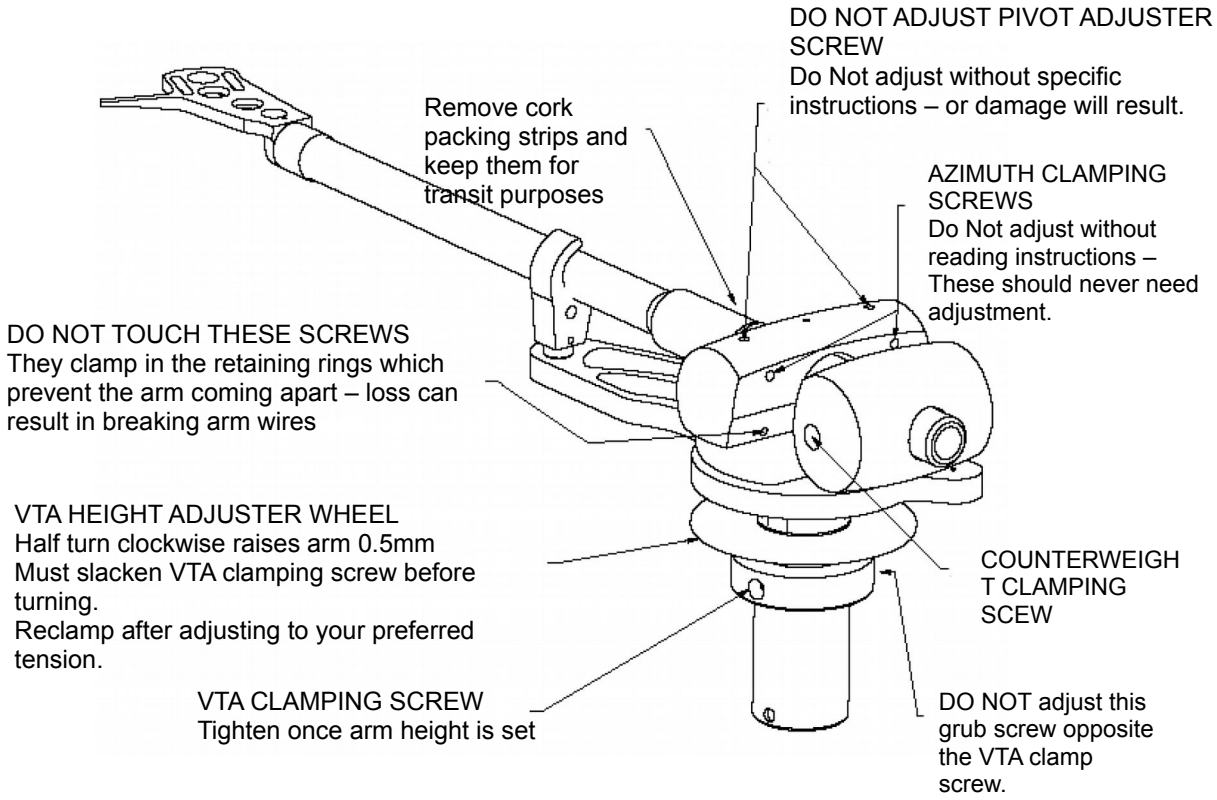


Diagram showing adjusters for VTA and Azimuth

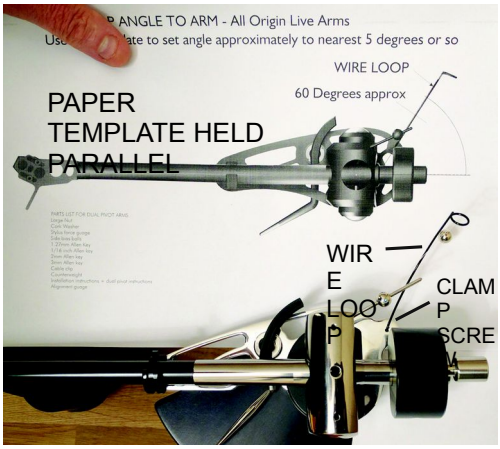
SIDE BIAS

Side bias (sometimes called "Anti-skate") applies an opposing (outward) balancing force, to the natural **inward** drag of a pivoting arm while playing. Left uncontrolled, the stylus would push up against the groove inner wall, causing distortion both from mistracking and a cantilever skewed in relation to the cartridge generator.

Orientate wire loop

Carefully orientate the wire loop to the correct angle relative to the arm base. Hold the enclosed paper template alongside the arm to do this (see below). The angle only needs to be approximate.

The wire loop is clamped in position by a set screw at it's base – this can be re-tightened if necessary using the allen key supplied.



Use paper template to set angle of wire loop

Fit side bias balls

Carefully unpack the 2 balls and joining thread (shown in below).

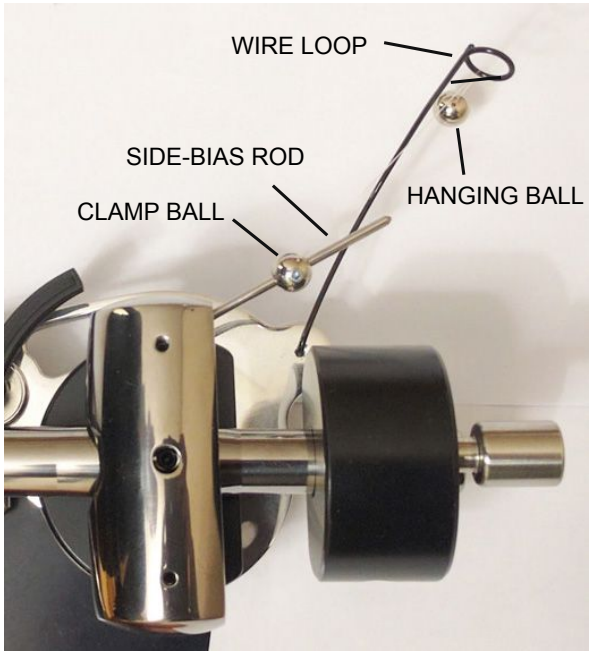


Photo showing side bias ball arrangement

Fit the "clamp ball" which slides along the side bias rod. Lightly clamp in position (approx 5mm

away from the yoke) using a 1.5mm allen key in the tiny set screw of the ball.

Thread the thin nylon filament line through the small gap of the wire “eye” to allow the ball weight to hang freely.

Side bias force is set by varying the position of the clamp ball along the rod. To increase side bias, unclamp the ball and move it outwards. To decrease side force move the ball inwards.

Once correct position is finalized, clamp the ball in position.

It's possible that the hanging ball can foul the wire loop when the arm gets close to the end of the record. If this occurs simply bend the wire loop downwards near the base, whilst at the same time increasing the bend thus pulling the “loop” portion closer.

Checking side bias

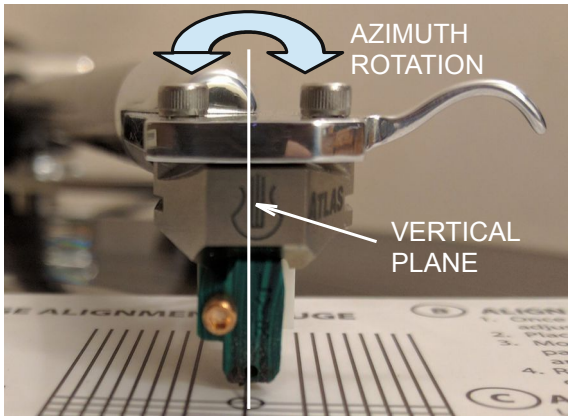
Ideally you need a test record with a track for checking side bias (not all have this, so check before you buy - The Ultimate Analogue Test LP is recommend as it has an Anti-skating test; 315Hz amplitude sweep to +12dbu (Lateral). Also the Hi Fi News test record has an Anti-skate/bias setting track.

In the absence of a side bias test track then the following method is better than nothing. Find a test record or a record with approx 10mm of blank vinyl between the end of the lead out groove and the record label. Lower the stylus needle on the blank uncut vinyl and observe whether the needle skates inwards towards the centre of the record or outwards. Increase antiskate until the arm starts to slowly drift inward towards the label.

Also, watch the stylus when you set it into a groove. Does it move to the right or left relative to the cartridge body? This indicates too much or too little anti-skating.

Azimuth

Azimuth is the vertical alignment of the cartridge / stylus as shown below



This is correctly set at factory and we recommend that you do not adjust this.

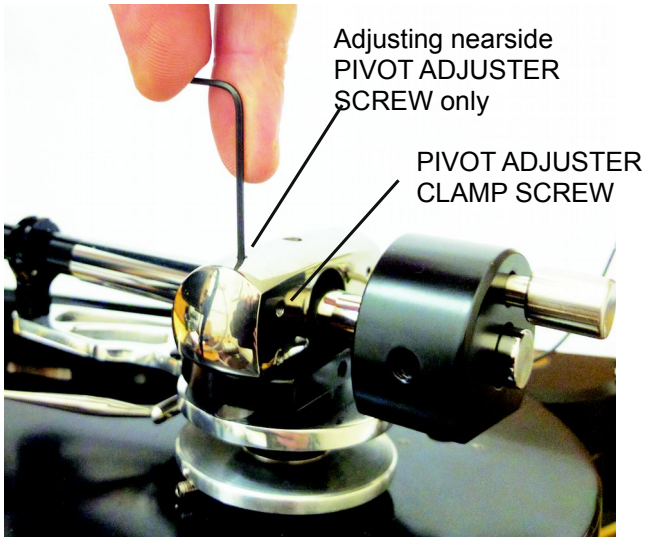
Setting azimuth correctly is tricky at the best of times and you need a certain amount of expertise to get it right. It's also absolutely critical to adhere to our instructions or the arm will probably end up not working correctly.

Adjusting Azimuth

If you wish to adjust azimuth the proceedure is as follows.

Adjust azimuth by slackening only ONE “Azimuth clamping screw” on the nearside of the arm – this is shown in the diagram showing “adjusters for vta and azimuth”.

Adjust azimuth by inserting a 1.5mm Allen key into the relevant top hole in the yoke and locating it in the Allen socket of the “Azimuth pivot adjuster screw” (see below).



Make a mental note of the orientation of the allen key elbow so that you can remember the original factory set position and keep a record of the fractional turn you give it e.g 1/4, 1/16 etc.

Never turn the allen key more than 1 turn either way out of this position or you risk crushing the spikes.

Turning the allen key clockwise will raise the yoke on the nearside, anti-clockwise will lower it. You only need a small fraction of a turn to make a big difference to the azimuth.

Never adjust the azimuth pivot adjuster screw on the far side as this maintains a reference height.

Once you are satisfied with the new azimuth setting, lightly retighten the Azimuth clamping grub screw and re-check the azimuth as there is a remote chance that it can move due to clamping. If this occurs then reset the azimuth without slackening the clamping screw any more than necessary to enable the azimuth adjustment screw to still turn.

Check dual pivot bearings work properly

The stylus down force should be consistently accurate to within plus or minus 0.06 grams (i.e = 0.12mm total variation). Higher deviations indicate that the bearing might be damaged or incorrectly adjusted.

The bearing freedom of movement should be checked by measuring the stylus down force over a succession of 10 or so movements of the arm into the arm clip and then onto a stylus force gauge. The force gauge should read consistently to within plus or minus 0.06 grams over the 10 measurements if all is well.

It's best to use a digital force gauge as a “balance” type can give inconsistent readings of up to 0.5 grams .

Fine Tuning

You now have three adjustments approximated. Tracking force, VTA, and azimuth. Fine tuning is best carried out by listening. You should experimentally move from one type of adjustment to the next, then to the next, in order to balance the optimization for all three.

Some cartridges like Lyra and Dynavector are very consistent. The manufacturers recommended tracking force is always spot on so all you need adjust is VTA.

Others such as London Decca and Soundsmith benefit from a little experimentation with force but never wander outside the recommended range.

It’s helpful to listen to female vocals as you proceed. Firstly try deviating from the cartridge’s recommended tracking force by small increments - about 0.2 of a gram deviation above and below the manufacturer’s basic recommendations. Don’t worry about record damage from heavy tracking as most record damage is actually caused by mistracking from too little tracking force rather than with too heavy.

If you’re getting mistracking at the low (lightest) end of the range and yet the low range is generally sounding the best (and on moderate signals, not heavy passages), then chances are you have either a dirty stylus, a bad record, an accumulation of crud in your cartridge, or a cartridge that’s getting old. Changes in tracking force can change the optimal VTA adjustment.

WARRANTY

We guarantee arms to be free from fault for 5 years and will undertake remedial work, providing the arm has not been modified by any party other than ourselves and has not received maltreatment of any kind.

FAULTS

In the event of a perceived fault, please refer to our website > support > solving problems > Tonearms.

Notes

Rustling noise from sudden arm movement

Please note that the arm can make a slight **“rustling” noise”** through the speakers when it is lifted across the record. This should not be a cause for concern as it is only caused by microphony of the internal litz cable - under normal playing conditions this is inaudible.

Lift / Lower device adjustment

If the arm does not raise and lower to the correct height then it can be adjusted by undoing the tiny M2.5 allen bolt in the side of the curved arm rest.

Use the 1.27mm size A/F Allen key provided. Once you've positioned the curved rest at the correct height, re tighten this. You should be able to raise the arm off the record. If you do not have the correct size allen key or it’s lost then try filing down a slightly oversize one to a “wedge” shape thus guaranteeing a tight fit.

If the arm “sticks” (mistracks) playing a record

Check that the curved arm rest is not fouling on the yoke. Hold the arm finger lift and check that the arm can traversed by hand above the surface of the whole record. This will identify the position of the “stick” – simply rotate the arm rest till it no longer fouls – this can usually be carried out without loosening the arm rest grub screw.

Another potential cause is headshell wires drooping down and touching the record.

Allow burn in of wires

The sound of new arms and rewires will improve significantly over the first 2 weeks as items “bed in” and arm wires **burn in**.

Now that all the hard work is over you can settle back and hear the results - we wish you many hours of enjoyable music and rediscovering your record collection.

CARTRIDGES EXPLAINED

Optional reading for less experienced users

General Notes

Origin Live offer most makes of hi-fi cartridge so we get asked questions about various issues regarding set up and care. To help newcomers to this area we have published the following notes. These guidelines are of a general nature - we publish them only to be of help and although widely accepted they are not formally authoritative

- we cannot accept liability if you choose to use them and neither do we encourage the time consuming occupation of answering queries surrounding the procedures outlined - these are best referred to the manufacturer of your specific hi-fi cartridge.

For those new or inexperienced to fitting hi-fi cartridges we would state that this is NOT difficult and much of the detail and perfectionism outlined below is for those who like to experiment. We ourselves do not normally check azimuth, or vary tracking forces from the manufacturers recommendations - neither would we worry if the arm was up to 1mm away from the recommended distance from the spindle - although all these details are audible they are generally of a relatively low order, however tracking force and VTA in particular are worth fine tuning should you feel anything is lacking. If things seem complicated we would encourage you not to be put off as it all becomes clear once you get started.

Before fine tuning the set up as described below you should allow the cartridge to “run in” properly - at least 40 hours for some cartridges.

Importance of set up

Hi-Fi cartridges travel like a bobsleigh through the grooves of a record only a few thousandths of an inch wide. You hear groove displacements of the order of a few millionths of an inch. (That’s like splitting a hair into one thousand pieces.) Every movement or vibration at this level can be heard enormously amplified through your speakers. For this reason it's good to set up the turntable and arm correctly so that the audio cartridge can do it’s job properly.

For example a turntable significantly out of level can produce side forces on the pickup cartridge tip that will wear it more on one side than the other as well as have a slightly degrading effect on the wear of your records.

Levelness

When a turntable goes out of level, the platter bearing performance and the arm’s dynamics, specifically anti-skate, are negatively affected. So be sure your turntable platter and tonearm mounting board are level - use a spirit level.

If the platter is out of level, first adjust the surface that the deck stands on. The suspension (in the case of a suspended sub-chassis design) may also need levelling if it's subsided over time.

If the arm board is not level (which means the arm pivot is not vertical), either return it to your dealer for repair or re-level it yourself by shimming between the mounting board and it’s support.

Cartridge alignment

Alignment for hi-fi cartridges needs to be optimised in three different planes. The final authority should always be your ears and preferably over an extended period of listening.

Bear in mind that each record is cut slightly differently so optimise for an overall balance of good sound over a wide range of records.

The three alignment planes are as follows. (Please note that it's the stylus, not the cartridge that is being aligned.)

Lateral tracking angle

Viewed from above, the hi-fi cartridges arcing movement across the record must maintain the stylus in the same relation to the groove as that of the cutting stylus’s straight-line tracking; this is Lateral Tracking Angle, or Tangency. Apart from linear tracking arms this is always a matter of the best compromise.

Azimuth

Viewed from head on, the stylus must be perpendicular in the groove so as not to favour one groove wall, and therefore one channel, over the other wall/channel; this is Azimuth.

Vertical tracking angle (VTA)

Viewed from the side, the stylus must sit correctly in the groove, at the same angle as the original cutter; this is Vertical Tracking/Stylus Rake Angle. This alignment must be set by ear, even more than is the case with the other adjustments.

Note that because record thickness varies, set the VTA on the most commonly used thickness of record.

Cartridge alignment tools

Tools required are an alignment gauge, a ruler, a tracking force gauge, a FLAT record, a screwdriver or Allen keys of the right size (usually 2mm), a good light may also be helpful. Small needle-nose pliers and a magnifying glass all help. A good “test record” such as the Hi Fi News test record is usefull.

Bear in mind that the most severe “tracking ability” tests are hopelessly unrealistic and nothing tracks properly on them.

Treat the arm with care as some parts are fragile. To this end ensure that tightening of any bolts is carried out gently and without causing undue strain.

Tonearm wiring

Tonearm wiring uses a standard colour code for channel and polarity identification: White = L Hot, Blue = L Ground, Red = R Hot, and Green = R Ground. If the cartridge pins aren’t colour-coded the same way, they will have letter identifications

next to them.

Cartridge tag conduction & fit

Low level signals are unbelievably sensitive, so good conduction is essential and joints can be critical.

Make sure that the arm's wires, wire clips, and solder joints are in very good condition. At minimum, clean the contact between cartridge pins and wire clips by removing and replacing each clip. Holding the clips with needle-nose pliers can make this easier, but be careful that you don't strain the wires where they join the clip.

Check the clips for a proper fit on the cartridge pins, and adjust them if necessary. "Proper" means snug but not tight. To check clip size, hold the cartridge tail-up close to the head wires, grasp a clip firmly right behind its tubular part with the tweezers, line it up with the cartridge pin, and press. If it does not slide on with moderate force, the clip needs opening-up. If it slides on easily but flops around when attached, it needs tightening. Re-sizing is the operation most likely to detach a clip.

The trick is to avoid bending the wire at its attachment point or putting too much tension on it. To avoid either, always hold the clip with its wire slightly slack-looped behind it while adjusting. For opening a clip, hold it firmly with the tweezers or needle-noses, right behind its tubular section, and press the tip of the jeweler's screwdriver into the open end of its longitudinal slot until you see this widen very slightly. (Here's where you'll probably need the magnifier or reading glasses.). You're dealing with thousandths of an inch here, so a barely visible spreading may be all that's needed.

Try it for fit, and repeat until it does. For tightening a clip, press a toothpick inside it as far as it will go, then use the needle-nose pliers to gently squeeze together the sides of the clip near its free end, while watching the slot for any change. (Attempting to squeeze a clip without the toothpick inside it will flatten its sides.) Try it for size, and resqueeze if necessary until the fit is correct. When it is, close up the middle section of the tube to match the end.

Static on Arm

Under certain conditions it's possible for severe static charge to build up on the arm, which then causes a noise when the finger lift is touched.

Dry climates or air conditioned environments are the worst for this so remedies inlude:

- Place a pot plant in the room to get moisture into the air.
- Wipe the arm with antistatic fluid such as L'art du Son which leaves no residue (do not use furniture spray).
- Avoid Synthetic carpets and clothing.

RECORD & STYLUS CARE

Record and stylus care are big subjects well beyond the brief scope of these instructions. To help on this we've produced Youtube videos which can be found on the Origin Live Youtube channel (use google to find this).

CARE OF CARTRIDGES

Suspension Aging

Replace your cartridge when due. Most hi-fi cartridges have a lifespan for their cantilever suspensions, which age even when not in use. This will vary from manufacturer and type of cartridge but 6 years is common.

Stylus Wear

Styli wear down due to record friction. Cleaning records and stylus properly will dramatically improve the life of both. It also increases performance significantly.

Cleaning Stratagies

There are a number of stratagies for cleaning styli, each with it's own merits. We recommend a combination of the below. The items concerned are available on the Origin Live website.

Small cartridge cleaning brush

These brushes are usually supplied with your cartridge. If there is a build-up of dust and dirt where the needle enters the cartridge body you should use a small soft brush to brush the debris out. Always brush from the direction of the cantilever to the stylus or you may do damage.

Passion dust Buster (use when visible contamination is present)

This helps remove fluff and partical build up on the stylus.

Cleaning fluid (use infrequently)

Lyra cleaning fluid or similar is helpful to dissolve substance build up. Some fluids dissolve glue so minimal quantity should be used on a cotton bud or brush and only damp to prevent fluid running up the cantilever by capillary action.

Green Stuff paper (use once a week or so)

This is a very fine abrasive paper that will not harm your stylus but will remove baked on substances.

RECORD CARE AND CLEANING

The stylus itself does a pretty good job of cleaning the grooves and should itself therefore be kept very clean.

Proprietary brushes etc. for cleaning records will often do little more than brush dirt deeper into the record grooves and are best avoided if possible.

High Quality Record Sleeves

Keep records in high quality non-scratch record sleeves - preferably good ones.

Record Cleaning Machines

A record cleaning machine is really the only answer for cleaning records properly as they suck out the debris and dust in the record grooves using a powerful vacuum. Tests using a microscope prove that this does the job with 100% success. The performance improvement is also very noticeable when it comes to even new records being played. We offer a number of high grade cleaning machines – see web site for details.

Cleaning Fluids

The most overlooked item in cleaning records is the Cleaning fluid itself and there are many that fail to do the job properly because they have not been developed by trained chemists. For example, Iso-propanol or detergent based cleaners may degrease the record but damage it slowly as well.

We only recommend L'Art du Son cleaning fluid which has consistently outperformed everything else in reviews. Formulated by a trained Chemist and leading turntable designer, this fluid will:.

- Reduce Static charge on the record surface
- Clean grease and other contaminates
- Not damage your records
- Leave no surface residue

PACKING FOR TRANSIT

If you need to send the arm anywhere the following procedure must be followed carefully to avoid damage to the dual pivot bearing (which is a very precise and delicate mechanism).

Remove the counterweight and wind the vta adjuster wheel up as high as possible.

MOST IMPORTANT - Lift the yoke slightly and insert the 3mm thick cork packing piece between the top of the turret plate and the underside of the yoke as shown in the photo.

Photo of 3mm cork packing piece inserted under yoke

The cork lifts the spikes out of their cups and prevents impact damage from shattering them in transit. DO NOT insert the cork past the yoke or the end of the “V” notch will start pushing against the internal wires at the centre of the yoke,

Wrap the small polythene bag round the arm tube (in the position shown in photo before clipping the tube in the arm clip. This is to protect the tube from getting marked in transit on the edges of the clip

Photo of polythene wrap round tube in armclip

Wrap elastic bands in the positions shown. The band over the arm tube holds the arm tube in the clip and must have sufficient tension on it. If you double up the band by putting a twist in it before placing it over the end of the arm you can get the band tight enough.

Tape or put a rubber band over cork so that it cannot fall out in transit - also double up band over arm and armplate to prevent arm moving out of clip

If you have lost the elastic bands you can use masking tape or similar instead.

Place the arm in it’s packing box.