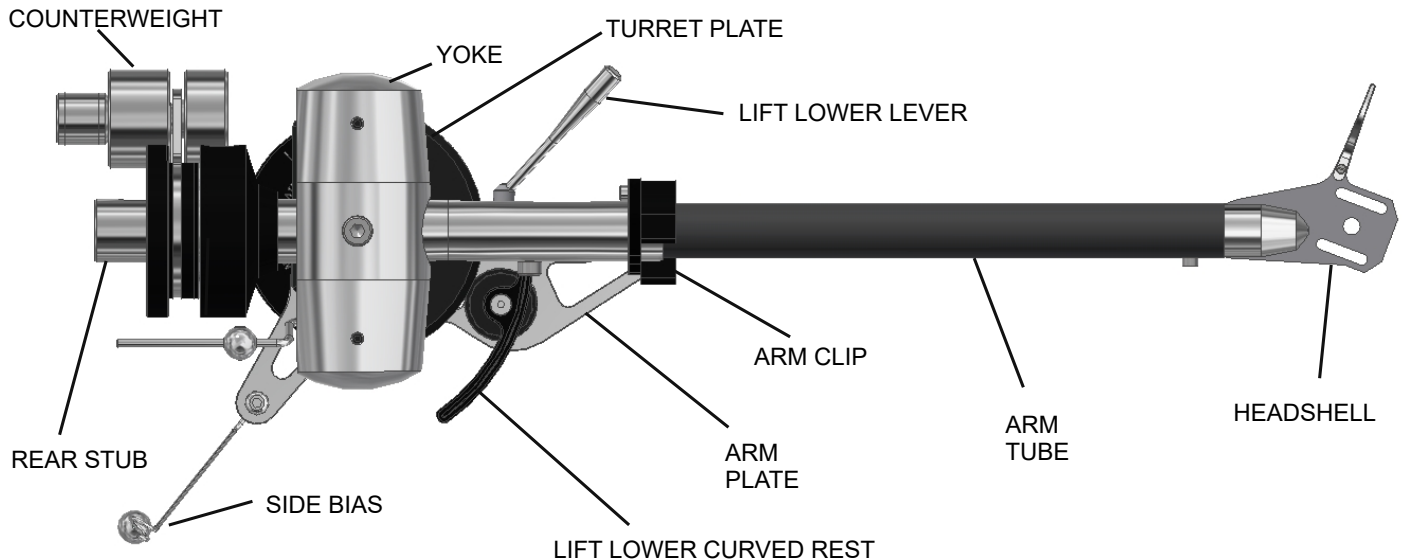


Instructions for Enterprise & Agile MkV Tonearms

Manufactured by Origin Live ©



INTRODUCTION

Thank you for ordering an Origin Live arm. 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.

Photos and diagrams are for illustrative purposes only and may not show an exact representations of your specific arm.

Parts List:

Tonearm with counterweight fitted
Alignment Gauge & Stylus Force Gauge (balance)
Bag of Allen keys, Cork washer, Side Bias Balls
Large Clamping Nut, M3 nylon washers
Fine Adjuster for extra mass on counterweight
Cartridge Enabler
Instructions

Notes:

a) It may seem there is “play” in the bearings - this is a design feature. The high grade bearings for horizontal and vertical movement are “floated” inside their housings to allow slight movement rather than rigidly coupling them to the structure. These bearings are self centering so do not be concerned about apparent movement.

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

c) Do not tighten or loosen any bolts in the arm unless specified in this manual.

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

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.

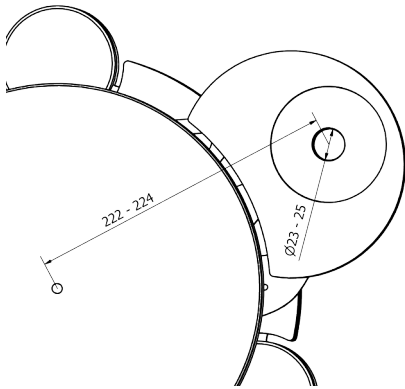
For standard Origin Live arms with effective length of 9.5 inch (239mm)

The arm mounting hole should be 23mm to 24 mm diameter.

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

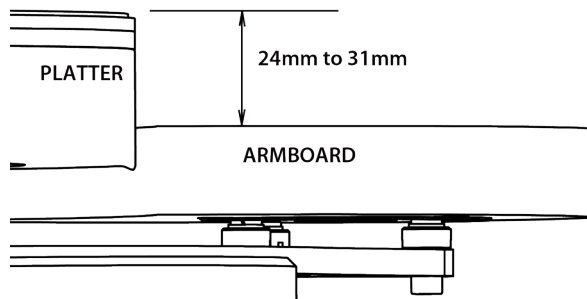
For 12 inch arms (309mm)

Mounting hole diameter is 23 to 24mm and mounting hole to centre of platter is 295.6mm (plus or minus 1mm tolerance)



Height consideration

Origin Live arms can be raised by approx 16mm using VTA adjustment. 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 22 - 24mm but not less (depending on the height of your cartridge).



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

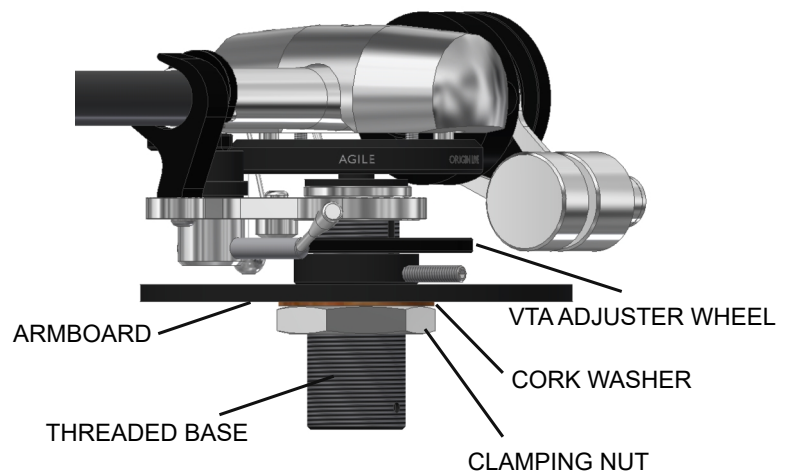
If your deck does not yet have the correct geometry please refer to our web site > Support > Technical Support > Tonearms > Mounting guidance.

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.

A common mistake is to over-tighten this nut with the result that the music sounds deadened. Simply tighten to finger tight - as hard as you can. If you don't have a strong grip then use a spanner, pliers or mole-grips to “nip” the nut a fraction tighter.



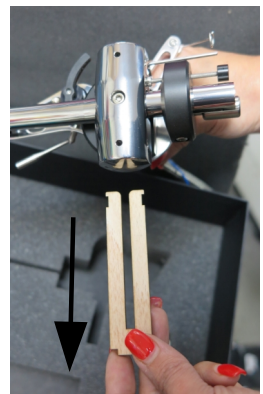
Remove Packing Spacer

Remove the rubber band from the packing spacer as shown below and pull out the spacer. It helps to lift the yoke slightly as you do this.



Remove Rubber Band from spacer

Pull out spacer in direction shown by arrow



The spacer is essential to ensure the pivot points are not damaged in transit so store it in a safe place.

UNDERSTANDING DUAL PIVOT

Why dual pivot?

The innovative dual pivot bearing is one of the secrets behind your 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 produce mediocre bass due to their instability.

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

How dual pivot works

The illustration below shows the dual pivot bearing for 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 you will soon gain confidence in it.

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!

Self Centering Yoke

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

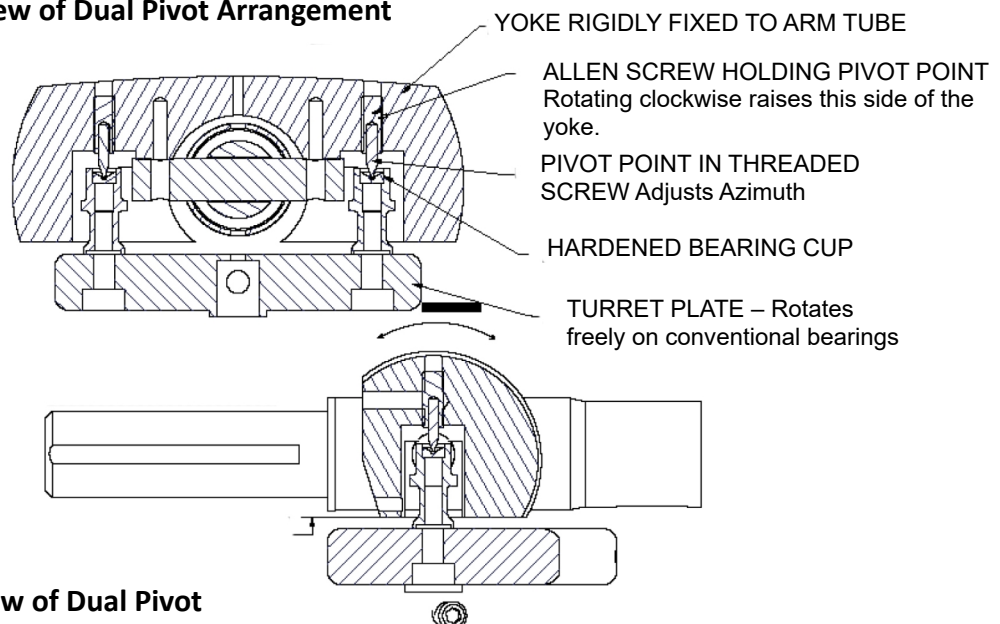
The “self centring” of the points in their cups may vary by 0.1mm or so which accounts for the slight deviance in tracking force of up to ± 0.06 grams. In practice this has negligible effect on performance and is also common among certain uni-pivot designs.

Agile 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

CONNECT THE ARM

Fit the external Cable

The Agile normally has a 5 Din pin connector in the base of the arm unless requested otherwise. It is easiest to fit the external cable to the 5 Din before you mount the arm so do this now.

If you are using balanced XLR plugs then only fit the cable after mounting the arm. You will not get both plugs through the mounting hole for the arm as the hole is too small to allow the 2nd plug to go through once the 1st cable wire takes up space.

Fit Cable Clip

For optimal performance, support the arm cable with the clip fastened underneath the plinth. This helps prevent vibration feeding into the arm. The clip may appear too small for the cable but you will find that both cables can be accommodated with a little pressure.

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

Clipping the cable is not always convenient so you can omit this step.

Connect the arm to your Phono stage / Amplifier

Plug the arm cable phono plugs into your phono stage (amplifier).

Earthing arrangements

Optimal earthing arrangement is a matter of trial and error as it depends on your phono stage / amplifier design. Most vinyl systems hum slightly at high volume levels, especially valve amplifiers. This can be reduced sometimes by changing the earthing arrangement.

Try the following and settle for the configuration with least hum.

A) Connect only the wire denoted “arm earth” and leave the “screen earths” and “black wire” disconnected.

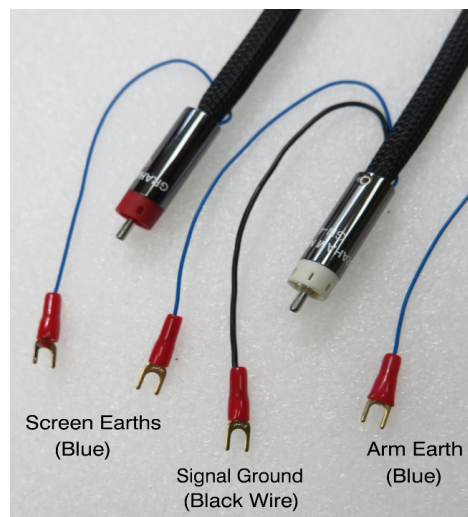
B) Connect all 3 blue earth wires to earth.

Connect “2 blue screen earths” only and leave arm earth disconnected.

If hum still persists disconnect blue wires from earth and connect only the thin black wire sprouting from the “white RCA plug” to the phono earth.

Then try the options A to C but with the black wire connected.

This process does not take long and is only necessary if you experience hum.



Additional notes on connections

Avoid pulling the arm cable at the base of the arm as it can become detached if excessive force is used to manipulate it. This also applies to the phono plugs joints – always pull and push on the phono plug itself, never the cable.

Fit Cartridge

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

Notes on fitting your cartridge

Stainless steel M2.5 Allen bolts are best for mounting cartridges. Avoid steel bolts as they are magnetic and degrade your cartridge magnets. Note that some cartridges have special threads and you may need to use the bolts supplied with the cartridge.

It's safest to fit the cartridge with the stylus guard in place but it may be necessary to remove it for phases of installation.

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 irresistible force and destroy the stylus!

Mounting

Follow the sequence in the mounting procedure described here as this is very important to achieve correct set up.

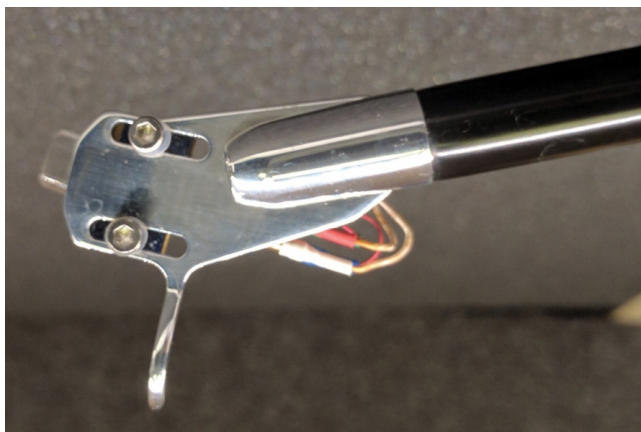
Mount the cartridge in the headshell using mounting screws. We strongly recommend fitting the “Cartridge Enabler” supplied with the arm. This has been extensively tested and proved to improve the performance of all cartridges in spite of it's

counter- intuitive approach.

At this stage the headshell screws should be tensioned just enough to just hold your cartridge to the headshell, but not enough to prevent you rotating and moving the cartridge.

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

INITIAL POSITION OF CARTRIDGE



Understanding the lift lower device

The lift / lower device raises and lowers the arm on and off your records.

The device is set up correctly at factory and should never need adjustment for variables such as cartridge body height or the addition of say a platter mat etc.

The device will only work correctly once the arm-tube is levelled correctly (see VTA later).

Correct operation of Lift lower device

When you raise the device lever, ensure that it rotates past vertical or the arm will not stay up.

When you lower the arm, pull the lever down to just past vertical and let the arm fall under its own weight.

Take care **not** to pull the lever down fully once it goes past vertical or the device may not function as intended.

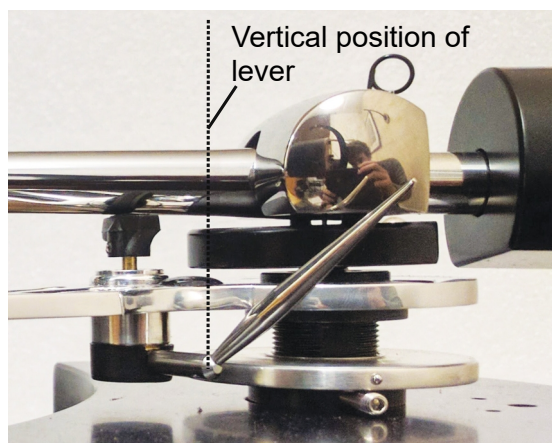


Photo showing lift / lower lever raised past vertical
Page 5

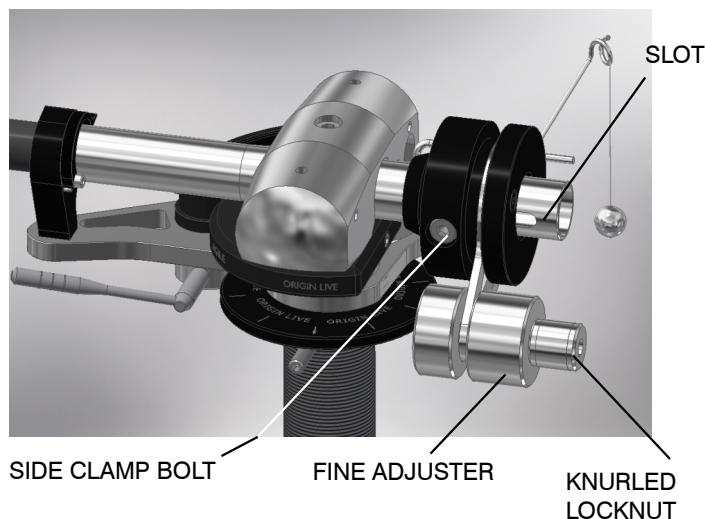
Note that descent rates vary on lift lower devices and room temperature. A quick rate of descent is not a bad thing. This is similar to hand queuing records, which offers a very fast descent. Hand queuing results in no degradation of records even when carried out mid-track, hundreds of times. Slow descent on the other hand is more likely to “graze” a record and cause slight degradation.

Set initial tracking force very light

To avoid overloading the down-force on the cartridge, adjust the counterweight position so that there is minimal down-force on the cartridge. In other words the arm is nearly balanced but has a tendency for the cartridge end of the arm to drop.

How to adjust tracking force using the Counterweight

The Counterweight is already clamped to the arm and should not normally be removed.



Slacken the Side Clamp Bolt in the side of the Counterweight just enough to allow the counterweight to slide back and forth along the rear stub. Do not undo this bolt further or it will fail to locate in its internal clamp (The bolt unscrews anti-clockwise). If you do accidentally unscrew this bolt too far which means at least 2 complete turns then re-assembly is described on the website under Technical Support > owner manuals.

Before adjusting the tracking force, it helps to rotate the fine adjuster to a position about midway along its travel. Total travel is approx 18mm after which the fine adjuster will detach from its thread.

Adjusting tracking Force

Roughly adjust the tracking force to within 0.7 grams of the final figure by sliding the

counterweight along the rear stub and then clamping it firmly in position using the side clamp bolt. Do not use undue force here as overtightening the bolt is of no benefit.

You can now rotate the fine adjuster and knurled locknut to achieve a more accurate setting. Gently lock the fine adjuster in position with the Knurled Locknut (only use finger tightness).

You will find an additional “fine adjuster” supplied. This is to enable you to increase the mass of the counterweight. Simply substitute it for the “knurled locknut”.

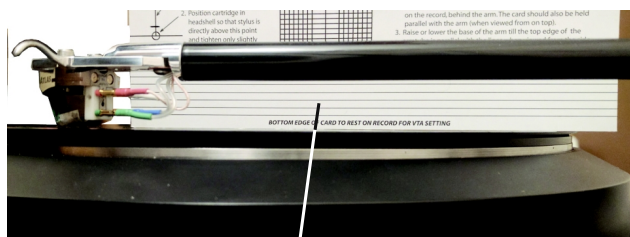
Set your arm height

Checking VTA

For your cartridge to perform as intended, the arm tube needs to be set up parallel to the surface of the record. This is known as setting the VTA (Vertical Tracking Angle).

You set VTA, by raising or lowering the rear end of the arm till the arm tube is level. Use the following procedure:

First assess the slope of the arm tube by lowering the cartridge onto a flat record. Use a position approx midway across the record.



HORIZONTAL LINES ON ALIGNMENT GAUGE

Hold the alignment card provided in the position shown on the photo below. Ensure that you hold the card parallel to the arm tube in both planes.

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



Above photo shows correct orientation of alignment card

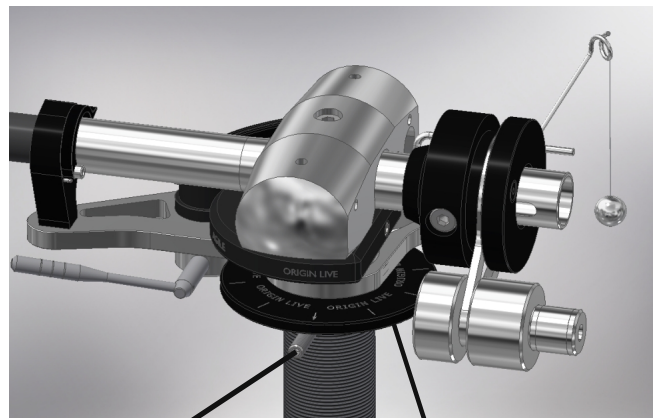


Above photo shows incorrect orientation of alignment card.

Raise and lower the base of the arm to Adjust VTA

To raise or lower the rear of the arm, first slacken the long clamping grub screw.

Rotate the inscribed VTA adjuster wheel clockwise to raise the arm or anti-clockwise to lower it – see diagram below.



CLAMPING GRUB SCREW

VTA ADJUSTER WHEEL

The wheel is divided into 10 graduations each representing 0.1mm in height. So when turning, if you see 5 lines pass by then the arm height has changed by 0.5mm. There is a unique mark on the wheel to indicate every complete turn.

Once you achieve correct height, re-clamp the long grub screw using an Allen key. The turn the VTA adjuster wheel clockwise till it hardens up – this stops the arm rocking and sounds better.

The wheel is capable of raising the arm around 16mm after which further travel is prevented.

Fine Tuning the VTA

Cartridge suspensions “bed down” over the first 40 hours. There are also slight inaccuracies in cartridge manufacture.

For these reasons, it is best to carry out final VTA adjustment by ear after 40 hours of playing time.

To set VTA height by ear, simply listen to different VTA settings. If the arm base is too high, the sound is usually slightly on the bright side and lacking

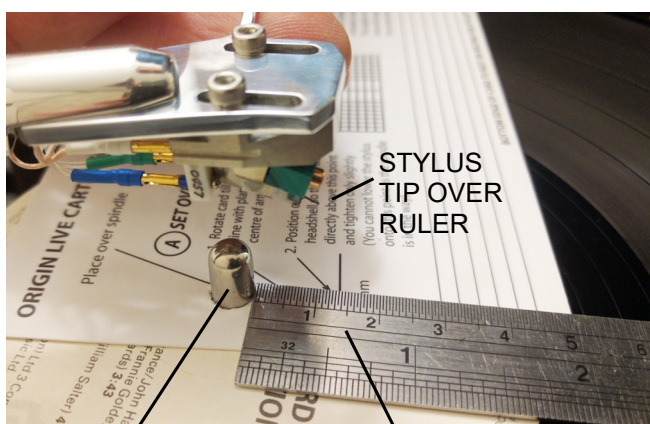
body in the bass – too low and it veers on the dull side. There is a detailed video on how to do this on the Origin Live Youtube channel.

Align Cartridge

To align your cartridge, use the following procedure. You may also find it helps to watch one of the numerous videos on Youtube describing this subject.

Set overhang

Overhang is the measurement from centre of platter to tip of stylus (see below). Ensure the arm-tube is positioned with it's centre line directly over the centre of the spindle as shown. Then slide the cartridge back and forth till the correct overhang distance is achieved.



PLATTER
SPINDLE
7MM DIAMETER

USE RULER OR
MARK
ON ALIGNMENT
CARD

Use the alignment gauge or a ruler to measure overhang. In the photo, notice that the ruler is butted against the spindle. You need the measurement from the centre of the spindle so simply add 3.5mm (half the diameter of the spindle) to your measurement readings. This is easier than trying to align the ruler with the centre of the spindle.

Set the cartridge overhang to 17mm if your arm is the standard 9.5 inches (239mm) length. If not and you have, for example a 12 inch arm then set the overhang to 13.2mm. Overhang figures for all arm lengths can be found on the Origin Live website under “specifications”.

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

Line up the Stylus

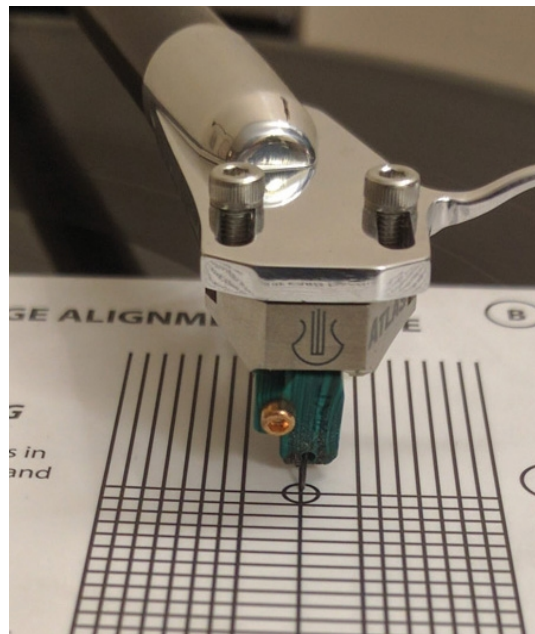
Once you have set the overhang, gently lower the cartridge onto the alignment gauge grid as shown in photo and follow the instructions printed on the gauge.

Twist the cartridge body in the headshell till the stylus aligns with grid then re-check overhang. You may find that the overhang has changed in which case you will

need to repeat the step to line up the stylus. Repeat these steps till desired result is achieved.

Most cartridge bodies have shapes to help you easily align the cartridge on the gauge. However aligning the cartridge body is not always a guarantee that the all important stylus is aligned. Just be aware that some brands do not build their stylus perfectly aligned with the body.

ALIGN STYLUS



In these cases align the stylus (not the body) to the centreline of the card. This is recommended in the case of Lyra, Soundsmith and similar cartridges where the stylus is often out of alignment with the body.

When all adjustments are correct, gradually tighten each cartridge screw a little at a time, keeping a firm grip on cartridge and headshell together so nothing shifts. Alternate between screws, till the desired tension is reached.

If you are using the Cartridge Enabler this tension is minimal – if you are not using the Enabler then a firm tighten is normally recommended.

Always check the alignment again after tightening, as movement can take place when the screws are tightened.

Ensure the headshell wires are clear of the record surface and if not then bend them clear.

Set final tracking force

Set tracking force as specified by your Cartridge manufacturer. Sometimes a range is specified so go for a force at the centre of the range

You have already levelled the arm tube, but note that this has to be completed first as you can only set the tracking force accurately when the arm is

level.

Measure Tracking Force

To measure tracking force, place the stylus on a Stylus a tracking force gauge as shown below.

Notes on Tracking Force gauges

Many force gauges work on the same principle as a set of scales. For example, the Ortofon Force Gauge, reads the force when the beam “balances” freely in a roughly level position.

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

Measure the tracking force using whatever gauge you have and adjust the counterweight till you achieve the correct tracking force.

Photo of Ortofon tracking force gauge



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 mis-tracking and a cantilever skewed in relation to the cartridge generator.

Orientate wire loop (packed position is temporary for transit only)

Orientate the wire loop to be roughly in line with the arm plate protrusion as shown. You can then tighten the grub screw in the top of the Wire Loop Base to clamp it in position, using the Allen key supplied.



The wire loop position can also be adjusted vertically using the set screw in the underside of its Base adjuster. This is set at factory to be level with the side bias rod and normally needs no attention.

Photo showing how to swivel wire loop and clamp position



Fit side bias balls

Carefully unpack the 2 balls and joining thread

Note that one ball has a grub screw in it, this is the “clamp ball” which you should now slide onto the side bias rod as denoted in following photo.

Lightly clamp in position (approx 2mm away from the yoke) using a 1.5mm Allen key in the tiny set screw of the ball.

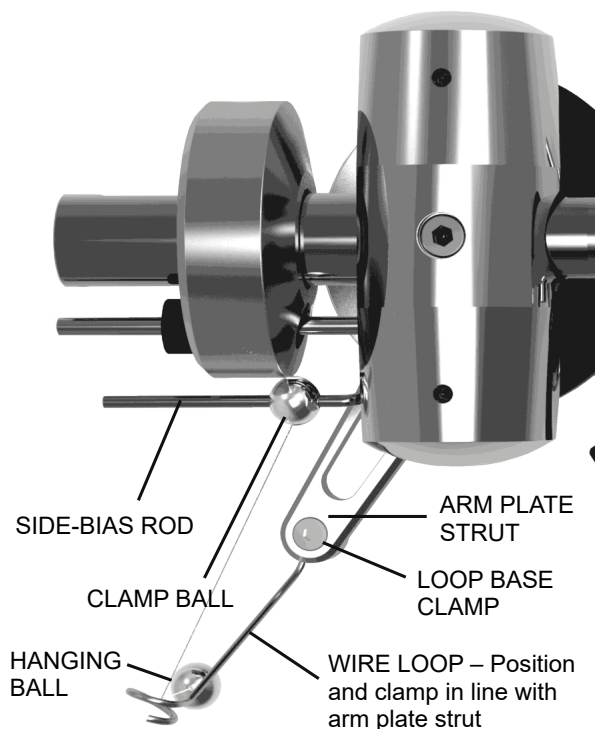
Thread the thin nylon filament line through the small gap of the wire “eye” to allow the ball weight to hang freely.

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

Once the 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 you can slightly bend the wire below the loop till the problem is rectified.

SIDE BIAS ARRANGEMENT



Setting side bias

Reliable Method

There are various methods of checking side bias. Some are controversial and we would suggest that by far the most reliable method is to listen to music with the clamp ball in various positions along the rod. Turn up the volume to a relatively high level as this will help you hear what is happening.

You will notice that when the ball is in a certain position, the music seems to snap into more focus with better separation. Vocals in particular become more pinpoint rather than diffuse and wide. The best position on the record for listening to side bias is approximately two thirds of the way across the record. This slight bias towards the inner tracks is because the cartridge has a harder time negotiating the inner grooves.

Test Record or blank vinyl

You may not trust your ears and wish to use other methods. One is to use 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 anti-skate until the arm starts to slowly drift inward towards the label. This particular method is only a very rough guide as it does not simulate the additional friction forces of the needle in the groove.

Watching the cartridge Cantilever as it lands in the groove

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.

Test Record

You can use a test record with a track for checking side bias (not all have this track, so check before you buy. The Ultimate Analogue Test LP is recommended 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.

We advise extreme caution on using this method as Peter Lauderman founder of SoundSmith Cartridges has pointed out that when he examines cartridges, many are more worn on one side of the stylus from excessive side bias. This excessive setting is due to the grooves on most test records being too heavily modulated to be representative of actual records.

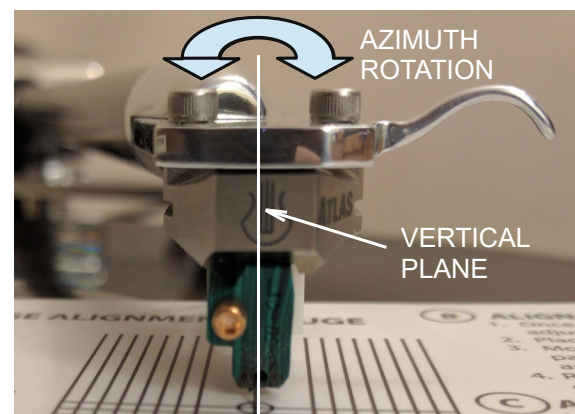
For fine tuning of the side bias we recommend the video on our Youtube channel. Titled “setting Side Bias”.

Experimentation

Finally for those who wish to experiment with varying side bias drag across the record it's worth mentioning that side bias can be increased on the inner grooves by rotating the wire loop away the cartridge, and decreased by rotating the wire loop towards the cartridge.

Azimuth

Azimuth is the vertical alignment of the cartridge / stylus as shown in the following diagram.



This is correctly set at factory and we recommend you do not adjust it unless you have the measurement tools to do so correctly. There are

various tools for carrying out azimuth checks such as Dr Feickert, mirrors and microscopes. These are all explained by their manufacturers.

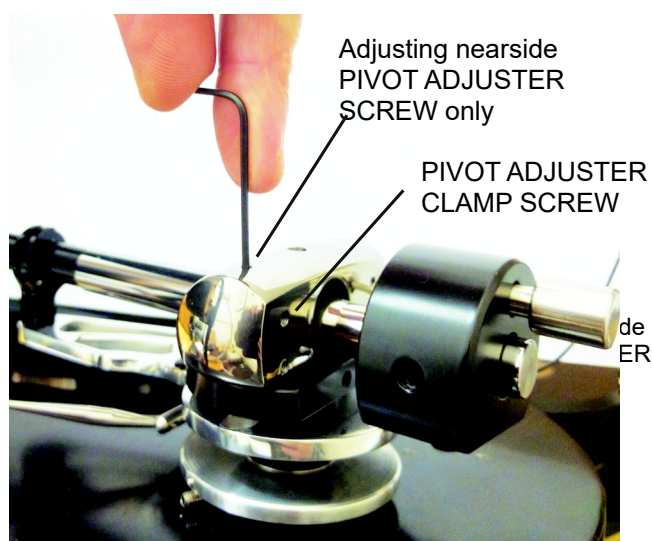
It's also absolutely critical to adhere to our instructions or the arm will probably end up not working correctly.

Never use the small bolt in the side of the tube near the headshell to adjust azimuth – only use the single Allen grub screw shown in diagram.

Adjusting Azimuth

If you wish to adjust azimuth, do so by slackening only ONE “Azimuth clamping screw” on the nearside of the arm – this is shown in the following diagram.

Insert a 1.5mm Allen key into the nearside top hole in the yoke as shown, and locate it in the 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 position and keep a record of the direction and fractional turn you give it e.g ¼ turn clockwise, 1/16 anti-clockwise etc.

Never turn the Allen key more than 1 turn 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, very lightly re-tighten 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. Note that the less tight you make the clamping screw the more performance increases.

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

It's best to allow a new arm or cartridge 40 hours to run in before carrying out fine adjustments. This allows the cantilever suspension to settle in and the arm wires to assume their final tonal balance.

Fine tuning of Tracking force, VTA, and Azimuth is best carried out by listening. You can experiment with any one of these adjustments and then move on to the next.

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 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 center of the range by small increments - about 0.1 of a gram deviation. Don't worry about record damage from heavy tracking as most record damage is actually caused by mis-tracking from too little tracking force rather than with too heavy.

If you find with lighter tracking force that you get mis-tracking and yet it sounds the best then chances are you have either a dirty stylus, a bad record, or a cartridge that's getting old.

Note that changes in tracking force can change the optimal VTA adjustment.

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.

Miscellaneous Notes

Faults

In the event of a perceived fault, please refer to our website > Support > Technical Support > Tonearms > Troubleshooting.

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 the superior insulation of the internal cable is slightly microphonic - under normal playing conditions this is inaudible.

Lift / Lower device height adjustment

If the arm does not raise and lower to the correct height then you can adjust it by undoing the tiny M2.5 Allen bolt in the top of the curved arm rest.

Lift the curved rest from the top of the piston then add or remove small spacing washers (supplied in bag of parts) to raise or lower the height accordingly.

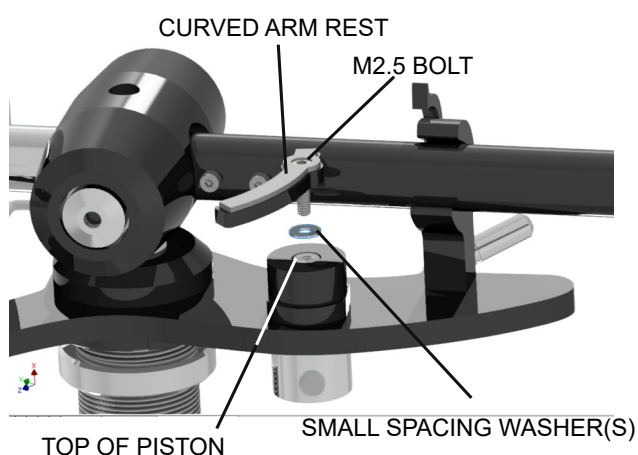


Diagram showing small spacing washers which set height of curved rest

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

Check that the curved arm rest is not fouling on the yoke. Simply rotate the arm rest till it no longer fouls – this can usually be carried out without loosening the arm rest grub screw.

If the arm rest is not the problem then hold the arm finger lift and traverse the arm above the playing surface of the record from beginning to end. You can sometimes “feel” the position of the “stick” and identify what is causing it.

Another common cause of mis-tracking 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 arm wires burn in.

CARTRIDGES EXPLAINED

Optional reading for less experienced users

General Notes

Questions and nature of advice

Origin Live offer many makes of hi-fi cartridge so we get sometimes receive questions about various issues regarding set up and care. To help newcomers to this topic we have published the following notes.

These guidelines are of a general nature - we publish them to be of help and although widely accepted they are not authoritative for your particular cartridge.

As we are not the manufacturer of your cartridge, please always refer to your cartridge brand instructions which supersede anything said here.

If you have questions relating to your cartridge set up, please refer them to the manufacturer.

Practicality vs Perfectionism

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 of relatively low significance.

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. It will also slightly increase the wear of your records.

Levelness

Ensure that your turntable Platter and Arm-board are level using a bubble gauge. If these are not level, the turntable bearing and tonearm performance are adversely affected.

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 the 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 you align.)

Lateral tracking angle

Viewed from above, the hi-fi cartridges arcs across the record. Ideally the stylus should maintain the same relation to the groove as that of the cutting stylus's straight-line tracking; this is Lateral Tracking Angle, or Tangency. Of course this is an impossibility (Apart from linear tracking arms) so you want to achieve the best compromise possible.

Always remember that alignment is a compromise. There are only ever 2 points on the record where the cartridge is in perfect alignment.

Azimuth

Viewed from head on, the stylus must be perpendicular in the groove so as not to favour one groove wall over the other. This is Azimuth which affects accurate channel balance – its not that the left or right channel could be louder, the effect of channel imbalance is more related to separation, focus and imaging.

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 is best 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 useful.

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 = Left Channel +ve, Blue = Left Channel Ground, Red = Right Channel +ve, and Green = Right Channel 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, clips are in very good condition. You can clean the contact between cartridge pins and 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 and stay at the rear of the cartridge well clear of the cartridge magnets.

Check the clips fit snugly but not too tightly on the cartridge pins. Adjust them if necessary. To check clip fit, line up the clip 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 re-sizing.

Re-sizing a clip

When re-sizing a clip avoid bending the wire near the clip or putting too much tension on it. If care is not taken, you can break the solder joint and the clip will detach from the wire. To avoid this, always hold the clip with its wire slightly slack-looped behind it while adjusting.

For opening a clip, hold it firmly with tweezers or needle-nose pliers, right behind its front opening. Press the tip of a jeweller'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 round toothpick inside it, then use needle-nose pliers to gently squeeze together the sides of the clip around the toothpick, 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 re-squeeze if necessary until the fit is correct. It may help to then squeeze the middle section of the clip to match the end.

Static on Arm

In dry climates or air conditioned rooms with synthetic carpets, it's possible for severe static charge to build up on the arm. This causes a noise when the finger lift is touched.

Remedies include:

- 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 lengthy 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 Ageing

Replace your cartridge when due. Many cartridges have a limited lifespan due to ageing of their suspensions - even when not in use. The lifespan varies depending on the brand but 6 years is common.

Stylus Wear

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

Cleaning Strategies

There are a number of strategies for cleaning styli, each with its 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 particle build up on the stylus but will not remove embedded residue which has baked itself onto the stylus.

Cleaning fluid (use infrequently)

Lyra cleaning fluid or similar can be helpful to dissolve residue build up.

Some cleaning fluids dissolve the glue holding on your stylus so only use a minimal quantity on a cotton bud or brush – just slightly damp is the rule 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, anti-static record sleeves.

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 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. 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 contaminants
- Not damage your records
- Leave no surface residue

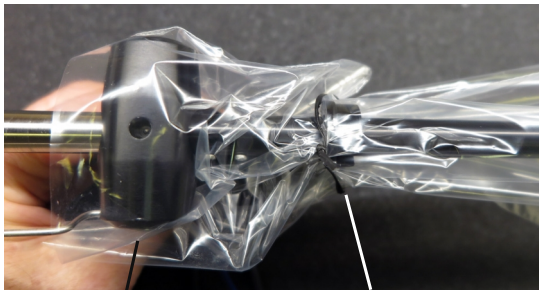
Be careful not to use Iso-propanol or detergent based cleaners. They will degrease the record but also damage it slightly every time they are used.

PACKING FOR TRANSIT

If you need to send the arm anywhere the following procedure should be followed carefully to avoid damage to the pivot spikes.

Wind the VTA adjuster wheel up as high as possible and clamp the threaded base just below it in it's highest position.

Locate the armtube in the arm grip and close the clip over it. Cover the arm with a polythene bag and lock the arm into the grip using wire wrap or tape as shown below.



Polythene bag

Wire wrap (food bag tie or similar)

Place the black slotted MDF packing spacer between the yoke and turret plate. This ensures the spikes are lifted clear from their cups so no damage can occur in transit. Place the O ring or rubber band over the grooves in the end of the spacer to prevent it dropping out in transit.

Pack the arm in it's original box or use a box with bubble wrap or scrunched up newspaper.