

Classic II arm

Mounting the arm

The arm is a direct replacement for arms using the 23mm Rega mounting hole at 222mm mounting distance.

It can also be fitted to armboards designed for the new Rega 3-point mounting because the original mounting hole remains. The mounting screw holes in the arm board can be blanked off for appearance.

Mount the arm onto the turntable before adding the counterweight. The fixing nut only needs to be tight enough to stop the arm from rotating. The arm lift quadrant may need to be opened out to the right position. The antiskate arm will also need to be turned to its correct position at the side of the arm and the antiskate quadrant and weight added (see page 6). If the antiskate arm is loose, use the allen key from the antiskate quadrant bag to tighten the screw underneath.

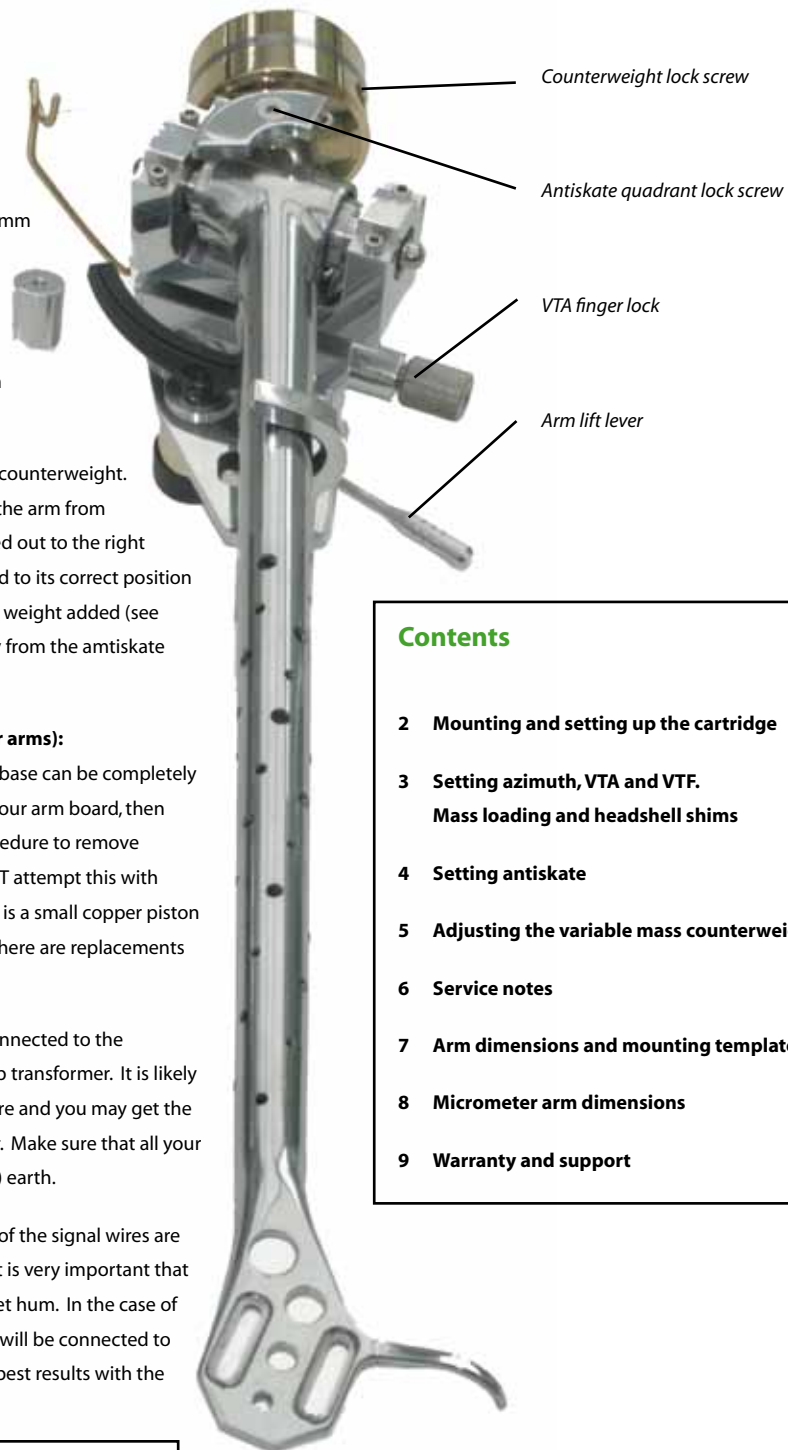
NOTE: Easy mounting procedure (non-micrometer arms):

Loosen the VTA lock screw on the base and the outer base can be completely detached from the arm. Mount the outer base onto your arm board, then drop the arm into place. You can use the reverse procedure to remove the arm at any time for cartridge mounting etc. DON'T attempt this with micrometer arms, they are assembled as a unit. There is a small copper piston inside the vta lock. Make sure this does not fall out. There are replacements in the "spare parts" bag.

With the arm mounted, the ground wire should be connected to the grounding post of your phono preamplifier or step-up transformer. It is likely your turntable will also have a separate grounding wire and you may get the best results when each ground is connected together. Make sure that all your equipment is properly connected to building (supply) earth.

The arm is wired in a "balanced" configuration - none of the signal wires are connected to the screen, arm or grounding wire - so it is very important that the arm is properly grounded to the system or may get hum. In the case of a few all-metal turntables (eg Acoustic Solid) the arm will be connected to ground through the arm board and you may get the best results with the ground wire disconnected.

Take care not to pull the signal wires at the headshell when mounting the cartridge. Never pull the phono sockets by the cable, always hold the body of the socket.



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Audiomods tonearm setup

Mounting the cartridge

Follow the instructions that came with your cartridge for suitable mounting screws etc. The headshell takes the standard 12.7mm (1/2 inch) mounting with screws of M2.5 size. Some cartridges may be sensitive to the tightness of the mounting screws.

Treat the signal wires carefully, they are easily damaged. Hold the cartridge tag lightly with tweezers by the coloured insulation. **NEVER pull the tag by the wire.** The cartridge tags should slide easily onto the contact pins and make firm contact. A few cartridges use pins of smaller diameter than normal and in that case it might be necessary to squeeze the contacts of the tags together slightly before fitting them to the cartridge.

If you are replacing an arm with Rega geometry then the mounting distance should already be correct and you only need to set up the cartridge.

If you have an old cartridge, use it for a first setup and test. Cartridges are expensive and very easily damaged!

Pivoted arms don't hold a cartridge tangentially to the record. By setting up the arm to a calculated set of measurements we can reduce the geometrical errors to a minimum to extract the best performance. Accurate setup will make a very big difference to the results from your turntable.

The measurements we want are:

Arm Mounting (pivot to spindle) distance: 222mm

Stylus to arm pivot point (the "effective length"): 239mm

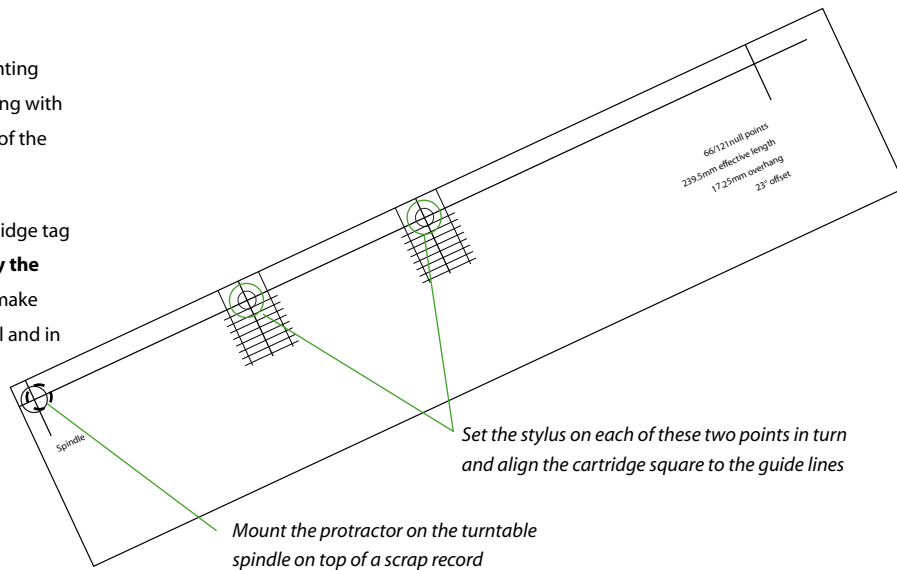
And the following settings which it is not normally necessary to measure. They should be right when the setup is complete:

Overhang: 17.25mm When the arm is over the record spindle, this is the distance from the spindle centre to the stylus tip.

Cartridge offset angle: 23° The angle of the cartridge in the headshell.

If you can't achieve the exact mounting distance, don't despair! There is a good range of adjustment available in the headshell and it can accommodate a variation of a couple of millimetres. If you can get the cartridge properly square at the two null points, the setup isn't far wrong!

Our setup procedure is based on measurements by BV Pisha and MD Kessler and will produce very reliable results. Using the two-point setup gauge compensates for small errors in mounting and effective length but there are many commercial setup systems available that can offer high-precision alignment to achieve the ultimate performance. If you are happy with the technicalities of tonearm setup, you may choose to use different settings. For example, very good results can be had from Stevenson Geometry.



Cartridge setup

1 Mount the cartridge. It should look nicely square in the headshell and the stylus tip should be vertically below the front end of the headshell as a starting point

2 Set a light tracking force to stabilise the arm when the cartridge is resting on the gauge. Adjust the VTA to an approximate setting.

3 Test the cartridge setup using the 66/121 null template on top of a scrap record. Rotate the platter so that the stylus can be lowered onto each null point in turn. (Don't move the platter with the stylus touching the paper) The cartridge should be dead square when the stylus is on each null point. You may need to slide the cartridge back or forward in the headshell or twist it slightly to achieve this.



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Cartridge vertical (azimuth) alignment.

The cartridge should be aligned so that the stylus is vertical in the groove looking from the front. You can check this either by aligning the body against the gauge supplied or using a small piece of mirror under it.

Cartridge mounting surfaces – especially plastic or wooden ones – sometimes aren't perfect and generators and cantilevers aren't always perfectly aligned within the cartridge body, so using a mirror to set up to the cantilever, rather than the cartridge body, is the best method. Adjust the setting with tiny paper slips under one mounting screw.

VTA adjustment

Though normally referred to as "vertical tracking angle" what we really want to be correct is the "stylus rake angle", or when the diamond is vertical in the groove*. To make sure you are setting this correctly, set the tracking force first, adjust the VTA, then re-check the tracking force. You should make a final adjustment to the VTA by listening tests, but the best starting point and in most cases the correct setting, is when the top of the cartridge is parallel to the record surface. Rely on the cartridge manufacturer to set the stylus correct with the cartridge level.

Non-micrometer arms:

Loosen the VTA lock in the base and slide the arm up/down to get the required height. **Gently** tighten the screw.

If you find that you are playing the arm raised by more than 5-6mm it would be best to add a spacer beneath the base. We can supply spacers to match the base of both arm types or custom mounting plates to match your turntable.

There should be plenty of vertical adjustment to get the cartridge aligned. Depending on your cartridge, it should be set up correctly when either the front face is vertical or the underside of the headshell is parallel to a scrap record. Both tone and stereo imaging are affected by the VTA setting. Record thicknesses vary and the cutting angle changed from label to label, lathe to lathe, so it may never be perfect. You can do a final fine adjustment by ear.

Tracking weight (VTF)

Use stylus scales to set the tracking weight. Digital scales (jeweller's scales) are the best choice. You should always aim to measure the VTF with the stylus at the same height as when it is playing a record. The safest starting point is to set VTF at the manufacturer's highest setting. Records are many times more likely to be damaged by too low rather than too high a force. For critical setups, the VTF can be reduced by 5-10% in very warm conditions.

To move the counterweight, loosen the inset nylon tipped lock screw with the allen key supplied in the antiskate Quadrant pack. Roughly set the tracking force with the main weight, lightly tighten the lock screw, then adjust to the final setting by rotating the small fine adjustment weight.

Mass loading

You should match the effective mass of the arm to the cartridge that you are using. This is calculated as bare arm effective mass + cartridge and fixing screw weight. The mass you want to achieve is determined by the compliance of your cartridge. There are a number of online calculators that will give you the right figure if you input your cartridge compliance and the desired resonant

frequency (usually about 10Hz). A resonant frequency of between 9 and 12Hz should work in almost all applications.

The bare Audiomods arm will have an effective mass of between 9 and 11 grams, depending on which counterweight you are using and its position on the stub. The effective mass goes up as the counterweight moves back. A difference of 2-3g in the total effective mass will have very little effect on the resonant frequency.

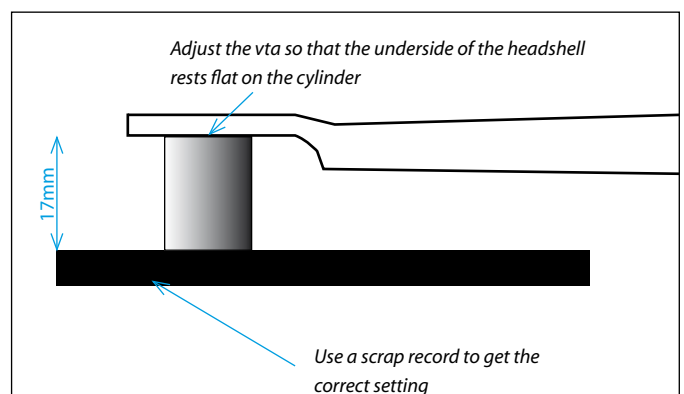
A good indicator of when extra mass is needed is the bass performance. If bass seems light, you may need to add one of the optional headshell shims.

With most cartridges you will achieve a correct effective mass without any adjustment because cartridge bodies tend to be heavier as the compliance goes down, so a high-compliance Grado at 6g and a medium-compliance Ortofon with a 10g body can both be fitted without any adjustment.

Headshell shims

A set of headshell shims is an option with the Classic arm to add mass when using cartridges of low compliance. These fit between cartridge and headshell.

To make a small adjustment for cartridges such as the Lyra Argo, add one of the aluminium shims. Moving coil cartridges with a light body like the ZYX, or ones where the maker's advice is for a medium to high mass arm, eg Benz, may benefit from the thinner copper shim. For more extreme examples (standard-bodied Denon 103, Shelter etc) the heavy shim may work best. You should not need the shims for moving magnet cartridges.



Setting the arm height - micrometer arms

A vta setting gauge is supplied with the optional micrometer arms to help with the initial setup.

The white plastic cylinder is 17mm high, a common measurement for many cartridges so, before you mount a cartridge, place vta cylinder on top of a scrap record and adjust the arm vta so that the underside of the headshell rests flat on the top of the cylinder. Make a note of the micrometer setting and it will give you accurate alignment with the headshell parallel for a cartridge 17mm high.

If you are using a cartridge of different height or using headshell shims, add or take off the difference on the micrometer, it is 0.5mm per complete turn.

Once the cartridge is mounted, you can do the final adjustment by ear, but you will have a reference setting to come back to.

Audiomods tonearm setup

Setting antiskate

As the record rotates the arm is pulled towards the centre by groove friction. This is because the cartridge is at an offset angle and the drag pulls sideways, not straight down the arm tube. The amount of antiskating force we need to apply is affected by many things: groove friction, tracking error, groove modulation, stylus profile etc.

So we have a force constantly varying as the record is played that we must counteract without knowing its exact value. Setting up on a blank disc is not accurate because it doesn't reflect the real drag value of the cartridge in the groove or an average value of the dynamic drag. Setting up with a test record is better but here it's important to set up at a number of points across the record. Avoid the highly modulated grooves of test records, these will return an antiskate value far higher than most music. Careful listening with known records is the best test. Listen carefully at outer and inner grooves, around the null points and halfway between them. Distortion from bias setup can be identified because it appears on one channel: right channel, underbiased, left channel, overbiased. A slight mismatch might be heard by the stereo image moving to left (under) or right (over).

Our quadrant antiskate does help you to optimise the force across the record, weighting it at the outer and/or inner grooves. The setting arrived at will be influenced by your cartridge and the kind of music you play.

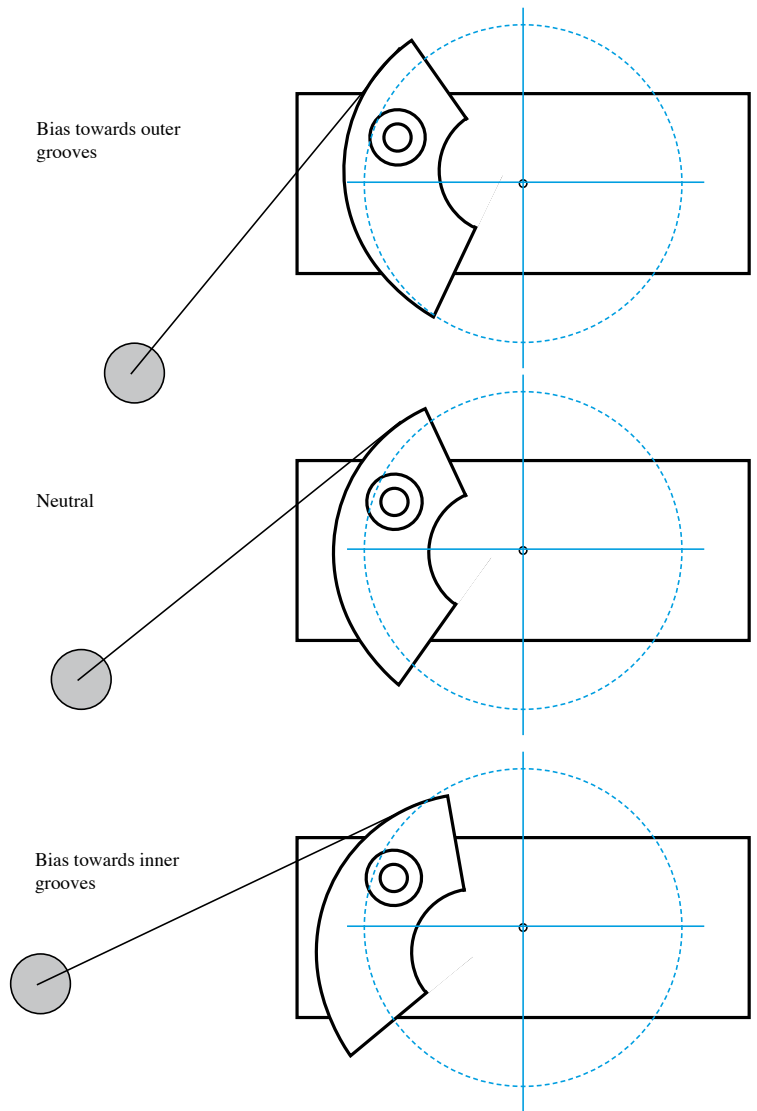
Depending upon the stylus profile, simple acoustic music will probably be more neutrally biased, whilst orchestral or opera that tends towards crescendo on the inner grooves might need a bias weighted towards the record's centre. A high-compliance cartridge might need a bias slightly weighted towards the outer grooves. Only listening will tell.

Setting up the antiskate weight

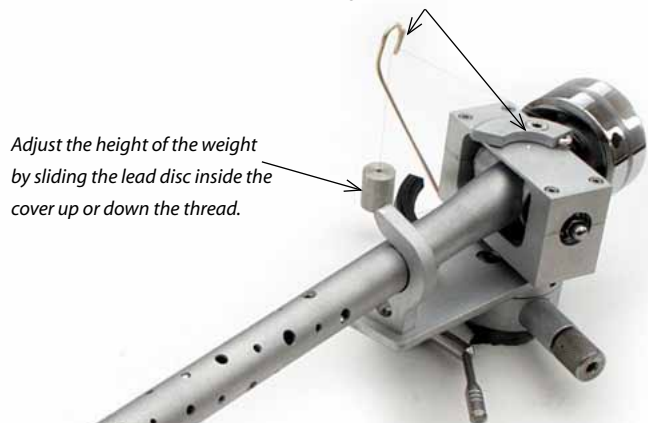
The weight and quadrant are supplied separately together with the quadrant mounting screw. Add the quadrant and hook the thread through the eye of the antiskate arm. Turn the antiskate arm so that the thread sits in the groove of the quadrant. If the antiskate weight appears too high or low the position can be adjusted by sliding the little lead disc inside it up or down the thread.

There are two mounting holes for the antiskate quadrant which allows a choice of ranges of force. As a general rule, choose the outer one for low-compliance cartridges and the inner one for high compliance ones. If you need more bias, add an extra lead disc from the "Spare parts" pack

The best starting point for fine-tuning the antiskate is to set the quadrant centred on the centre point of the arm tube. To increase the force, rotate it clockwise, rotate anticlockwise to decrease it.



Turn the antiskate arm to a position where the thread sits in the groove of the quadrant.



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Matching the counterweight to your arm

NOTE:

Depending on the cartridge(s) you are using, your counterweight may have been delivered with one or more of the lead infill discs already removed and supplied separately, along with alternative long and short screws.

Follow these instructions in reverse to add extra disks if necessary.

The kit is supplied with the heavy version of the counterweight, which has four lead fill disks and should balance cartridges of 8g or more. It is normally shipped with two disks fitted and two supplied separately, together with extra long and short screws. For extra heavy or light cartridges you can add or remove one or more of the discs to match up your arm.

Changing the counterweight mass

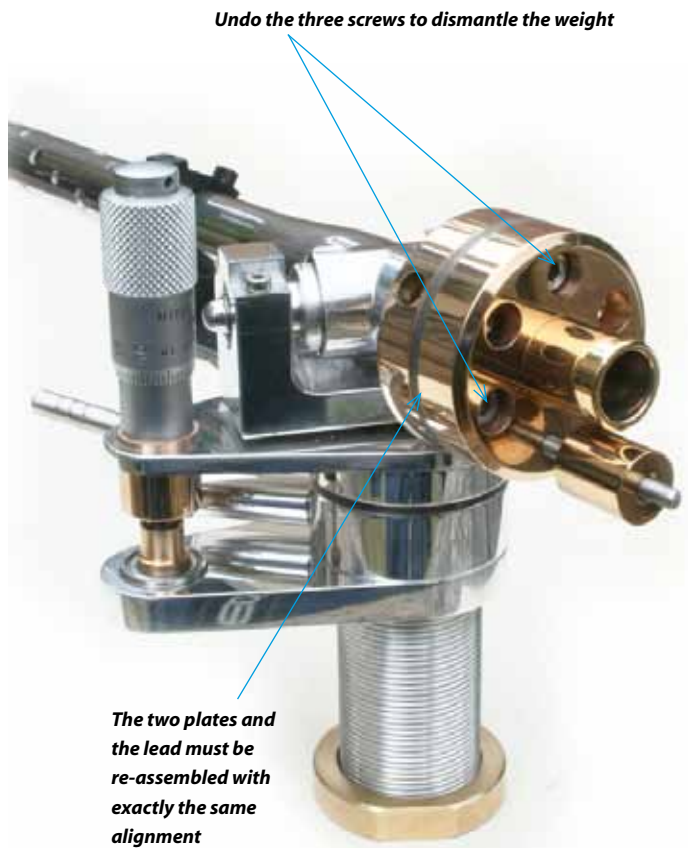
- Remove the counterweight from the arm.
- Undo the three screws holding the counterweight together.
- If you lightly tap the weight on your work surface one of the end plates should separate from the lead fill discs.

Each disc has a punch mark on it to show the alignment for re-assembly.

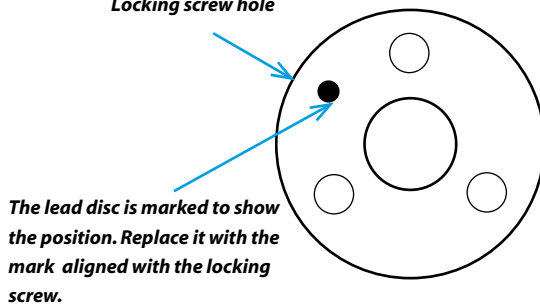
To remove a disc use a very sharp, fine blade like a scalpel or an instrument screwdriver to separate a disk. **Do this from the centre or from the screw holes to avoid marking the outside of the discs.**

Re-assemble the counterweight, making sure that the lead disks are in the same position as before. Only fit the screws very loosely so that all the parts can move a little. Don't tighten them. For one disc, use the shortest screw, 2-3 medium screws, all 4, the long screws. Slide the counterweight over the stub and tighten the screws. If the weight doesn't line up properly then the disc is rotated or flipped out of its original position.

Keep any spare discs carefully and they can be added again if needed.



Locking screw hole



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Service notes

Cleaning

Finger marks can be cleaned using liquid lighter fluid (note: inflammable). Brass and stainless steel counterweights can be polished using commercial metal polish. Don't use abrasives on gold plated counterweights.

Counterweights

The counterweight is secured by the inset nylon-tipped screw. Use the allen key supplied with the antiskate quadrant to tighten it. Only tighten the screw very gently. Very little pressure is needed to hold the counterweight in place.

Counterweight won't fit onto shaft.

NEVER force the counterweight if it is not free on the shaft.
NEVER twist the counterweight on the shaft.

1 Check that the locking screw is loosened.

2 The counterweight is made up of several layers. If the weight has been dropped or knocked they may be out of alignment.

To rectify, loosen the three cap head screws holding the counterweight together by 2-3 turns (2.5mm allen key), then slide the counterweight onto the shaft to align the elements and tighten the screws.

Arm lift

The height of the arm lift can be adjusted by loosening the grub screw inset into the black plastic lift platform. (1.3mm allen key). Check the vta setting carefully before adjusting the arm lift, it is set correctly when the vta is right.

Wiring

NEVER twist the signal wires together at the headshell.
Only add/remove the tags from the cartridge by holding the tags, never pull the wires.
NEVER pull the interconnect cable, only the plugs. If the plug moves on the cable, the loom will fail.

Silver looms

NEVER attempt to disturb or change the RCA plugs. The signal wires are in one run from the cartridge tags and the wire dressing is critical to within 1-2mm. Any attempt to disturb the plugs will result in a failed loom inside the arm.

Arm mounting

Tightness of the securing nut is not critical. It is generally only necessary to tighten it enough to stop the arm from turning.

Threaded arm mountings

Some turntable mountings (usually with built-in vtas) have a threaded collar to match the arm base. Take extreme care with threaded aluminium or anodised bases. **You MUST lubricate the threads** of these before mounting the arm or the two may lock solidly together. Test-assemble and if the thread appears tight, stop immediately.

VTA locks

The stainless steel vta locks have a small copper piston inside. This can drop out if the arm is removed from the base, or can be crushed if the lock is tightened too much. There is a spare in the "spare parts" kit included with the arm. **Only use the lightest pressure to lock the vta.**

To remove a crushed vta lock piston:

Standard arms: slide the arm out of the base and push the lock out using a pin 3mm or smaller. This can be done with the arm in place on the arm board.

Micrometer arms: Remove the arm from the arm board. Remove the screw from the tip of the micrometer (the 2mm allen key in the antiskate arm pack). The arm can now be slid out of the base and the piston removed as above.

Antiskate weight

The weight is secured by a small, split lead disc inside. Slide the disc up or down the thread to adjust the height of the weight. If the disc slips on the thread, squeeze it gently with small pliers to tighten it. There are extra discs in the "spare parts" pack.

It is not necessary to cut the thread short, having it touch the arm board will stop it swinging.

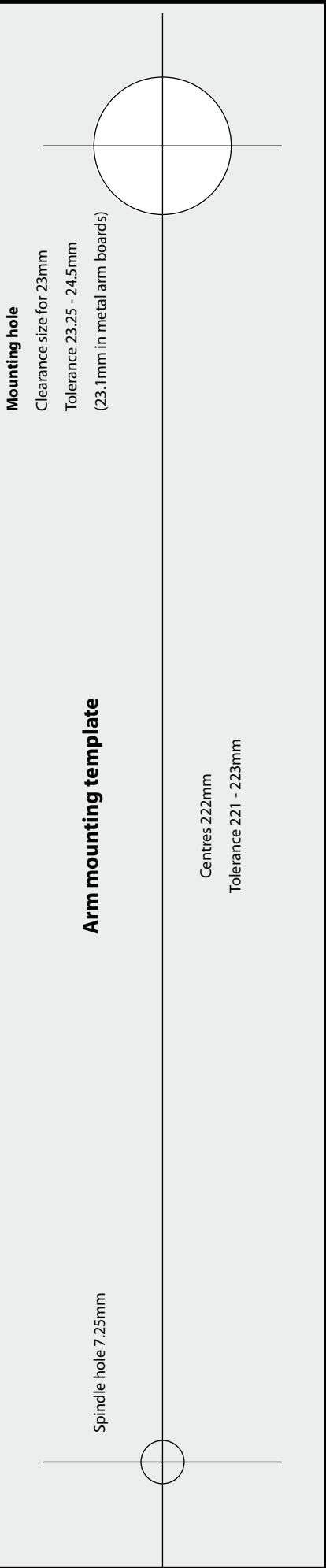
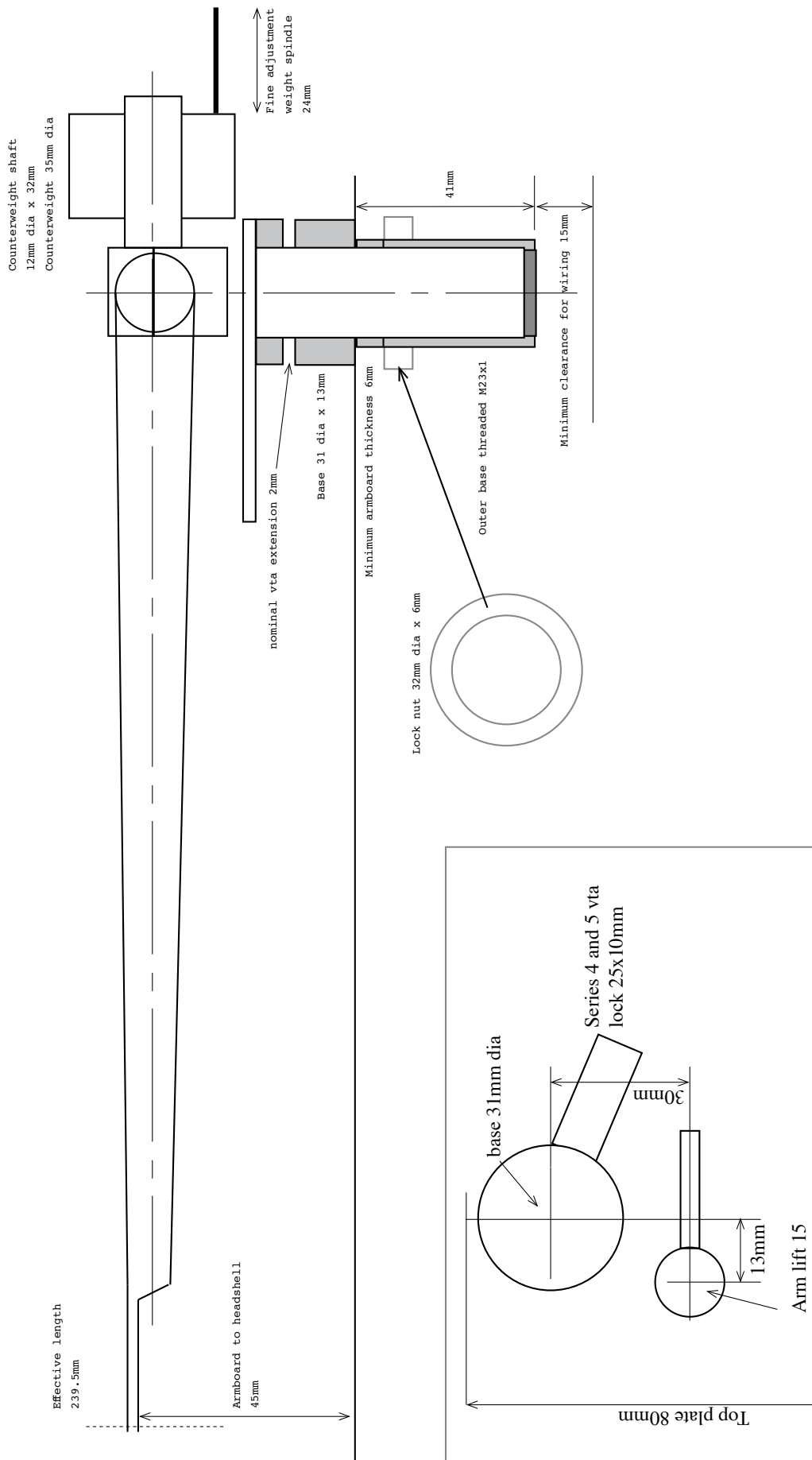
Headshell shims

To test the effect of a headshell shim, attach it temporarily to the top of the headshell with a spot of "Blu-Tak" (reset the tracking force) to do quick A/B comparisons. When the correct shim is found, fit it permanently between headshell and cartridge.

The owner manual is updated from time to time.
A PDF copy of the latest version is available for download at
www.audiomods.co.uk

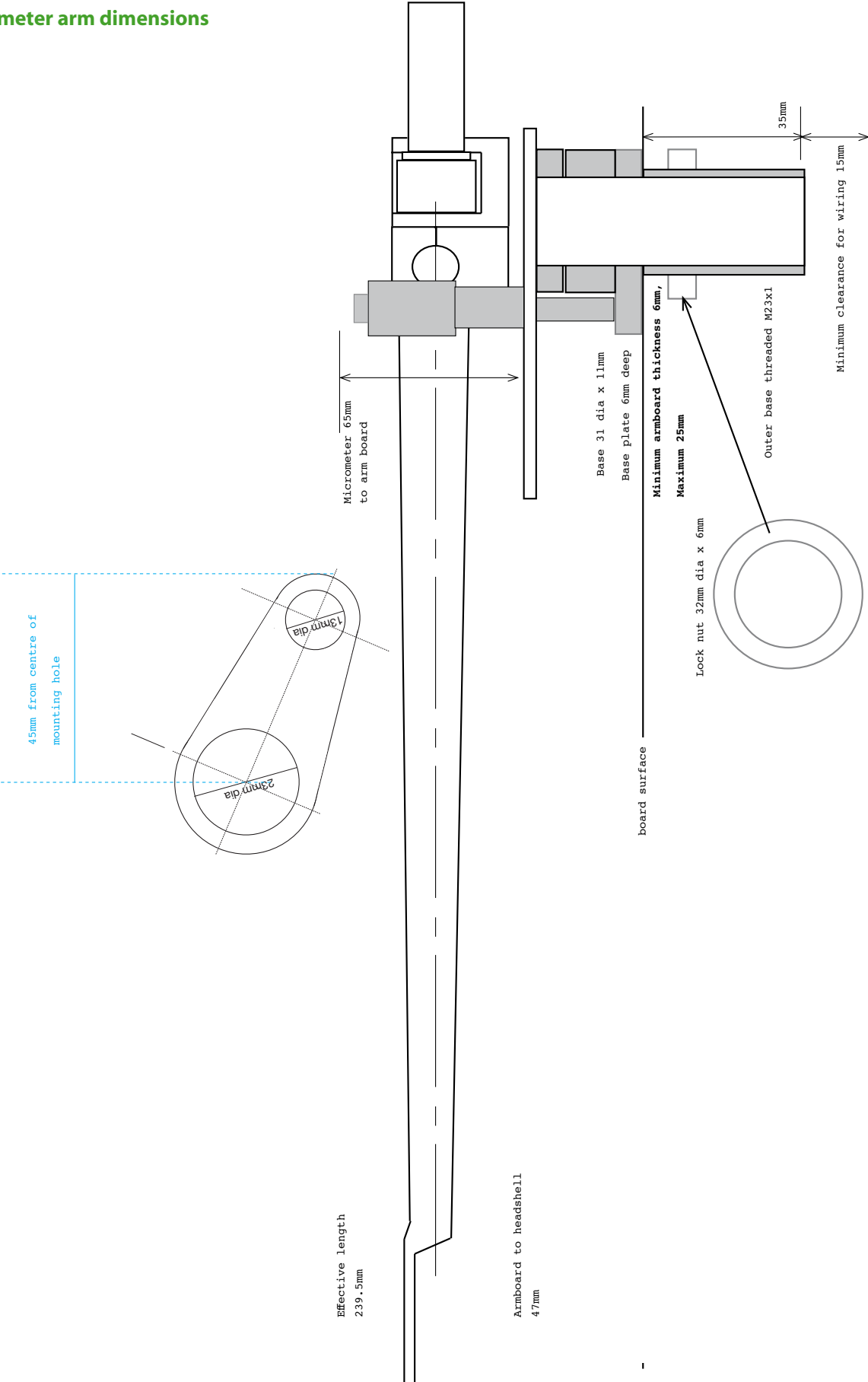
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Dimensions



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Micrometer arm dimensions



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Warranty and servicing

Your Audiomods arm is supported for the life of the product and warranty can be transferred between owners.

If repair or service is needed, return it, preferably in the original box, to:

Audiomods, 5 Tormore mews, Rectory Road, Deal, Kent CT14 9SX, UK

Support and advice

jeff@audiomods.co.uk

or call +44 (0)1304 379698

Modifications and updates

We offer an update service for all our products. Any arm can be brought up to the latest specification or exchanged for a different model.

Satisfaction guarantee

We are confident that the arm will perform to standards comparable with the very best. If you are not completely happy with the performance or compatibility with your turntable or cartridge you can return it within 30 days for a full refund.

Returns outside the EC

If you are returning an arm for service from outside the EC you must ensure that the documentation is correct for an inbound customs clearance. Please contact us before sending as we cannot take responsibility for customs duty or clearance charges.



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