H. H. MØRCH

DP-8

Installation Instructions

INTRODUCTION

Thank you for the purchase of the MØRCH DP-8 tonearm. As you will shortly find out once mounted and tuned, it is one of the finest and most thoroughly engineered tonearms in the world, and offers a myriad of adjustment capabilities. The purpose of the design is to obtain excellent audio reproduction at low frequencies, where the horizontal movement of the tonearm must be restricted – but also to ensure perfect tracking by not restricting the vertical movement. This “anisotropic” principle – different characteristics for different directions of movement – is the essence of the MØRCH DP-8.

As with any product that offers fine-tuning in multiple axes, a certain degree of patience and experimentation is required to obtain the best results. Please read through the instructions carefully, and reach out to your dealer with questions and issues.

SHIPPING CONTENTS

In the packaging of the tonearm you will find the arm-base which has a heavy moveable part, and its support. This support can move up and down in a bushing, which holds the arm-base. A black pear-shaped plate is attached to the bushing with just one screw. This pear-shaped plate supports the integrated VTA device. The bushing holds the arm-base with a big nut to the turntable chassis. A high quality cord is supplied for connecting the arm-base to the amplifier. (In North America this cord is not included.)

In the packaging you will also find one arm-tube selected according to the advice from your dealer, based on the weight and compliance of your phono cartridge.

The MØRCH website also has a page, where additional arm-tubes can be selected based on the weight and compliance of your phono cartridge.

Also in the packaging will be 4 weights with O-rings, 4 weights with tap-screws, a finger lever with screws and nuts, a knurled nut, a hexagon spanner, a syringe with silicone fluid, a thin Plexiglas rod and a narrow piece of thick paper.

The tonearm usually is supplied with the arm-rest mounted on the pick-up lifter, but a separate arm-rest can be supplied instead, if ordered.

SPATIAL REQUIREMENTS

The vertical distance from the plane where the tonearm is mounted, to the plane where the record is placed should be between 28 mm (1 1/8”) and 45 mm (1 3/4”). (Fig. 1.)

Additionally, if the diameter of the turntable platter is larger than 32 cm (12 5/8”) then it is recommended to use a 12” arm-tube.

MOUNTING THE BUSHING

Decide where to place the 20 mm (13/16”) hole for the bushing with the arm-base on the plinth or arm board. The center of the bushing, when using 9” arm-tubes, must be 212 mm (8 5/16") from the center of the turntable platter, or when using 12” arm-tubes, the center of the bushing must be 294 mm (11 9/16”) from the center of the turntable platter. Also the arm-base placement must leave room enough for the counterweight rod to move freely.

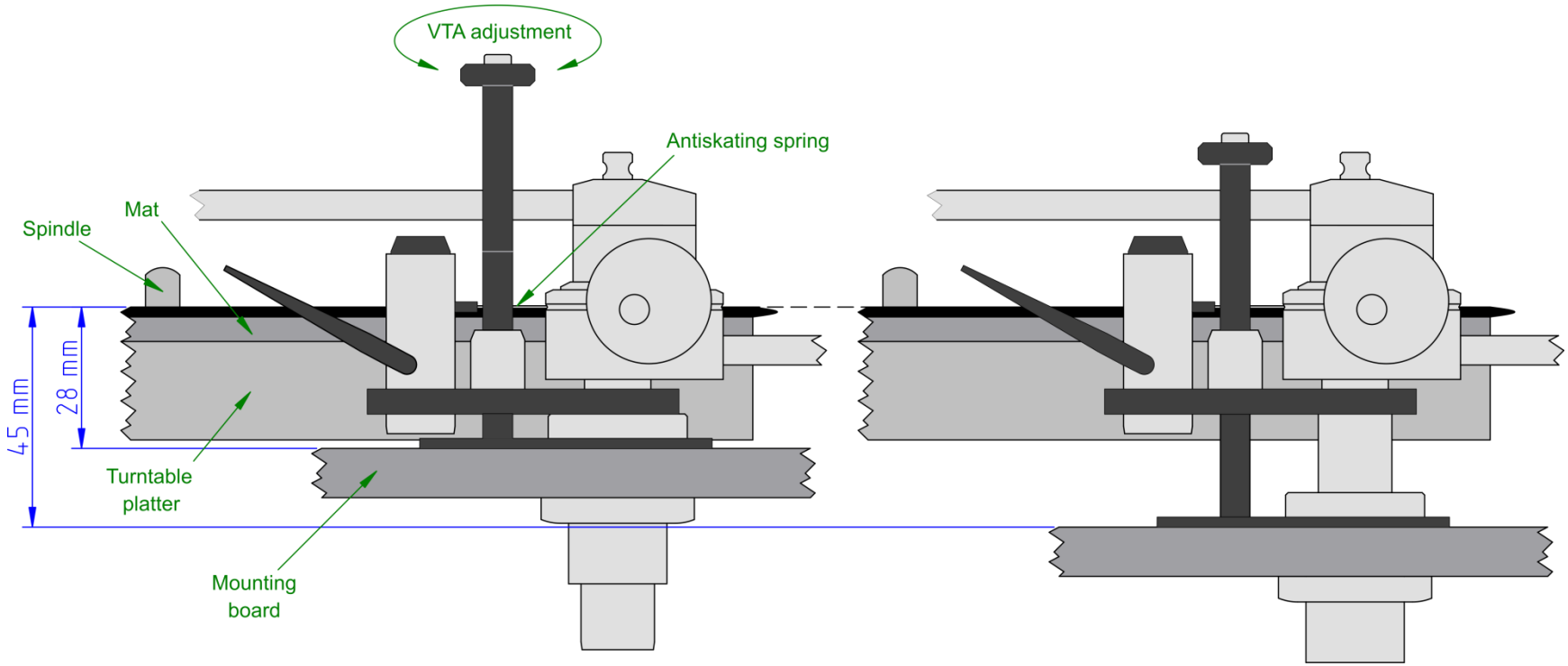

Fig. 1. Horizontal view of the mounted tonearm. To adjust the vertical tracking angle (VTA), turn the VTA knob so that the anti-skating spring is approximately at the same height as the surface of the record. If the vertical distance between the mounting board and the record surface is above approx. 45 mm, then some padding should be added between the mounting board and the tonearm. Similarly, if the distance is below approx. 28 mm, then the turntable platter should be raised or, if this is not possible, padding should be added between the turntable platter and the mat.

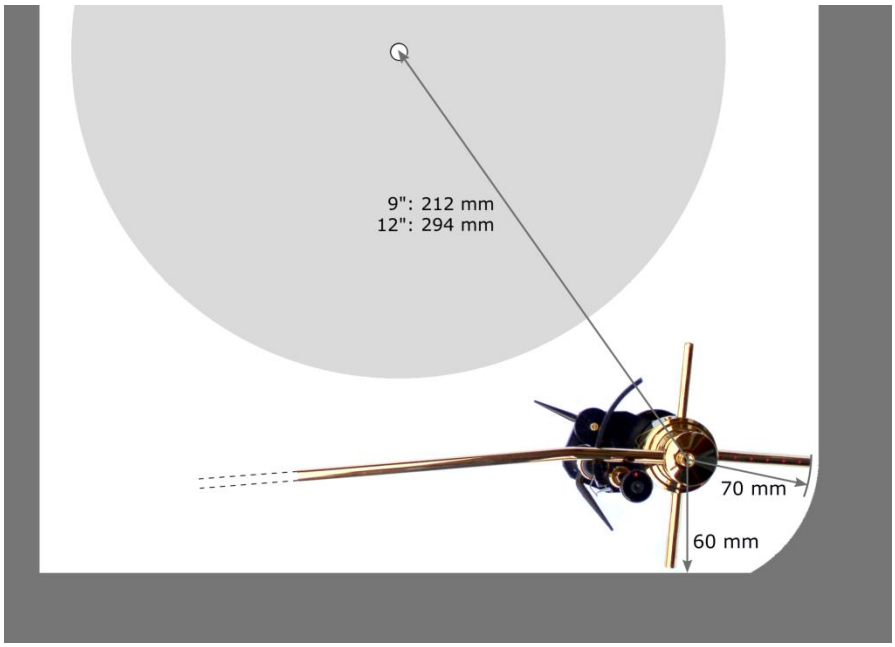

Fig. 2. The outline of the white area is indicating the room needed for the tonearm. For details, please see the mounting template on the sleeve of the packaging.

The counterweight rod has a rear overhang of 70 mm (2 3/4”) from the center of the bushing and needs clear, unhampered movement. Similarly, a clearance of 60 mm (2 3/8”) is needed for the large sideweight on the right side of the tonearm (see Fig. 2).

An additional placement consideration is where the arm-base is best positioned to give free-space from turntable platter to arm-tube when in resting position (in the arm-rest) (Fig. 2). If a separate arm-rest is used, it should be placed so that the arm-tube is at a suitable distance from the turntable platter when in rest position.

Mark the center of the hole for the bushing so that for 9” arm-tubes this center is 212 mm (8 5/16") from the center of the turntable platter. For 12” arm-tubes this center shall be 294 mm (11 9/16”) from the center of the turntable platter (Fig. 2). Then drill a 20 mm (13/16") hole with this mark as a center. Also, if a separate arm-rest is used, drill a 10 mm (13/32") hole for the bushing for the arm-rest about 155 mm (6 1/8") in front the 20 mm hole.

Insert the bushing with the heavy central body of the tonearm into the previously drilled 20 mm hole. Orient the base so that the narrow end of the black pear-shaped plate is pointing forwards. Pull out (remove) the black piece of shipping rubber from underneath the heavy body.

Then put the big nut onto the thread of the bushing and tighten it.

MOUNTING THE CARTRIDGE

Using the accompanying finger lever, the cartridge can now be mounted on the arm-tube (Fig. 3). If possible, use the accompanying aluminum screws. There are arm-tubes called NARROW 9”, 12” and PRECISION 9” which come in weights "red" or "blue".

The cartridge mounting plate in the PRECISION 9” arm-tube is 18 mm (23/32”) wide. It is a very precisely ground mounting plane to assure a good mechanical contact to cartridges that have a similar large and accurate mounting plane. The NARROW and 12” arm-tubes are supplied only with the narrow cartridge mounting plate, which is 9.5 mm (3/8”) wide.

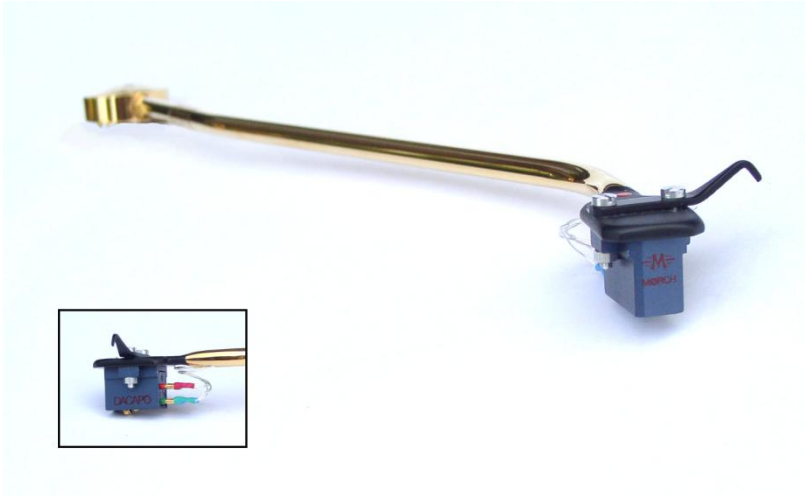

Fig. 3. A cartridge mounted by using the finger lever and screws.

With 12” arm-tubes more counterweights should be used than with 9” arm-tubes. With the heaviest 12” arm-tube “blue” usually all the weights should be on the counterweight rod. If even the cartridge is heavy, the weights should be put onto the counterweight rod in opposite sequence, so that the large counterweight is at the end of the counterweight rod.

The sound image most likely will be the best, if the counterweights are adjusted with their centers of gravity above the counterweight rod.

The overhang for 9" arm-tubes should be 18.0 mm and the overhang for 12" arm-tubes should be 13.3 mm.

The cartridge body should sit on the arm-tube’s mounting plate, so that the sides of the cartridge and the sides of the plate are in parallel. The stylus should be about 2 mm (5/64”) behind the front edge of the mounting plate when using a NARROW 9" or 12" arm-tube, and about 4 mm (5/32”) behind when using a PRECISION 9” arm-tube

Carefully push the terminal jacks of the wires unto the pins of the cartridge with a pair of tweezers. Do not force them too much and also see that you are not squeezing the thin wiring too hard. Red and green are the signal and ground leads of the right channel. White and blue are the signal and ground leads of the left channel.

INJECTING THE SILICONE FLUID

The accompanying syringe contains about 0.6 ml of silicone fluid. Pull the black piston out of the lifter cylinder and place it in a completely clean place. Then inject 0.05 ml (but absolutely no more than 0.1 ml) of the fluid behind the lifter handle shaft inside the lifter cylinder. When doing this the lifter handle must be in lowered position (Fig. 4).

When the fluid has been injected, wipe off the tip of the syringe on the shaft, and pull up the syringe with a quick little jerk to prevent the fluid from touching the side walls of the lifter cylinder. Do not put the piston back into the lifter cylinder until the silicone fluid has merged down to the bottom of the cylinder. Once inserted, the piston must not be pulled up again as the silicone fluid would then easily stick to the walls of the lifter cylinder. If this happens the piston will descend much too slowly.

The silicone fluid can also be used for damping the vertical mode of arm motion, **but this** i**s something that is rarely advantageous**. If desired anyway, please request from your supplier a separate document describing the procedure.

Fig. 4. Injecting silicone into the lifter cylinder.

ADJUSTMENTS

Raise the pick-up lifter. Now mount the arm-tube with cartridge on top of the arm-base: Align the 5 pins in the arm-tube flange with the 5 holes in the Plexiglas. Secure the arm-tube with the knurled nut screwed onto the thread going through the flange of the arm-tube.
The position of the black pear-shaped plate should now be adjusted so that the arm-tube can move in a suitable arc over the turntable platter, and also so that the arm-tube can rest in the arm-rest at a suitable distance from the turntable platter.

When moving the arm-tube horizontally in and out with a hand you will notice some resistance against the movement. Only if the arm-tube is moved very slowly will there be no resistance. **Please note that this stability of the horizontal mode of motion is a co-function between the heavy sideweights and the very efficient damping in the horizontal plane, and it is entirely intentional.**

Move the arm-tube with cartridge to rest at the end of the girder of the raised pick-up lifter. Loosen the big nut holding the arm-base. Now turn the pear-shaped plate, so that the stylus is on the line that extends from the arm-base pivot point to the center of the turntable spindle. Tighten the big nut again.

ADJUSTMENTS WITH ARM-TUBE

Check that the overhang is correct - 18 mm (23/32”) for 9” arm-tubes – 13.3 mm (11 9/16”) for 12” arm-tubes. The easiest way to check that the overhang is correct is to put a ruler on the turntable platter, so that one of its sides touches the turntable spindle. Then turn the turntable platter, so that the said side of the ruler points to the center of the knurled nut on top of the arm-tube. Then the arm-tube is moved so that the stylus of the mounted cartridge is above the said side of the ruler. The distance from the center of the turntable spindle to the stylus (overhang) can be accurately observed by looking at the scale of the ruler at right angles. Of course an alignment protractor will help to align more accurately.

MOUNTING THE CABLE TO THE AMPLIFIER

Check that the big nut holding the arm-base is sufficiently tightened. Plug the DIN side of the tonearm cord into the socket in the bottom of the arm-base. Avoid bending the cable too sharply right next to the tonearm connector. If the turntable has a floating sub chassis, the cable must not be restricted in any way, and it should be arranged in a suitable arc, so that it does not limit the free movements of the suspension. Remember that the

ground wire should always be connected to the ground terminal of the (pre)amplifier. The chassis of the turntable in most cases also needs to be electrically connected to the arm-base.

PUTTING ON THE SIDEWEIGHTS

Take the smaller of the weights **with screws** and hang one on each side rod, without tightening the screws. Then likewise take the bigger weights with screws and hang one on each side rod (Fig. *5*).

Fig. 5. All the weights with screws hanging on the side rods.

Push the arm-tube towards the turntable spindle so that one of the side rods touches the VTA spindle. Push the weights in on this side towards the VTA device while holding the enclosed thick paper between the VTA device and the smaller weight. With the smaller weight in this position insert the hexagon key into the screw of this weight. Still with this weight pushing on the paper, turn the weight so that the hexagon key is pointing backwards and a little down from horizontal (*Fig. 6*) and then tighten the screw of this weight slightly. The width of the thick paper is the same as the distance from the smaller weight to the heavy body, where the side rod is attached.

Fig. 6. Tighten the screw of the smaller weight with the paper as a spacer.

Move the weights on the other side rod so that they hang symmetrically as to the centerline of the arm-base heavy body. Then - with the paper - check that the smaller of the weights hanging here has the same distance from the body as the same weight on the other side (*Fig. 7*).

Fig. 7.The paper fits the spacing of the smaller weight adjusted at the VTA device and is used as spacing for the smaller weight on the other side.

With this distance and with the hexagon key pointing backwards and a little down, tighten the screw slightly.

On each side, put the paper between the bigger weight and the smaller weight and push the bigger weight slightly towards the smaller weight. Then tighten the screws a little, having the hexagon key pointing backwards and about 30° up from horizontal (*Fig. 8*).

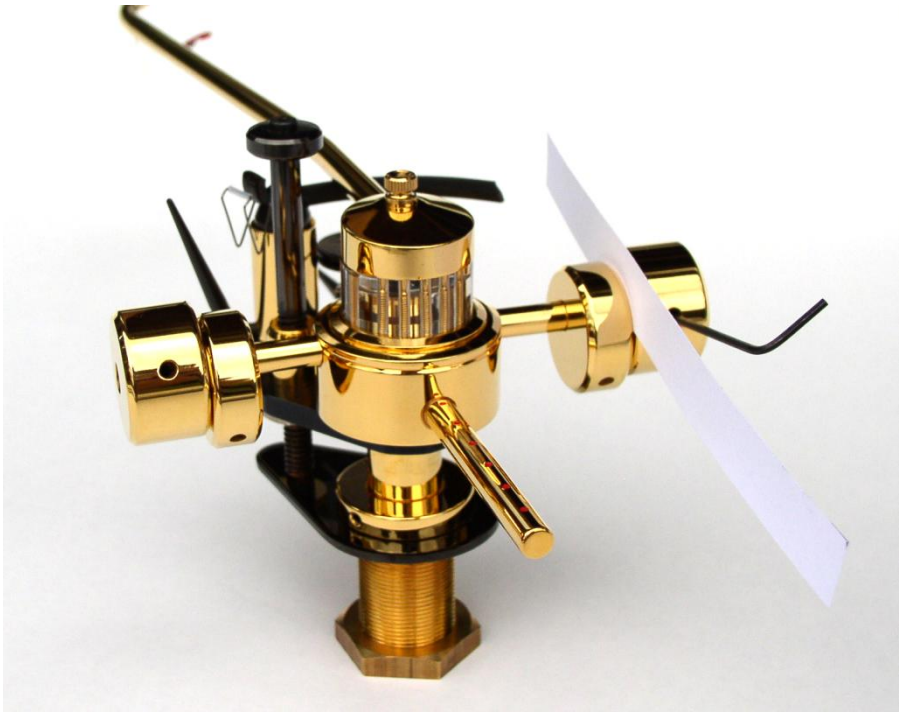

Fig. 8. All the side weights mounted shown with the paper as spacer between two of them and the hexagon key in one of them.

COARSE ADJUSTMENT OF LATERAL BALANCE

Raise the pick-up lifter. Using the supplied Plexiglas rod, move the counterweight rod up by 1 mm and check that the weights on each side move up at the same time (Fig. 9). If they do not, loosen the screw for the larger weight that moves up first, move it slightly outwards and re-tighten the screw. Check again and re-adjust as necessary. For fine adjustment see *Lateral Balance* (Fig. 12).

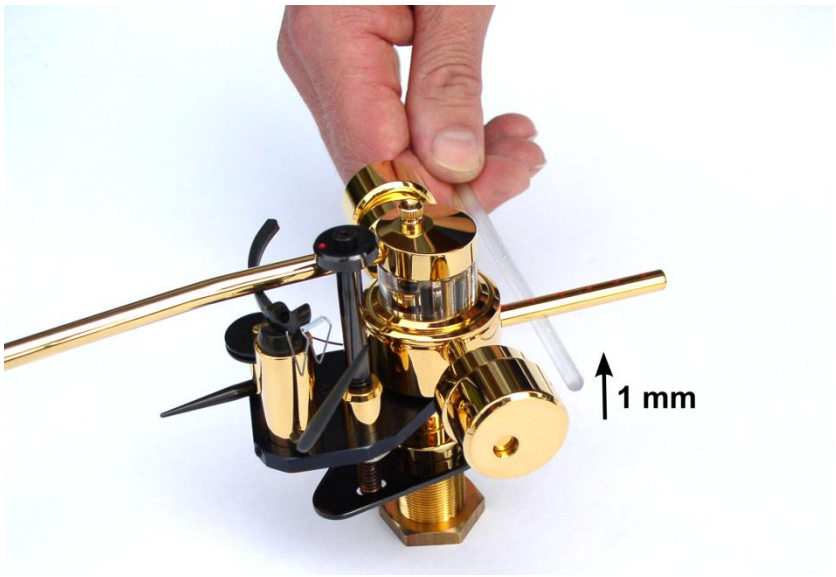

Fig. 9. When raising the counterweight rod 1 mm, the weights in both sides must come up simultaneously.

PUTTING ON THE COUNTERWEIGHTS

In order to make it possible to balance all phono cartridges the tonearm is supplied with three counterweights - large, medium, and small - having the hole eccentrically positioned, and with a tracking force weight having a centrally positioned hole.

The choice of weights for balancing a cartridge depends on the arm-tube and on the weight of the cartridge. With the lighter arm-tubes the small counterweight and the tracking force weight is put onto the counterweight rod. With the heaviest arm-tube “blue” the large counterweight and the tracking force weight is put on (in that order).

You may have to put on more than one counterweight. Start putting onto the counterweight rod the largest counterweight. Then the smaller one etc. and at last the tracking force weight. **Due to the O-rings, the counterweight/s must be moved along the counterweight rod by simultaneously revolving them to and fro.**

Use as many counterweights as possible, but leave enough room for the tracking force weight to move forward towards the pivot point.

ADJUSTING THE TONEARM

Using the VTA mechanism, adjust the height of the arm-base so that the anti-skating spring is at level with the record platter. (Fig. 1)

Place the tracking force weight near the end of the counterweight rod. Move the counterweight/s backwards or forwards until the arm-tube is balancing in about horizontal position. When doing this, see that there is space to move a weight forwards to apply tracking force.

Apply tracking force by moving a counterweight and/or the tracking force weight forwards. The large counterweight gives 2 g when moved 1 indentation forwards. The medium counterweight gives 1.2 g when moved 1 indentation forwards and the small counterweight and the tracking force weight gives ½ g when moved 1 indentation forwards.

See that there is space on the counterweight rod to move the tracking force weight forwards and backwards. This will make it easy to audition the best setting of the tracking force.

Rotate the counterweight/s so that the center of gravity is pointing upwards. It also could point downwards. The two settings influence the room of the stereo image.

If it appears that one counterweight cannot get far enough forwards to obtain the correct tracking force, then also – if more than one counterweight is used - move another counterweight and/or the tracking force weight. If there is not enough space to move the weights forwards to give the correct tracking force a counterweight should be replaced by a smaller one.

The height of the tonearm now should be fine adjusted. With the stylus resting on a record the arm-base is moved downwards or upwards with the VTA device, until the arm-tube is in parallel to the record, and it is checked, that the arm-base is rotated horizontally, so that the pick-up lifter can support the arm-tube all the way to the center of the record. If necessary loosen the big nut and adjust.

Check that the stylus is about 4 mm (5/32”) above the record, when the pick-up lifter is in raised position. If this is not the case, the height of the pick-up lifter can be adjusted:

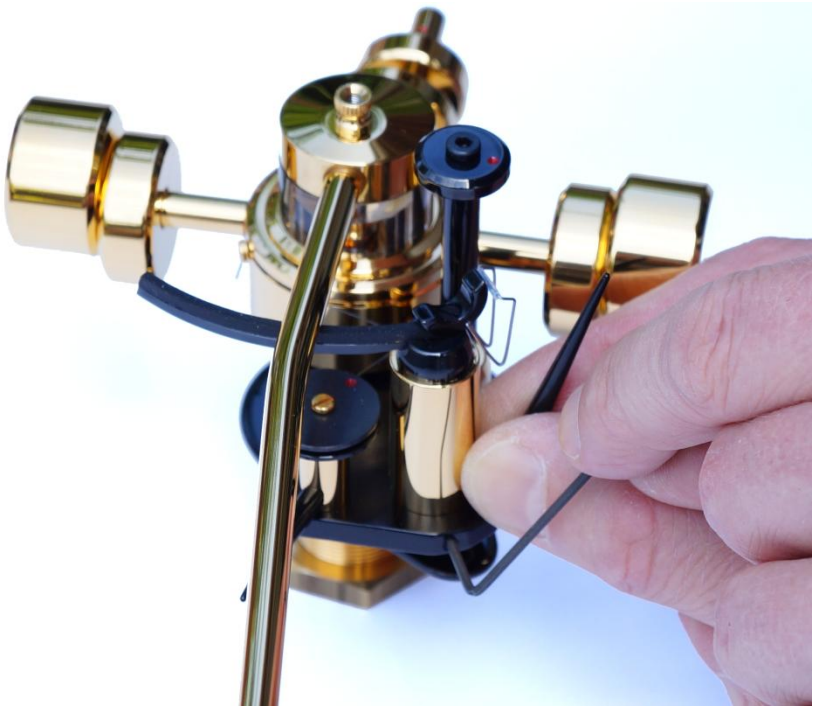

Fig. 10 Adjusting the height of the pickup lifter.

Hold the lifter handle with two fingers of your right hand (Fig. 10), so that it is pointing straight up. Support these fingers on the black plate holding the lifter cylinder. Insert the hexagon key into the screw in front of the lifter cylinder, and with your left hand loosen the screw. Then carefully raise or lower the pick-up lifter a little bit - only so much that in this position, the stylus is raised about 4 mm above the surface of the record. At the same time see that the girder is not moved horizontally, so that its arch, as seen from above, still has its center in the knurled nut on top of the arm-base. Tighten the screw again.

If a separate arm-rest is used, adjust its height so that the arm-tube rests on it, when the pick-up lifter is in raised position.

CENTER OF GRAVITY

Lower the pick-up lifter and put on the stylus guard. Place the black shipping-rubber between the lifter cylinder and the anti-skating spring, so that the spring doesn't pull. Be very careful not to bend the spring. Slide back weights, so that the stylus is floating at level with the record surface. Raise the cartridge as much as you can

with your finger and then release it. The cartridge should move very slowly down, so that the stylus ends up floating at level with the record surface.

If the center of gravity is too high, the cartridge will stay up. Then it also would have been a little tricky to find the "0"-point. The center of gravity can be lowered by turning the heavy end of a counterweight down - if it was pointing upwards. Also the heavy end of the big side-weights could be turned just a little down.

If the stylus moves quickly down to the neutral “0” point, the center of gravity is too low. Rotate the heavy end of the smaller side weights to be turned up a little. Also the heavy end of the big side weights could be turned a little more up.

After adjusting any of the weights - except the tracking force weight - the lateral balance should be adjusted again (Fig. 12). After that also the tracking force.

CARTRIDGE AZIMUTH

Azimuth (inclination of the stylus as seen from the front) may have to be adjusted. When the stylus is resting on a record, it should stand at right angles to the plane of the record surface. Look at the front of the cartridge and the mirror image of it in the record. They have to be inline.

If it does not, insert the long end of the hexagon key into the hole in the right side of the flange of the arm-tube next to the knurled nut holding the arm-tube (Fig. 11). Make sure that the key catches the hexagon hole in the screw on top of the arm-base.

By turning the hexagon key clockwise the arm - and so the cartridge - will be tilted to the left. By turning it counter clockwise the cartridge will be tilted to the right.

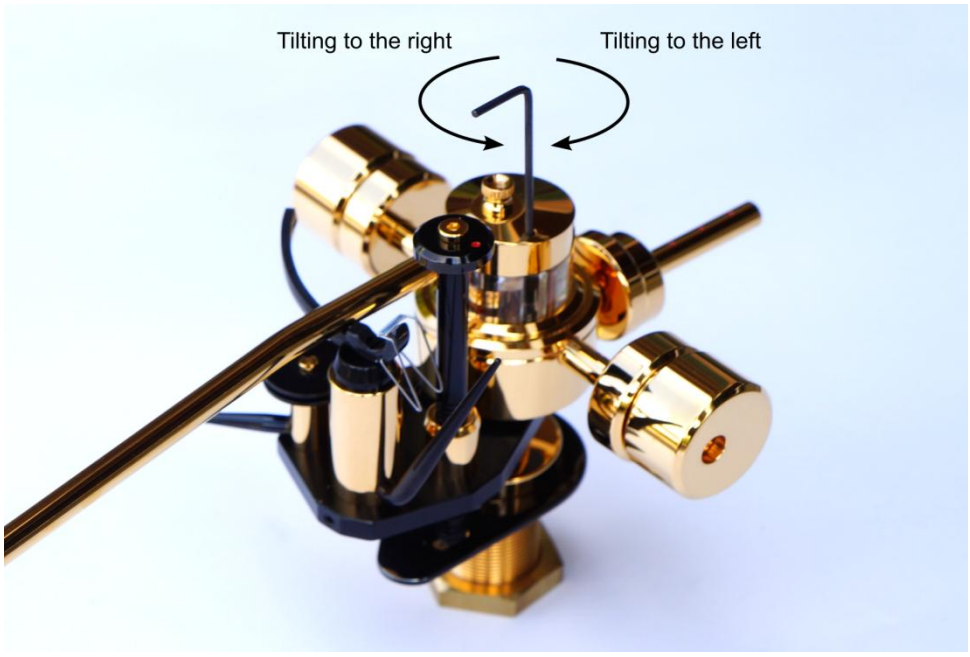

Fig. 11. The hexagon key, going through the arm-tube flange, is ready to turn the pivot up or down.

LATERAL BALANCE

The direction of the counterweight rod extended to the stylus is the line of lateral balance. The lateral balance was coarsely adjusted after mounting the weights on the side rods (see Fig. 9).

Fine adjustment is achieved in the same way with the arm-tube resting on the raised pick-up lifter, and the anti-skating handle should be turned as far counter clockwise as possible. Usually for fine adjustment it will be enough to turn the heavy end of any counterweight on the counterweight rod in the direction of where the side weights are coming up first (Fig. 12). Then try again to raise the counterweight rod with the Plexiglas rod –

repeat the procedure if needed, until both sides come up simultaneously. When adjusting, put on the stylus guard or otherwise make sure that the stylus does not touch anything.

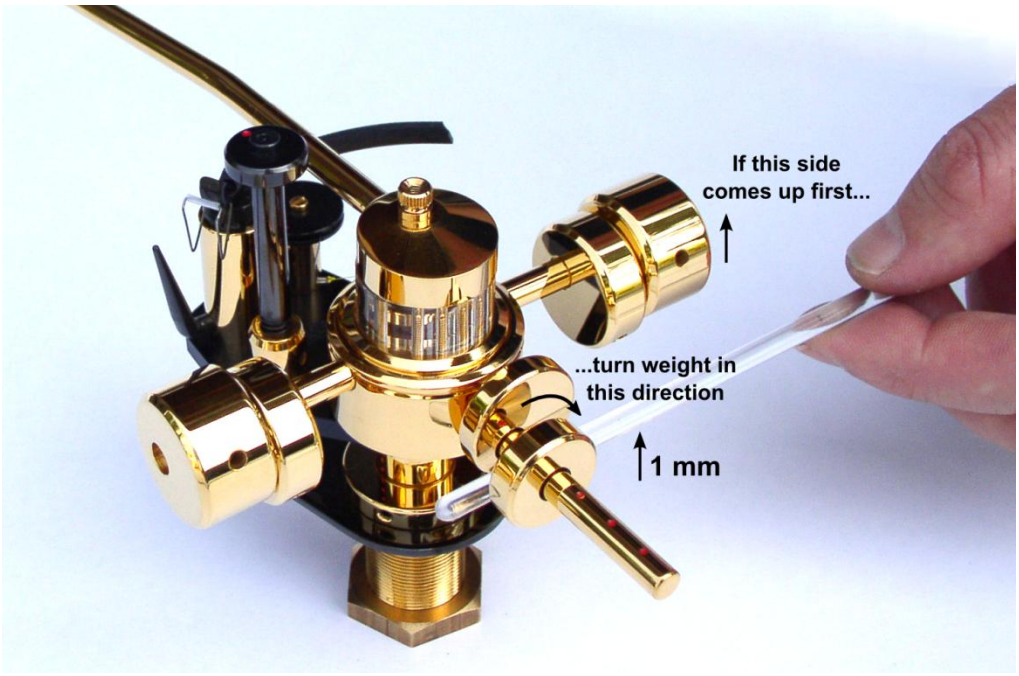

Fig. 12. Fine adjustment by turning the heavy end of any counterweight to the side that comes up first.

ANTI-SKATING

Please reference Fig. 13. The anti-skating force is adjusted with the little black handle “A” next to the pick-up lifter. As the amount of anti-skating force required depends on the tracking force and the shape of the stylus, no pre-calibration (based on tracking force) is possible.

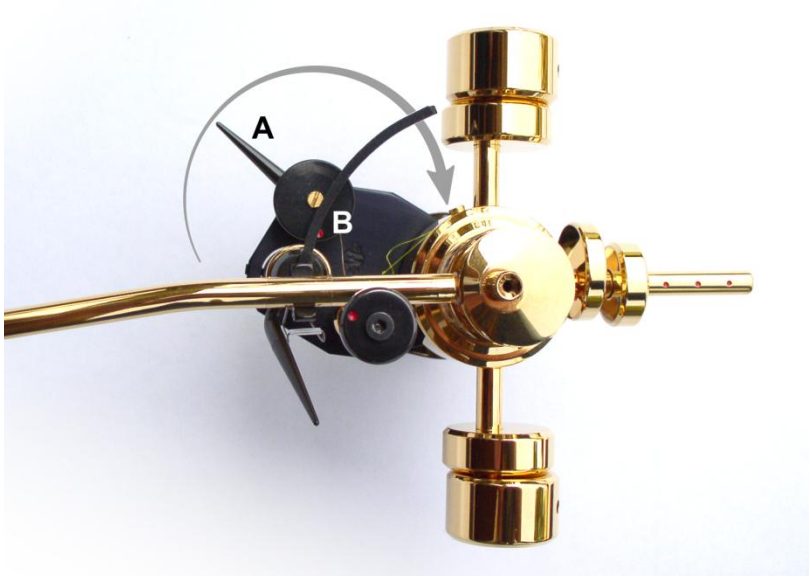

Fig. 13. Adjustment of anti-skating

Coarse adjustment can be done with the stylus running between the grooves next to the label of the record:

Without starting the turntable motor, place the stylus between these grooves. Then move the turntable platter slowly forwards with your hand. The stylus should move inwards slowly. Then move the turntable slowly a little backwards. The Stylus should move outwards.

Correct anti-skating is when you move the turntable forwards, and the stylus moves inwards with such a slow speed (when rotated by hand), that it will stay between the grooves until it gets to the center groove.

Fine adjustment could be done by reducing the tracking force a little whilst listening to a critical passage. If for instance distortion occurs in the right speaker, the handle should be turned clockwise. (The best result is obtained with a test record). The adjustment is not critical. Also note that is better to have too little rather than too much anti-skating force.

The factory-default range that the anti-skating handle “A” can move will cover most cartridges anti-skating force requirements. If the handle A is turned in the direction of the arrow (clockwise) the anti-skating will increase - and decrease if it is turned the opposite way.

If the handle cannot be turned enough to get sufficient anti-skating - or to get less anti-skating – then the disc under the screw “B” should be adjusted. Hold it with two fingers of the left hand, while the screw “B” is loosened with a not too small screwdriver, and the disc is turned ½ revolution or more either in the direction of the arrow, if more anti-skating force is desired, or in the opposite direction. Then the screw should be tightened again. The anti-skating then can be adjusted with the handle “A” in a range with more or less anti-skating than before.