

# ROKSAN



## XIEXIES.20



ANALOGUE

### User manual

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Congratulations on your purchase of the ROKSAN Xerxes.20 Record Player. This record Player is designed and manufactured to the highest specification and rigorously tested to offer you many years of trouble-free pleasure.

Your Xerxes.20 is at the heart of your record playing system and the link between the tone arm/cartridge and the record. Its correct installation, set-up and operation will have a profound influence on the sonic performance of the entire record playing system.

Please read the contents of this manual thoroughly. It will help you to understand your Xerxes.20 better and enhance your musical experience.

This manual is divided into the following sections:

- Introduction
- Caution
- Design
- Setup Summary
- Setup Diagrams
- Installation
- Operation
- Troubleshooting
- Guarantee
- Specifications
- Notes

## **UNPACKING**

Included in the packing of your Xerxes.20 Record Player you will find:

- One Xerxes.20 Inner Platter
- One Xerxes.20 Outer Platter
- One Xerxes.20 Drive Belt
- One Xerxes.20 Spindle Cap
- One Vial of Xerxes.20 oil + Cotton Bud & lint free tissue
- One pair of cotton gloves
- One Xerxes.20 Dust Cover
- Set of Allen Keys (2.5, 3.0 & 5.0mm A/F)
- One information pack and warranty card

After removing these items please retain **all** packing materials. Correct packing is necessary for future transportation of your Xerxes.20 Record Player.

## **MAINTENANCE**

After switching the amplifier off and placing the stylus guard on, the record player may be cleaned with a lightly dampened soft cloth or a soft brush.

**Avoid using abrasives or solvents.**

**\*\*\* Take care not to damage the cartridge stylus or the tone arm.**

- The Main Bearing requires recharging with oil every 12-18 months. **SEE BELOW**
- The Drive belt requires cleaning with a wax based furniture polish every 12-18 months. **SEE BELOW**

The Xerxes.20 Record Player incorporates several unique design features and manufacturing techniques. It is important to observe the following to avoid any damage and to ensure optimum performance.

**IMPORTANT**

**DO NOT attempt to run the record player without Main Bearing Oil**  
**Careful when placing the Inner Platter**  
**Careful when placing the Outer Platter onto the Inner Platter (Outer Platter should not hit the Motor Pulley or drop onto the Inner Platter)**

**The Structure**

As with the original TMS turntable design, the **Xerxes.20** has three separate plinths used for decoupling across a selective frequency band.

The sub-plinth which carries the main bearing/platter assembly and the tonearm is designed as a reference platform to preserve the record/cartridge interface from unwanted disturbances. It has been computer modelled using finite element analysis to determine the optimum shape and of coupling of this platform to the bottom plinth.

The top plinth features the familiar cut-out, which was first seen on the original Xerxes, that follows the contour of the sub-plinth without touching. The top plinth is connected to the bottom plinth via three suspension mounts.

The bottom plinth supports, decouples and isolates the top and the sub-plinths from external disturbances.

The motor is free to pivot on its own bearing on an axis of rotation coincident with the shaft of the motor. With this unique dynamic system transient speed changes are absorbed and do not affect the measuring platform.

The armboard, which provides another level of isolation, is machined from a billet of Acetal with complimentary damping between the tonearm and the sub-plinth. The detachable armboard is fixed by three stainless steel bolts for easy tonearm mounting and adjustment.

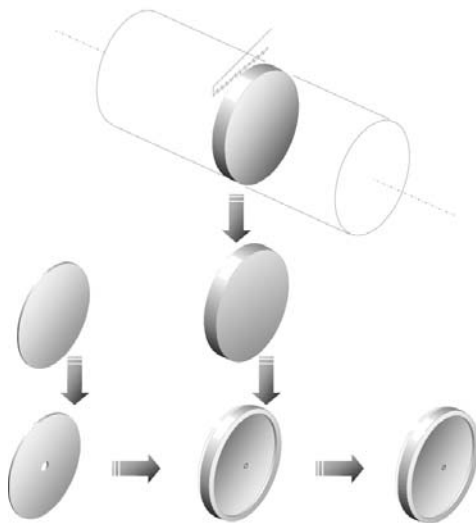
**The Bearing / Platter Assembly**

At the heart of Xerxes.20 is Roksan's unique and formidable self centring, self aligning true single point main bearing. The innovative design of this bearing provides almost silent, frictionless rotation, precisely defining the rotational axis. The bearing sleeve is gun-drilled from solid phosphor bronze and honed to provide spindle/bearing sleeve gap of 2/10,000" along its length! The only contact is between the polished spindle tip and the captive Tungsten Carbide super precision ball.

The spindle is made from hardened steel and is ground with a taper that locates into the inner platter without the use of adhesive or the need for pressing.

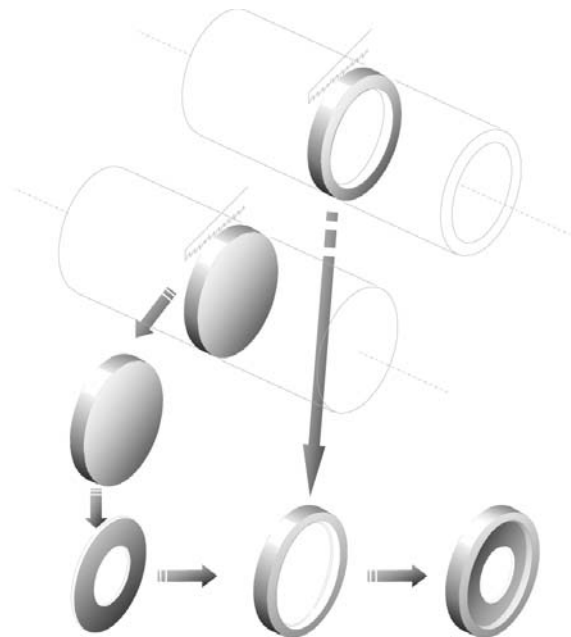


The inner and outer platters are both machined from solid aluminium alloy instead of normal castings to ensure the material is homogeneous. Each complete platter is constructed of two parts that are 'friction' fitted together. Each part is designed as a tuning fork and hence it's free from any nonlinearity. Their natural frequencies are linearly damped, as these two parts are joined together by friction only. The platters are machined to extremely high tolerances to ensure roundness and balance. Required inertia for a smooth and constant angular speed is achieved through high peripheral distribution of mass. This maximizes inertia to mass ratio and reduces undue pressure on the bearing contact point. It is this level of attention to detail throughout the design that ensures musical integrity.



#### INNER PLATTER

- 1A SAW CUT FROM 6 1/2" SOLID ALUMINUM ALLOY BAR
- 2A PRECISION MACHINED TO SHAPE (TUNED RESONANCE)
- 3B CUT FROM 16 SWG ALUMINUM ALLOY PLATE
- 4B PRECISION MACHINED TO SHAPE (TUNED RESONANCE)
- 5 PLATE PRESS FITTED ON CENTRE BOSS AND ITS SURFACE AND EDGE PRECISION MACHINED FOR FINAL SIZE AND ACCURACY
- 6 COMPLETE INNER PLATTER LINEARLY DAMPED FREE OF ANY UNWANTED RESONANCE

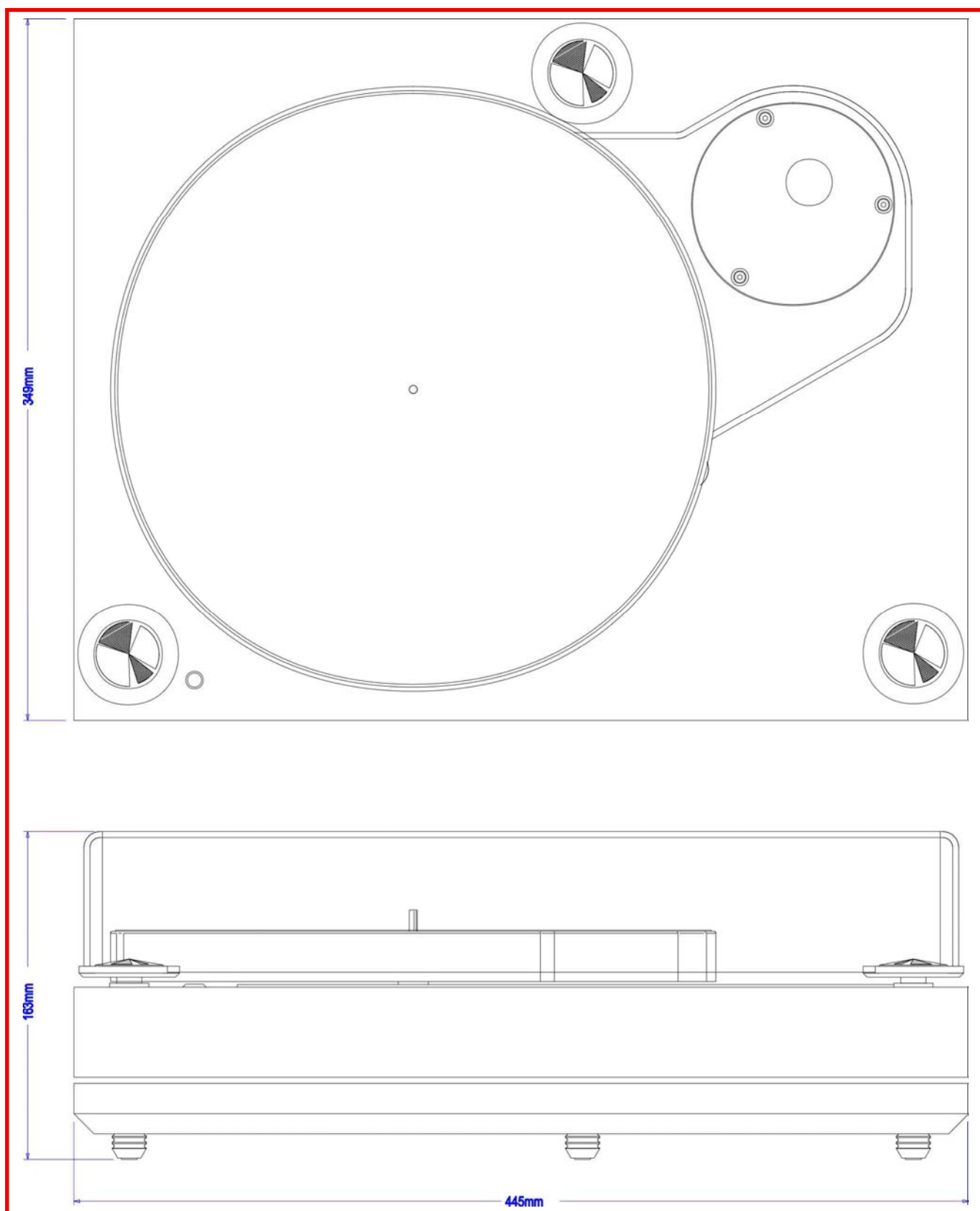


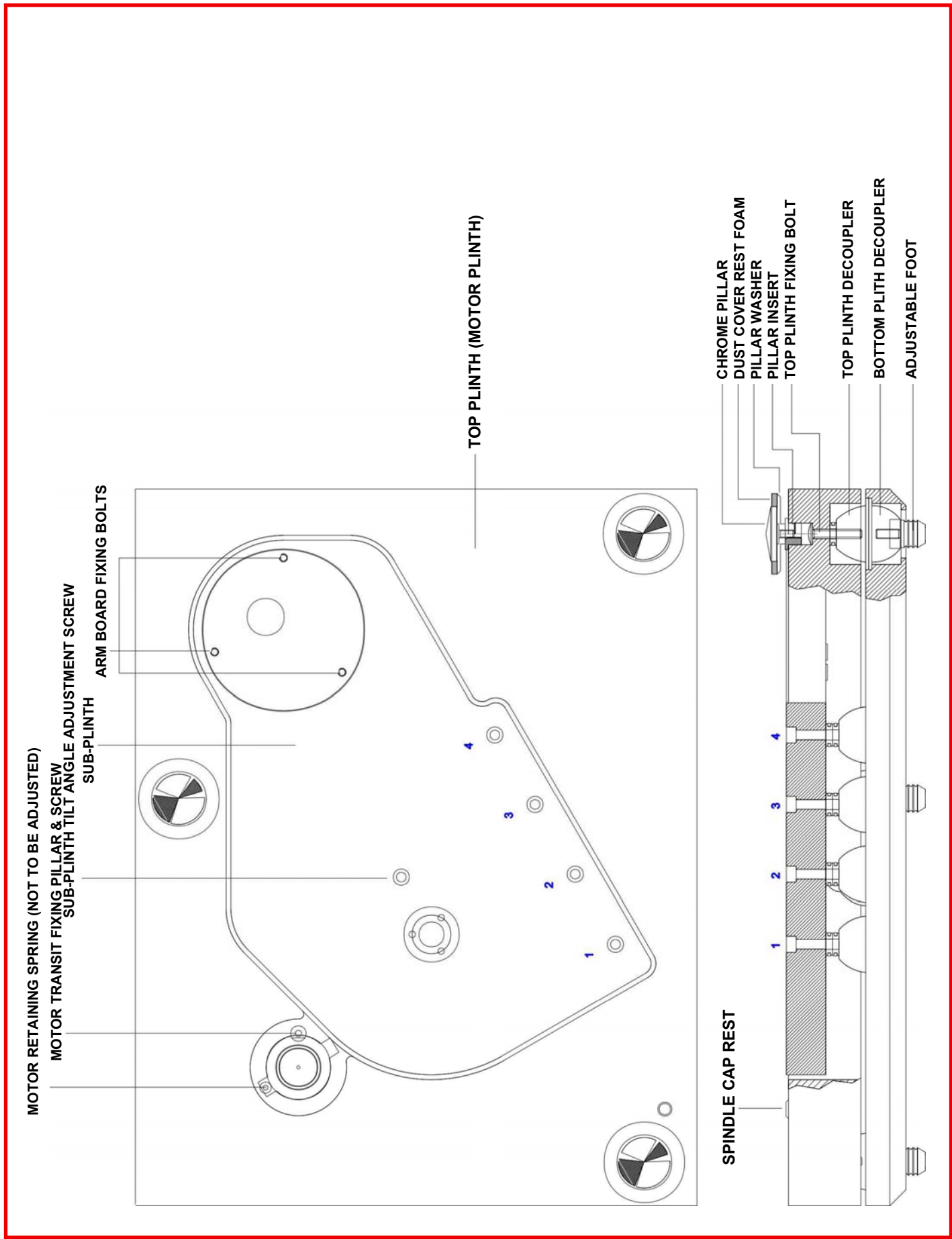
#### OUTER PLATTER

- 1A SAW CUT FROM 12" SOLID ALUMINUM ALLOY BAR
- 2A PRECISION MACHINED TO SHAPE (TUNED RESONANCE)
- 3B SAW CUT FROM 12" SOLID ALUMINUM ALLOY TUBE
- 4B PRECISION MACHINED TO SHAPE (TUNED RESONANCE)
- 5 RIM HEATED TO EXPAND AND CENTRE PART FITTED WHEN COOLED THE OUTER PLATTER PRECISION MACHINED FOR FINAL SIZE AND ACCURACY
- 6 COMPLETE OUTER PLATTER LINEARLY DAMPED FREE OF ANY UNWANTED RESONANCE



ANALOGUE







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### **Placing the Xerxes 20**

Prepare a level surface, using a spirit level, on which to place the **Xerxes.20** ('absolute' level is not critical as long as the surface is reasonably level). If you wish to use a dedicated equipment support, ensure that you get a 'vertically' rigid table. For best results it should sit rigid and level on a solid floor. For the wall mounted turntable support, ensure the same.

**NOTE:** For best results use the **Xerxes Upgrade Plinth**

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### **Removing the Motor Transit Screw**

This screw prevents the precision motor and its bearing mount assembly from being damaged in transit. Undo and remove this screw from the transit pillar to release the motor body. With the screw in place the motor spring is in tension so be careful as the motor will rotate back to its normal operating position. Please keep the motor transit screw safe in the packaging for future use.

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### **Preparing the Main Bearing**

Remove the rubber plug on the main bearing. Push a cotton Q-tip down to the bottom of the housing and rotate it while gently pressing down. Keep turning as you pull it out. The cotton bud should now have a recess in its tip, which shows that the precision ball bearing is correctly positioned at the bottom of the housing (See figure). From the small vial of oil, pour 4 to 5 drops of oil into the bearing housing. Always replace the plug, to keep the bearing housing clean, if you are not fitting the inner platter immediately.

**IMPORTANT:** Always use ROKSAN supplied Main Bearing Oil

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### **Placing the Inner Platter**

Remove the inner platter/spindle assembly from its plastic bag. The spindle is slightly oiled to protect the tool steel spindle (remember to do the same if you are storing your Xerxes for a length of time).

Wipe the oil from the spindle using a soft lint-free tissue.

Remove the plug from the bearing and carefully guide the spindle into the main bearing hole. Gently spin the inner platter. The platter will slowly sink over a period of about ten to twenty minutes. Do not force the platter down. The spindle is factory fitted to ensure that the inner platter runs true. Take extra care not to knock or bend the spindle.

You can check that the inner platter has settled by gently raising and lowering the spindle by about 3mm. You should hear a quiet metallic click as it touches the ball bearing. If there is enough oil a ridge will be visible at the top of the bearing housing.

If you do not see a ridge, use one more drop of oil.

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### **Fitting the Belt**

The belt should be wiped with a **non-alcohol**, wax based polish (i.e. aerosol type such as Pledge) before fitting. When this has been done, the belt can then be fitted around the inner platter and motor pulley. Turn the inner platter by hand for a few revolutions and the belt will come to rest in its correct operation position.

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## Fitting the Tonearm

You will need to follow the tonearm manufacturer's instructions as most tonearms differ slightly in their methods of fixing.

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## Connecting the Arm Cable

Use a standard type arm cable preferably the ROKSAN 5-pin Din High Definition Tonearm Cable. This must either be 'freely' dressed in between the foam strips or fixed securely to the bottom plinth using cable ties (See figure). It is important that the arm cable is 'loose/free' between the arm and plinth (The foam strips or the cable-ties). Otherwise this will restrict the movement of the sub plinth/arm-board and interfere with the decoupling/isolation of **Xerxes.20**.

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## Fitting the outer platter

Remove the outer platter from its plastic bag. Gently place the outer platter on the inner platter; the recess on the inside locates onto the plate of the inner platter. Take care not to hit the motor pulley with the rim of the outer platter.

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## Fitting the Mat

The **Xerxes.20** is supplied with the Roksan Rmat-5 which is designed to provide optimum contact between the record and the platter assembly. It fits over the main bearing spindle in the centre and rests uniformly over the platter surface.

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## The Centre Piece (Spindle Cap)

Roksan introduced this unique removable centre piece with the original Xerxes. Slide the centre piece over the bearing spindle to assist placing the record centrally on the mat. Before playing the record, the centre piece can be removed to eliminate any direct mechanical contact between the record and the main bearing spindle. The only contact would be through the mat and the stylus. It is important to note that

**IMPORTANT:** Use of any clamp directly connects the vinyl to the structure and allows unwanted 'noise' to be immediately present in the vinyl and thus picked up by the stylus.

**Do not** use any record weights as this may permanently damage the Main Bering.

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## Connecting the Power Supply

The dedicated turntable power supply is connected to the rear of the turntable using the 5 pin connector. *Always connect the power supplies before switching it on.*

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## Operation

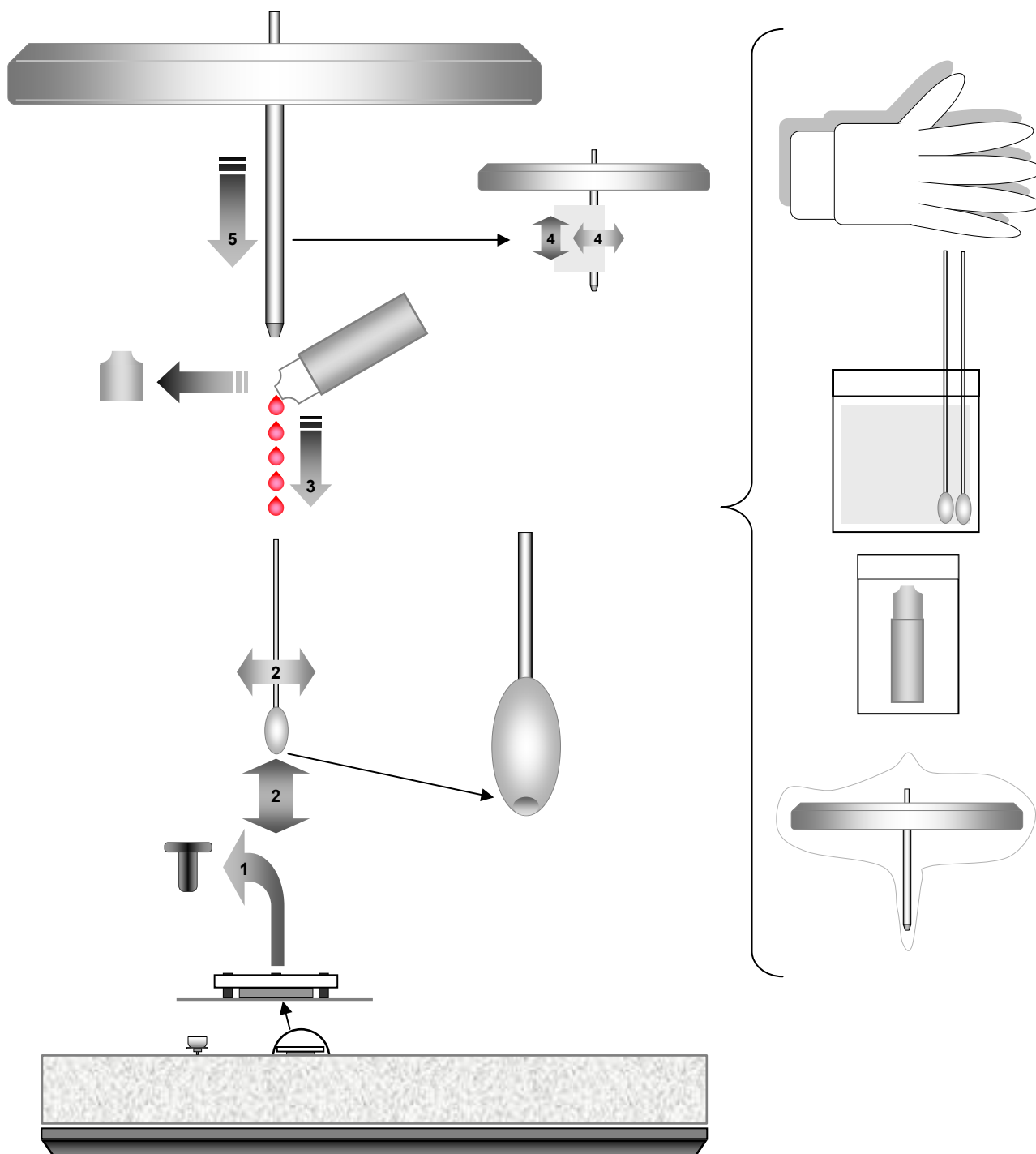
Switch on the dedicated Xerxes Power Supply and choose the desired speed. The platter should start turning. Place the record on the mat ensuring the centre piece is in place. When the record is on the platter remove the centre piece and place it in spindle cap rest on the top plinth.

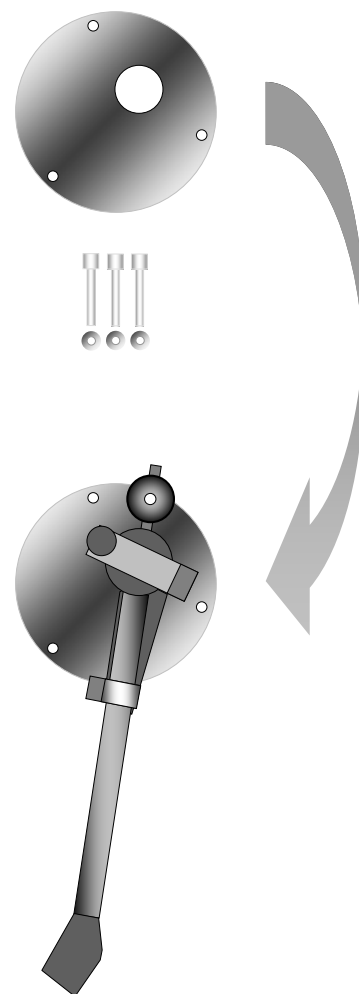
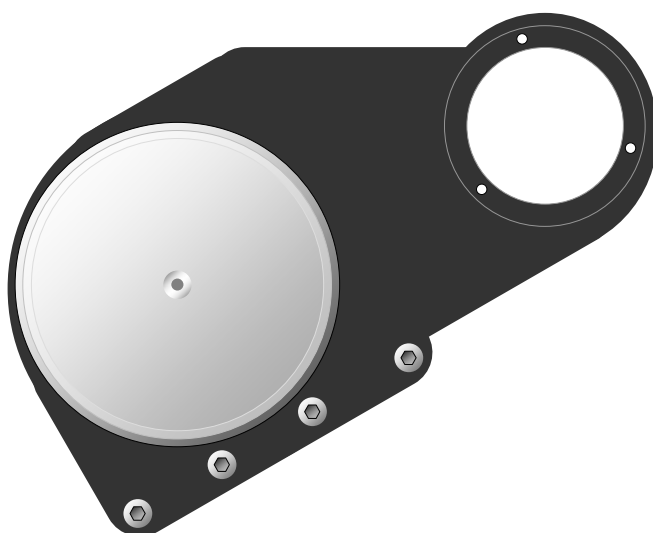
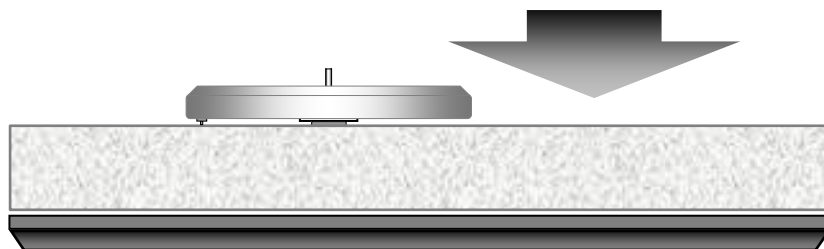


## Fitting the Inner Platter

- 1 Pull out the Main Bearing Plug and place it in the Oil Vial bag
- 2 Carefully clean the Main Bearing with one of the Cotton Buds and check that there is a ball impression on the tip
- 3 Remove the oil vial cap and charge the Main Bearing with 4 to 5 drops of Roksan supplied Oil
- 4 Wear the cotton gloves and remove the Inner Platter from its bag: use the Lint Free Tissue and gently clean the Inner Platter Spindle free from any dirt
- 5 Gently place the Inner Platter Spindle into the Main Bearing and allow it to settle down \*

\* Due to very tight tolerances the Inner Platter will take some time to settle down





### **Fitting Pickup Arm and Phono Cartridge**

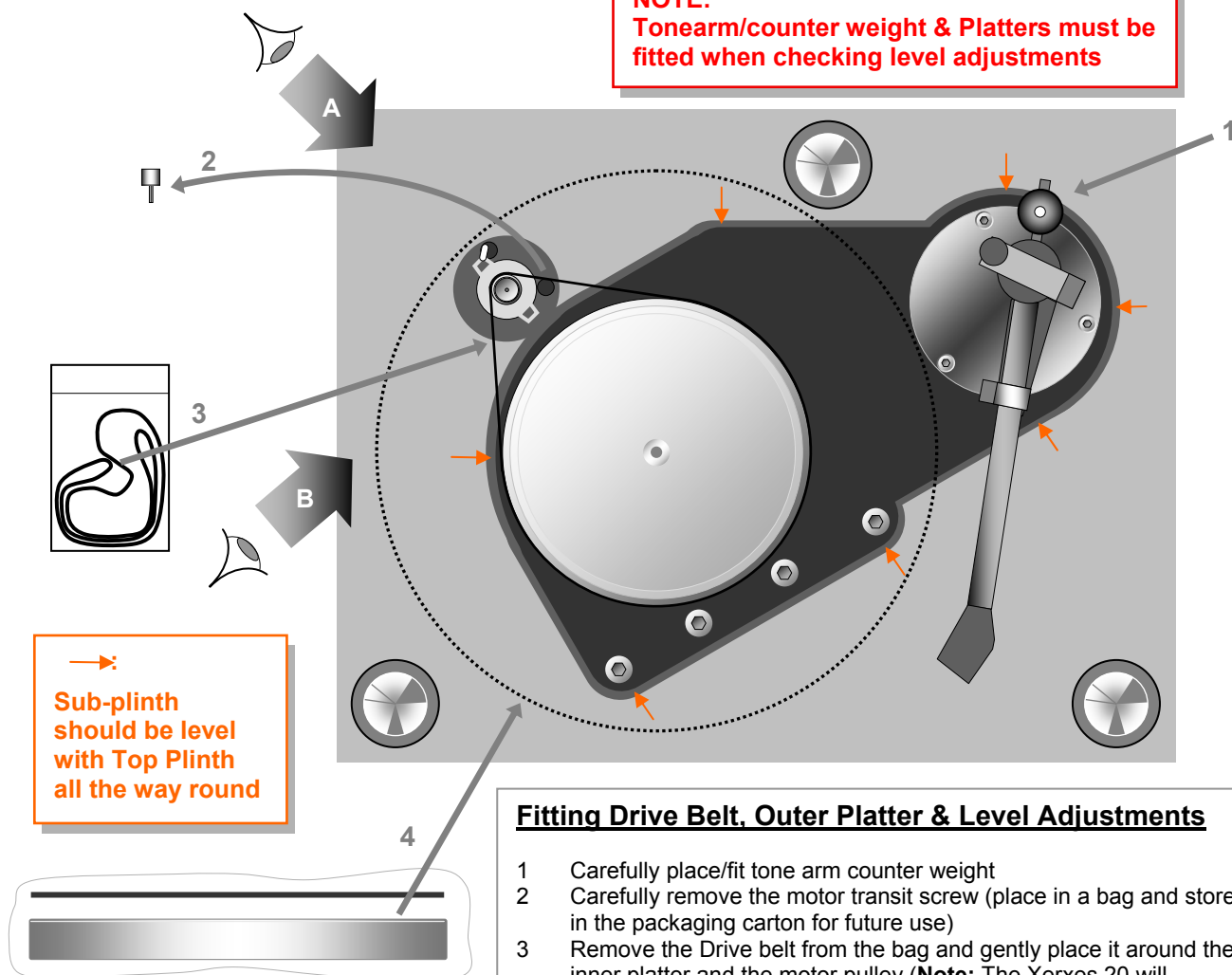
- 1 Use the 3mm A/F Allen key and remove the Acetal arm board
- 2 Carefully fix the Phono cartridge to the head-shell following manufacturer's instructions
- 3 Carefully mount the Pickup arm to the arm board following manufacturer's instructions (do not fully tighten the arm to the arm board allowing for later adjustments)
- 4 Remount arm board tightening the Allen bolts fully (if required support the arm board from underneath while tightening the bolts)
- 5 Plug in the pickup arm cable connector and check that the sub-plinth assembly is free
- 6 Ensure the gap around the Sub-plinth is even (if necessary gently lift the Sub-plinth and reposition it)

### **IMPORTANT NOTE**



The Xerxes.20 sub-plinth alignment is factory set according to the cutout on the arm board (e.g. Artemiz cut is set for the Artemiz tone arm weight etc.). If the tone arm to be fitted is heavier or lighter than the one anticipated, then the Sub-plinth may require readjustment.

**NOTE:**  
Tonearm/counter weight & Platters must be fitted when checking level adjustments



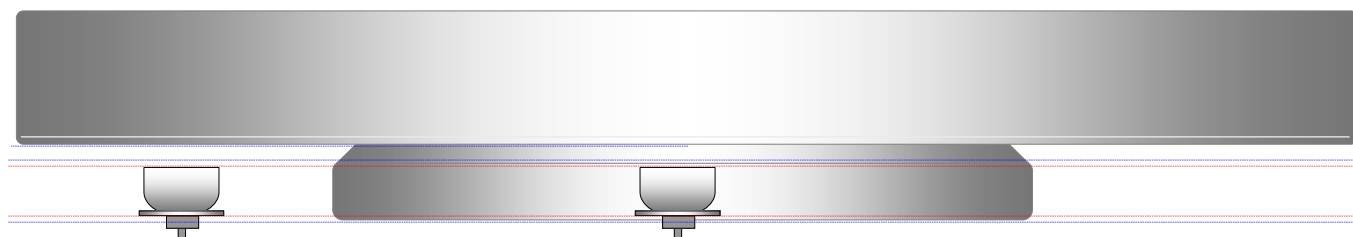
### Drive Belt Direction

To establish the correct belt direction, try the belt inside out first and then upside down and each time listen to find out which way round the music 'flows' better.

### Motor Pulley & Inner/outer platter alignment

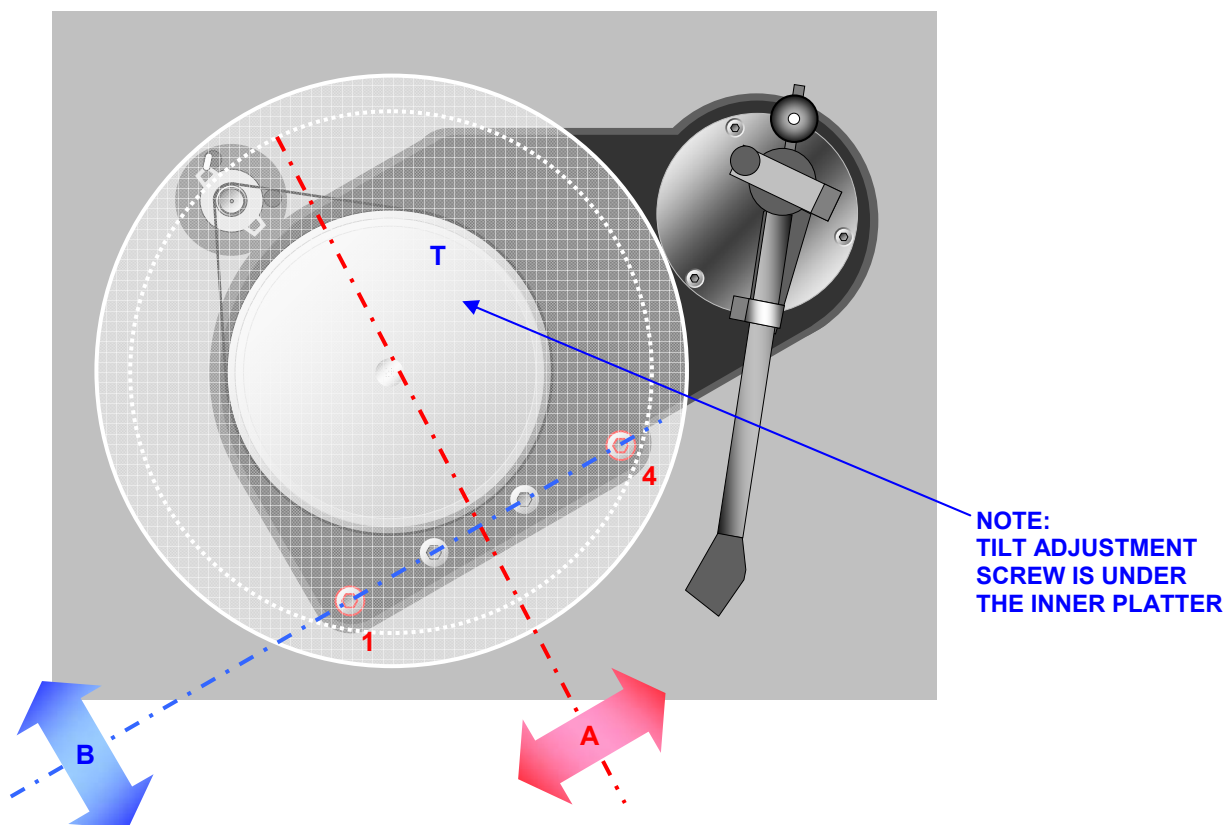
### Fitting Drive Belt, Outer Platter & Level Adjustments

- 1 Carefully place/fit tone arm counter weight
- 2 Carefully remove the motor transit screw (place in a bag and store in the packaging carton for future use)
- 3 Remove the Drive belt from the bag and gently place it around the inner platter and the motor pulley (**Note:** The Xerxes.20 will perform better when the belt is **not inside out** and when it is the **right way up!** To check for this consult Roksan Audio or your Roksan retailer/distributor)
- 4 Remove outer platter from the bag and gently place it upside down over the inner platter and seat it correctly on its recess. To avoid marking/tarnishing the platters use the cotton gloves provided. (**Be extra careful to ensure the platter does not slip through your hands as this could seriously damage your record player**)
- 5 Check the alignment of the sub-plinth against the top plinth by looking at the level all the way round (If necessary realign the sub-plinth; see below)
- 6 Check the alignment of the motor pulley against the inner/outer platter by looking in the directions 'A' & 'B' (View the Top edge and the Flange of the pulley to see if it is level with the inner/outer platter) for this adjustment see instructions below



View from B

View from A



### Plinth Assembly Tilt Adjustment

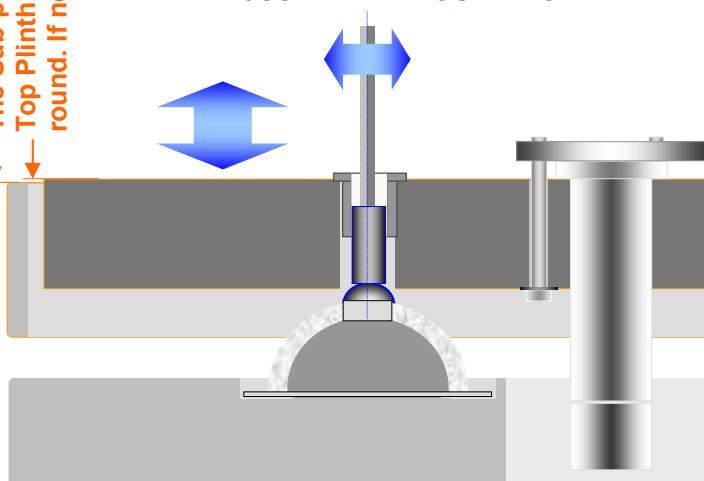
- 1 Gently tighten or slacken fixing bolts 1 & 4 accordingly (using the 5mm A/F Allen key) to adjust the level of the Sub-plinth/Inner Platter about the axis 'A' (Check that the Inner/Outer Platter assembly is level with the Pulley; See view from 'A' above)
- 2 Gently tighten or slacken Tilt adjustment screw T (using the 3mm A/F Allen key) to adjust the tilt of the Sub-plinth/Inner Platter about the axis 'B' (Check that the Inner/Outer Platter assembly is level with the Pulley; See view from 'B' above)

#### NOTE:

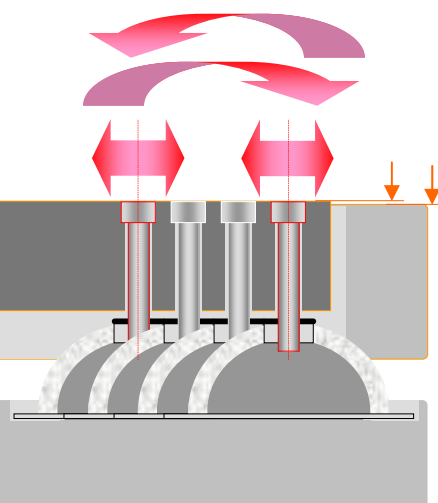
Use a small, light, spirit level to check relative levels if necessary.

The Sub-plinth should be level with the Top Plinth. Check the 'level' all the way round. If necessary realign the sub-plinth.

#### TILT ADJUSTMENT ABOUT AXIS 'B'

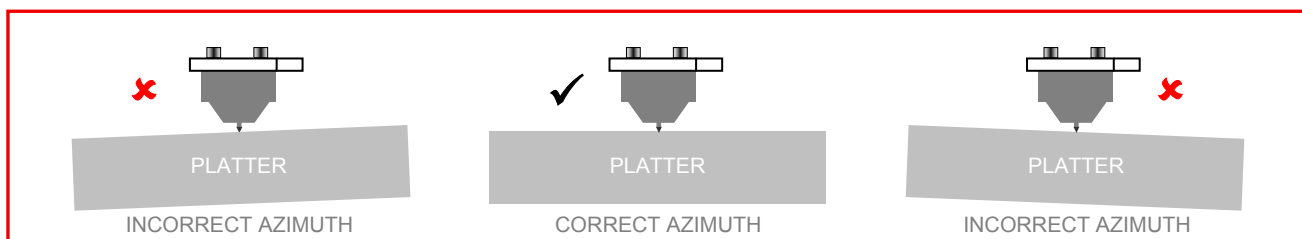


#### TILT ADJUSTMENT ABOUT AXIS 'A'



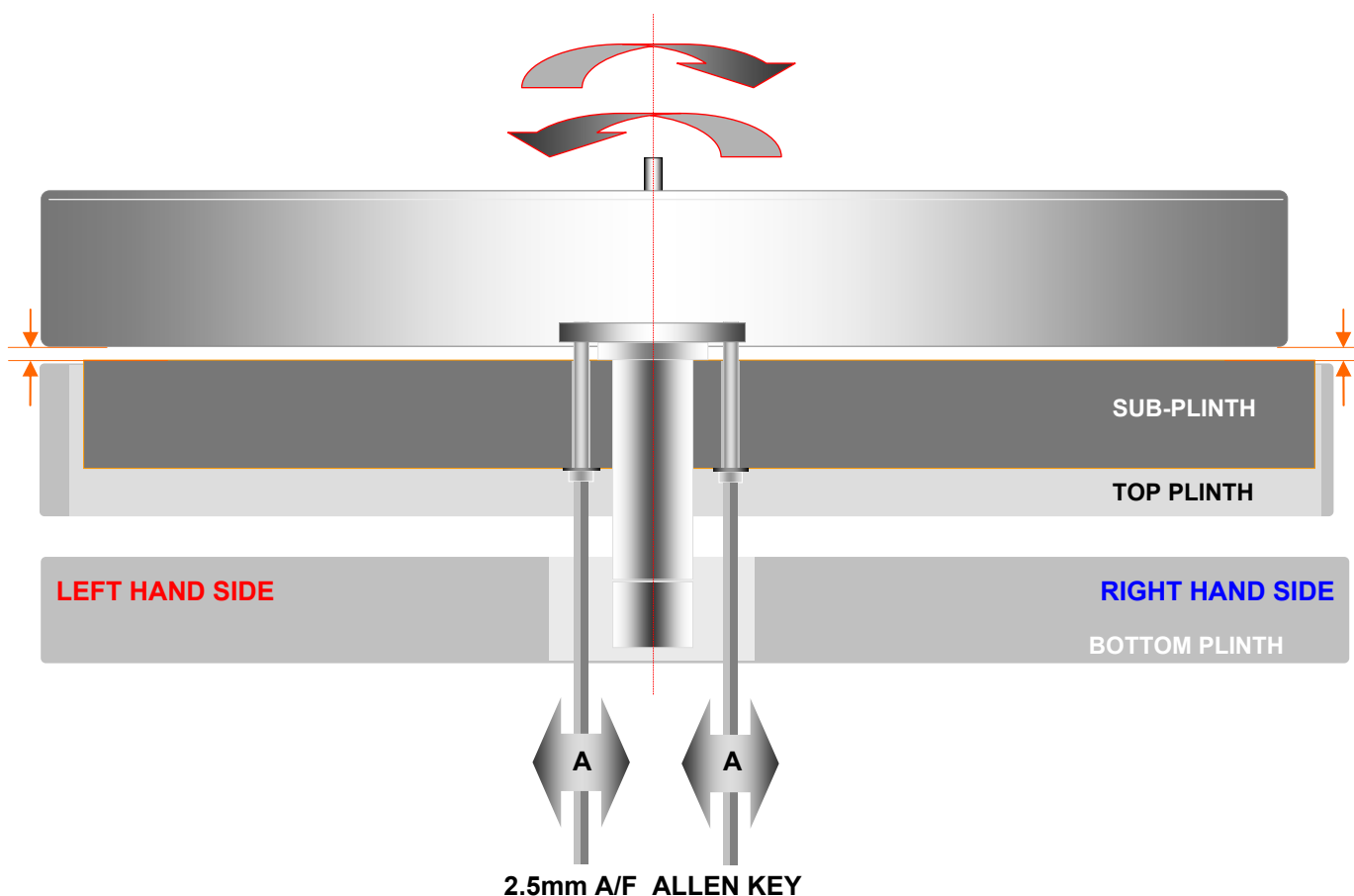
The Inner Platter is factory aligned and should be level with the sub-plinth. Carefully place the outer platter the right way up on the inner platter and observe the gap between the under side of the outer platter and the top surface of the sub-plinth. First look from the front of the record player and then from the side. The alignment of the platter is achieved by adjusting the Main Bearing fixing screws. There are 3 fixing screws and tightening/slackening these will tilt the axis of the main bearing and hence the platter level.

**Platter level adjustment ensures correct azimuth between the platter/record and tonearm head-shell.**

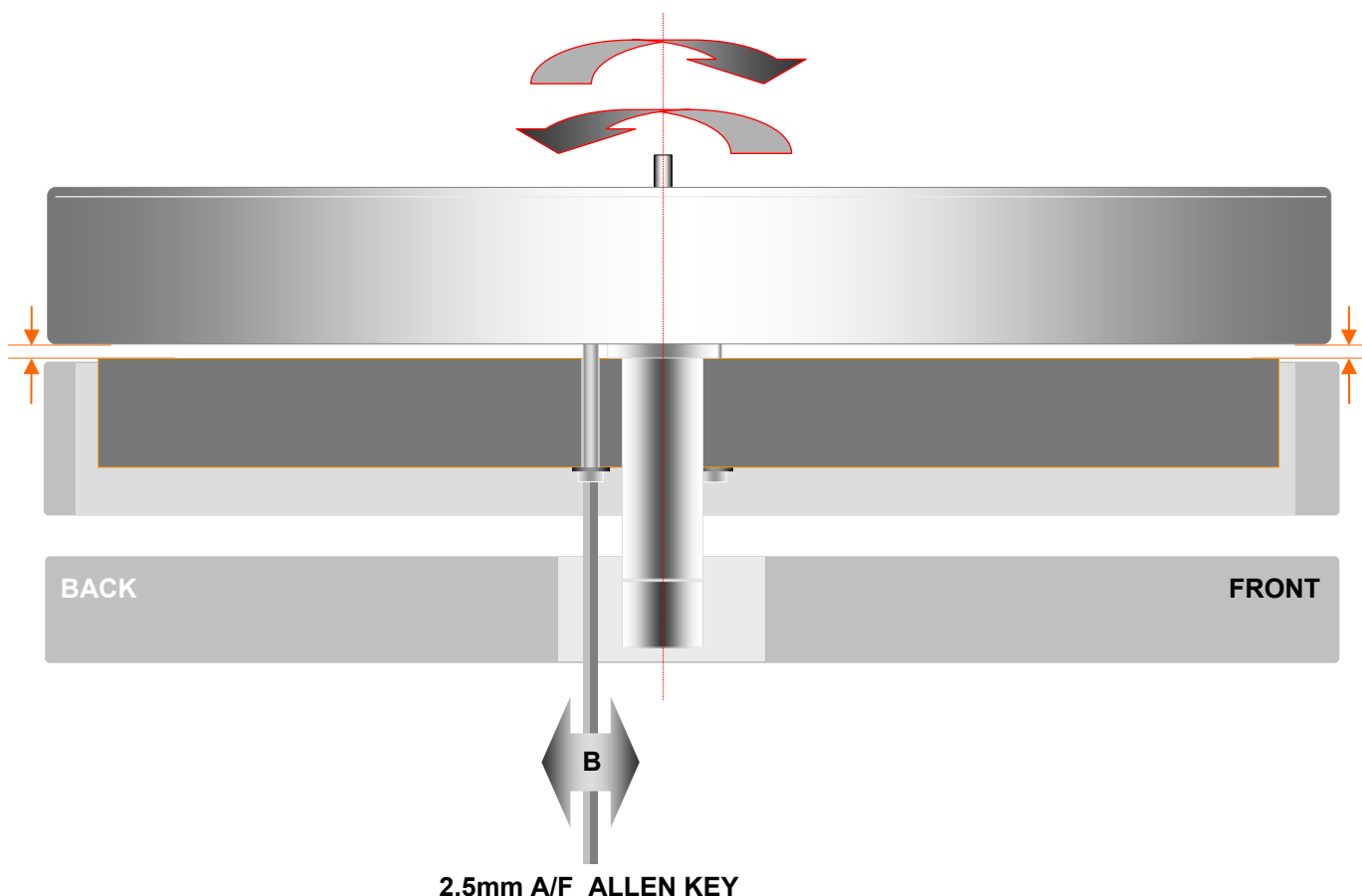


If any adjustment is required, you must first adjust the LEFT to RIGHT and then the FRONT to BACK. See below:

**PLEASE NOTE THE FIXING BOLT HEADS ARE NOT VISIBLE FROM THE SIDE GAP**

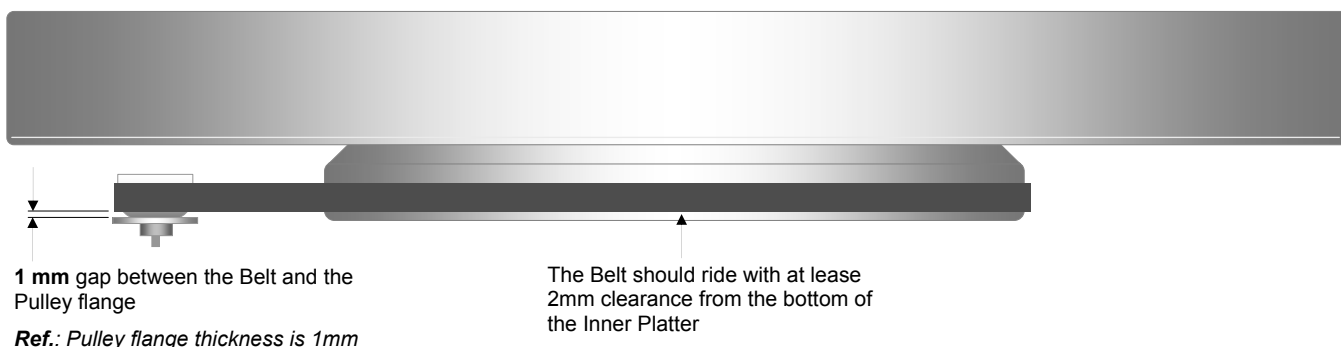


Use a 2.5mm A/F Allen Key to adjust the Main Bearing Fixing Screws. Looking from the front adjusting the front two screws will tilt the platter assembly LEFT to RIGHT as shown above. DO NOT over tighten or slacken the fixing screws too much. Correct tension is to have the screws tightened by 1-1.5 turn after they have come into contact with the sub-plinth. So when adjusting, slacken one a little and tighten the other a little. Adjustment of these two screws will change the FRONT to BACK level. So you need to check the front to back level after adjusting the left to right level. See below:



Use the 2.5mm A/F Allen Key and looking from the left hand side, adjust the back (3<sup>rd</sup>) screw to tilt the platter assembly FRONT to BACK as shown above. DO NOT over tighten or slacken the fixing screw too much. Adjustment of this screw will NOT change the LEFT to RIGHT level.

### Belt riding position



#### **NOTE:**

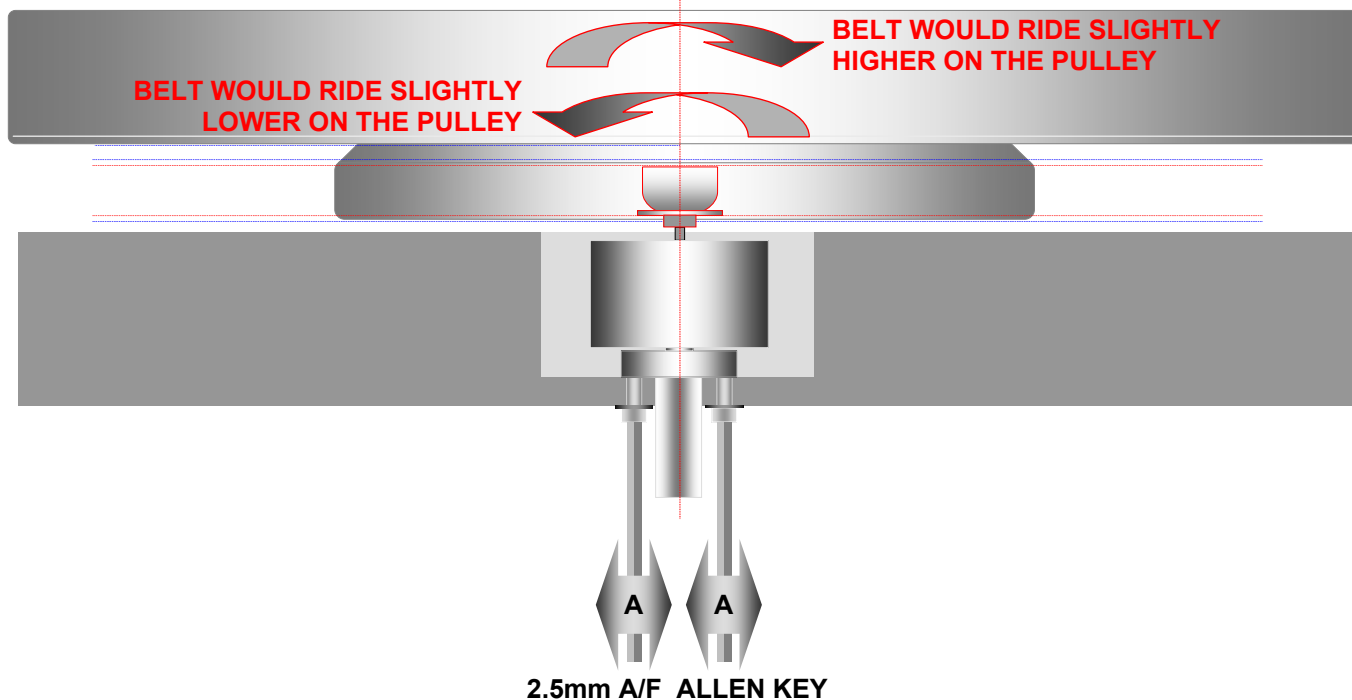
- With the belt riding higher on the pulley (i.e. more than 1mm gap), the rotational speed would be slightly increased.
- With the belt riding lower on the pulley (i.e. less than 1mm gap), the rotational speed would be slightly decreased.

### Drive Belt Set-up and Maintenance

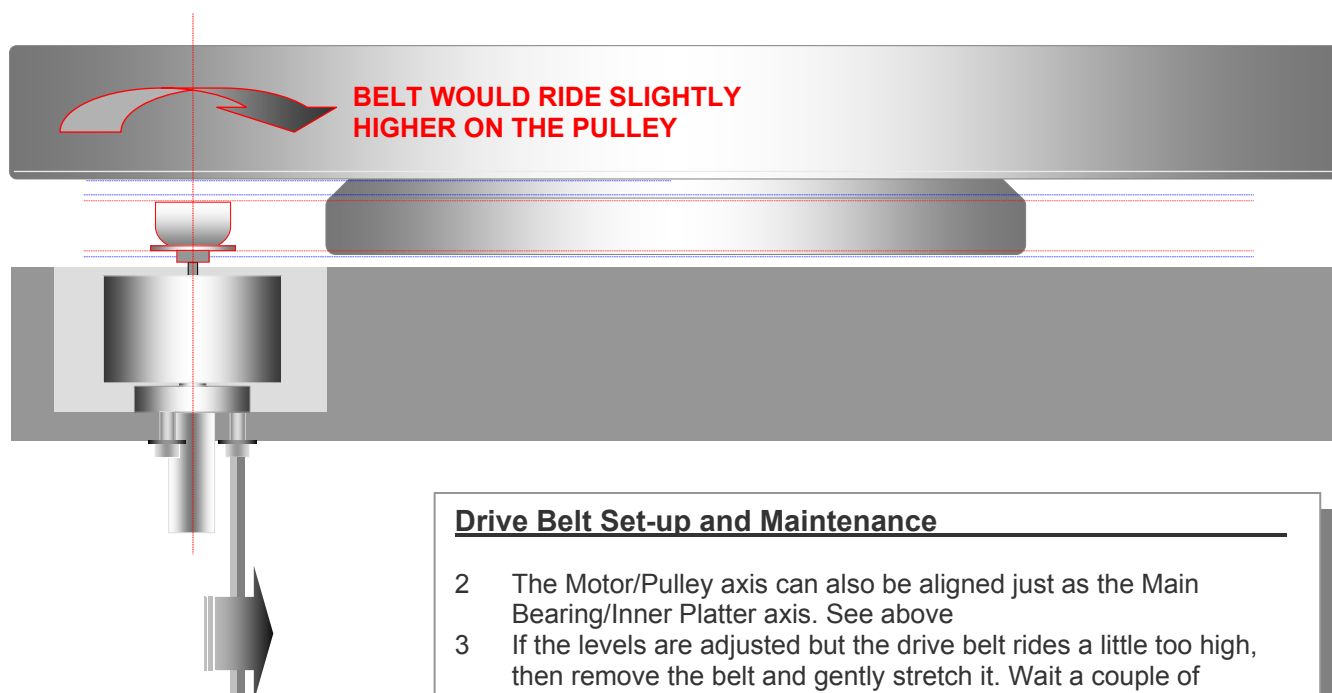
- 1 If the levels are adjusted but the drive belt rides a little too high, then remove the belt and gently stretch it. Wait a couple of minutes and refit the drive belt and the outer platter and check the running position again (Repeat this process if necessary)

### Motor Pulley & Inner/outer platter alignment

View from A



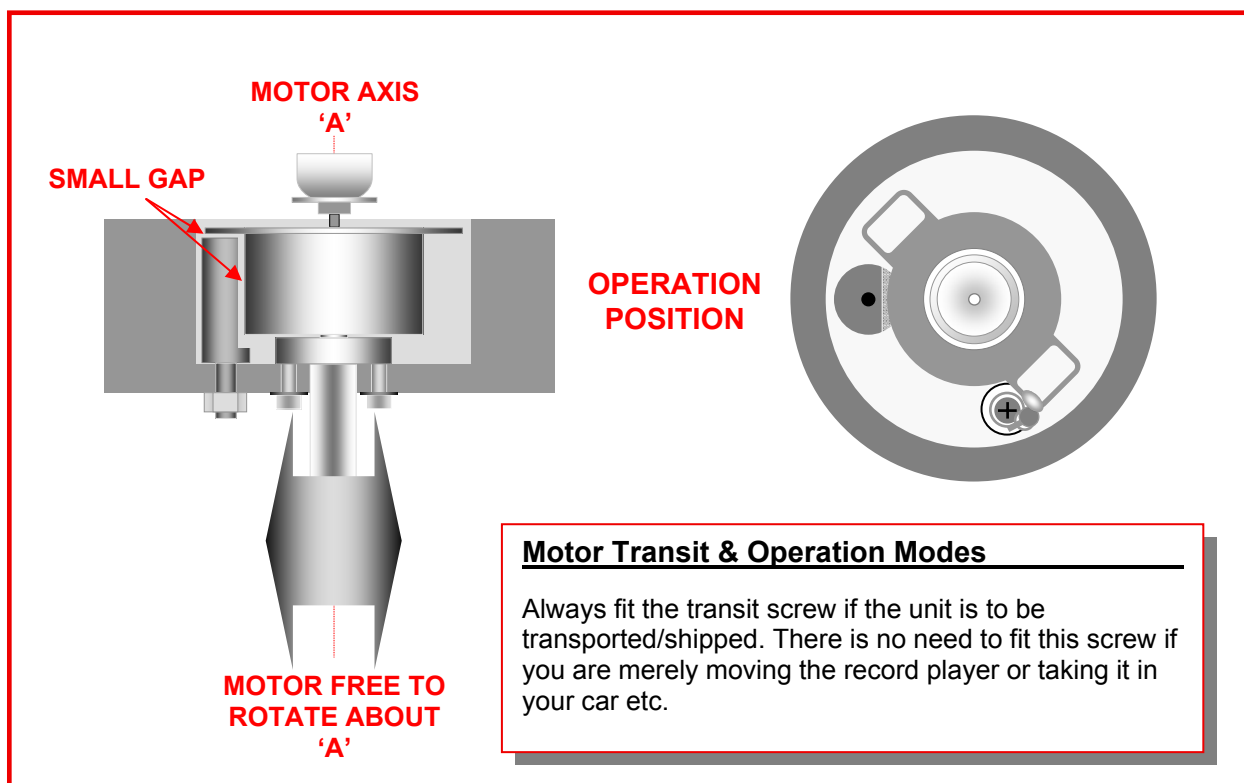
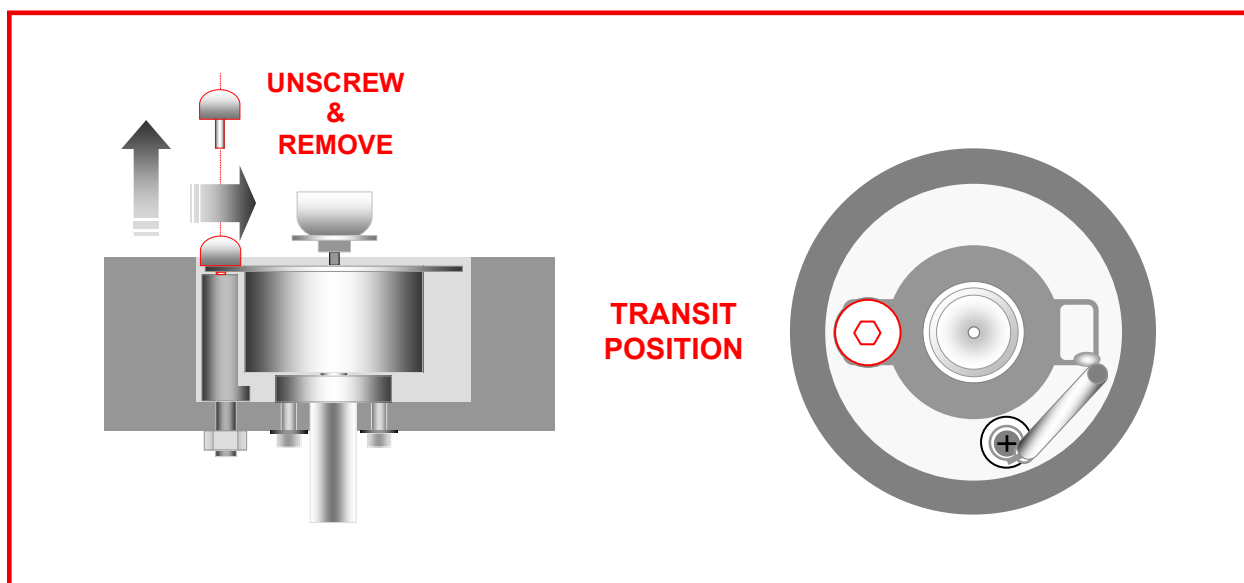
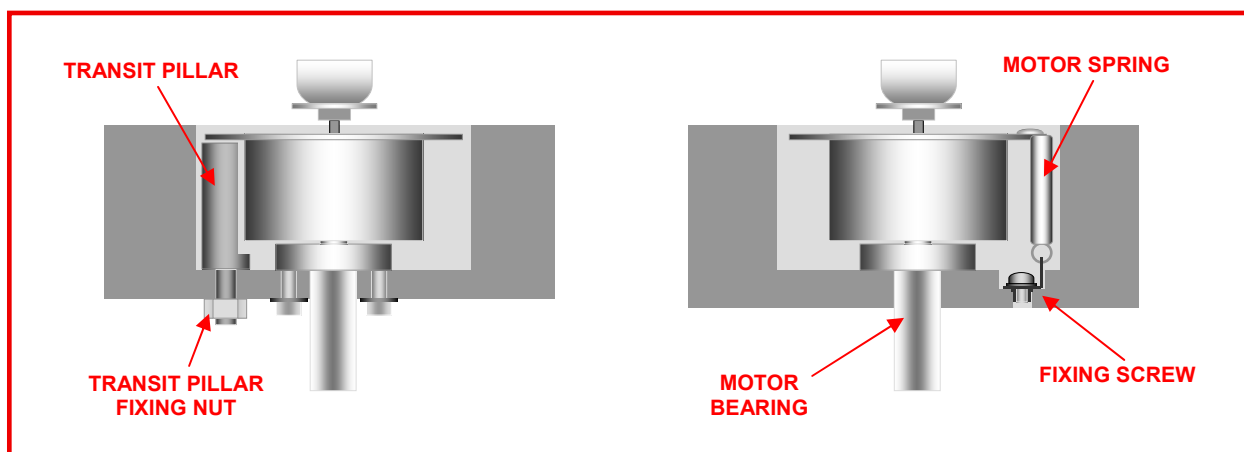
View from B

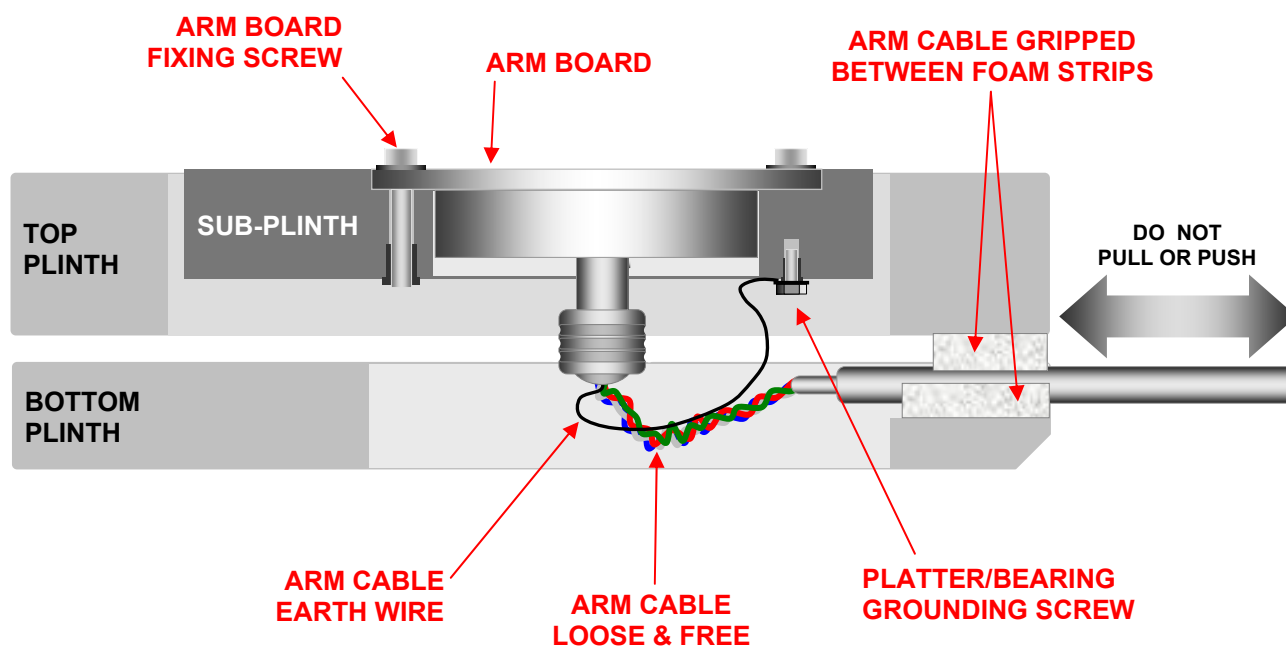


### Drive Belt Set-up and Maintenance

- 2 The Motor/Pulley axis can also be aligned just as the Main Bearing/Inner Platter axis. See above
- 3 If the levels are adjusted but the drive belt rides a little too high, then remove the belt and gently stretch it. Wait a couple of minutes and refit the drive belt and the outer platter and check the running position again (Repeat this process if necessary)







### Arm Cable Dressing

Always ensure the arm cable is 'free' and 'loose' from the arm to the plinth as shown. It is important that the sub-plinth and the top plinth are 'free' and not being pulled or pushed by the arm cable. Note the Xerxes.20 has two foam strips fitted in the arm cable channel which can grip the arm cable and provide the necessary decoupling. See above. Please ensure the ground wire of the arm cable (where applicable) is attached securely to the platter grounding screw.

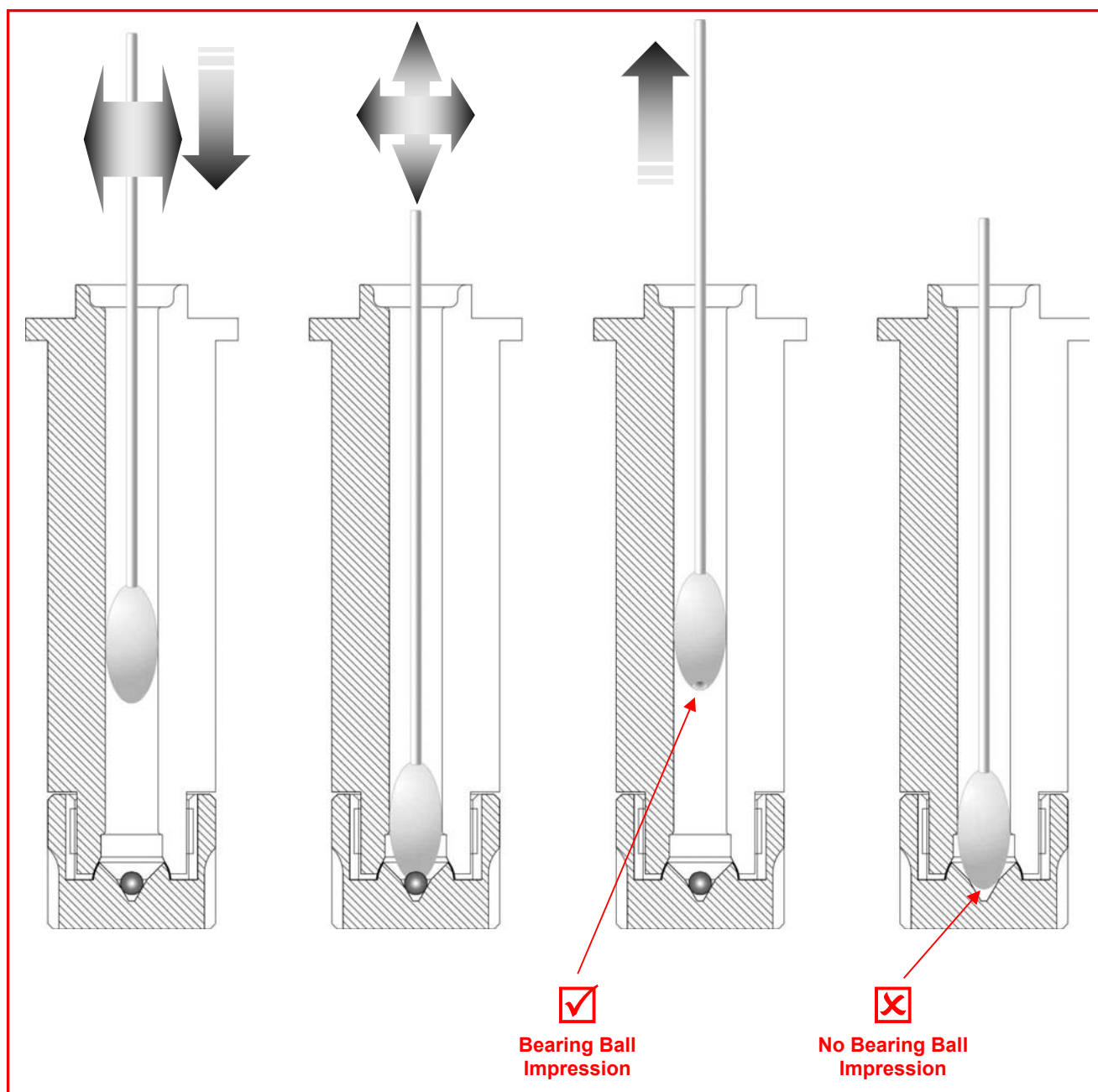
## **Maintenance**

The **Xerxes.20** requires minimal user maintenance.

- The Main Bearing should be cleaned and recharged with Roksan Oil every 12-18 months. Important to ensure the Main Bearing Ball is in the housing before recharging with oil. *See below*
- The motor pulley and inner platter should be cleaned every six to twelve months depending on frequency of use. Both parts will periodically build up with small deposits of rubber where the belt runs around them.

Remove the centre piece, felt mat, outer platter and drive belt. Clean the motor pulley and inner platter using alcohol or methylated spirit while they are still on the record player. **DO NOT EXERT EXCESSIVE PRESSURE** as damage may occur.

- Clean the belt with a non-alcohol wax based polish. It is advisable to change the belt after every five years or after five thousand hours of use.
- Clean the dust cover with a damp cloth as and when required.
- The turntable is made of very high quality real wood veneer (or high gloss lacquer) and should be looked after with care. It may be cleaned with a very soft cloth. For any stubborn marks, use a very slightly moistened lint free cloth. Very little high quality furniture wood polish may be used every six to eight months. **DO NOT USE CLEANING AGENTS, SOLVENT OR ABRASIVES.**



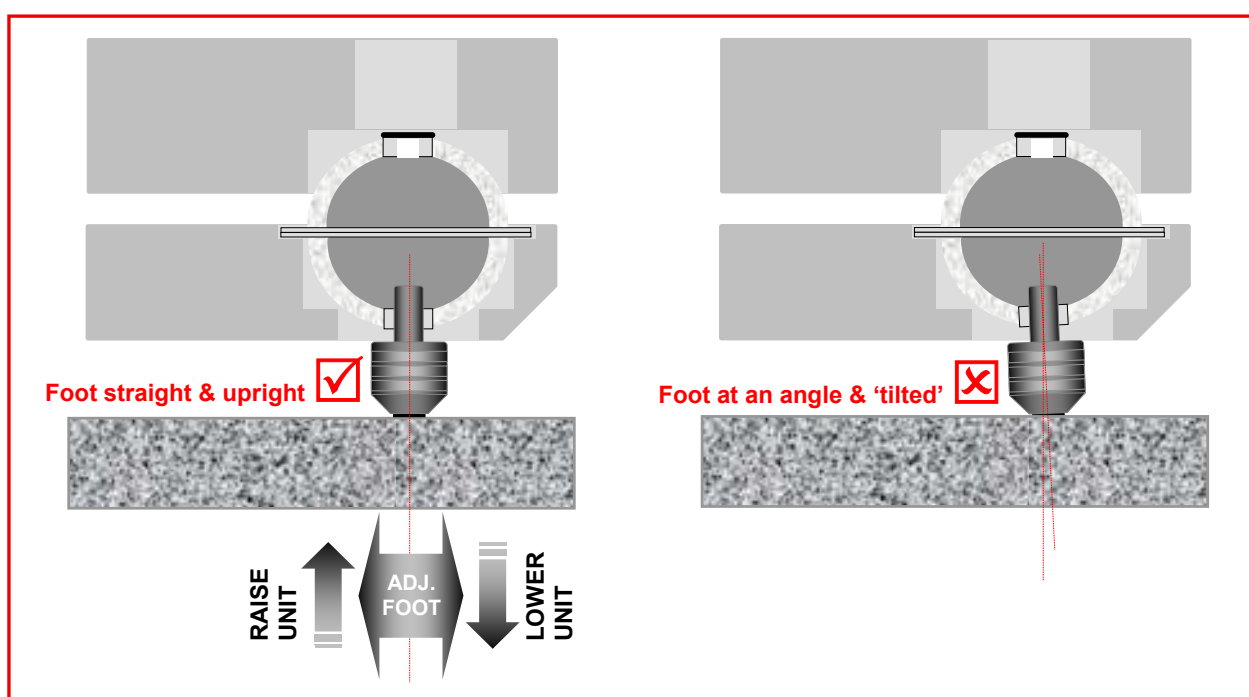
**Refer to SETUP section above for detail on charging the Main Bearing with Roksan Supplied oil.**

Your **Xerxes.20** is designed to work on a level, light, vertically rigid non-resonant surface. If the unit is to be on a floor mounted Hi-Fi rack, then ensure the rack is vertically rigid. It is not as important if the rack is slightly compliant side ways. Please ensure the surface on which the record player is to be placed is **reasonably** level. Remember the type of 'shelf' material can significantly affect the performance of any Hi-Fi equipment especially record players. Please ensure this surface is as rigid and as non-resonant as possible.

**Note:** *It is not necessary to have this surface over damped with sound absorbent material.*

Note the **Xerxes.20** feet are adjustable and they are attached to the lower decoupling domes and thus are part of the structural 'suspension' of the unit. These can be used to fine tune the level of the record player, but they must not be at an angle/tilted to the side. Your **Xerxes.20** works much better when its feet are straight and upright.

It is equally important to ensure the arm cable and the motor drive lead are not pulling or pushing the record player plinth. Otherwise they will act as feed-back 'channels' and also 'tilt' the record player slightly and thus move the feet out of their upright position. Take care when dressing these cables to avoid mechanical strain and remember not to run these alongside mains power or speaker cables.



If the unit is to be used on a wall mounted shelf, please ensure the same.

In either case, follow the rack/shelf manufacturer's instructions but do ensure good mechanical integrity of the structure on which your **Xerxes.20** is to be sited.

**NOTE:** For best results use the **Xerxes Upgrade Plinth**

Consult your Roksan distributor, retailer or Roksan Audio if you have any queries.

Switch on the dedicated Xerxes Power Supply and choose the desired speed. The platter should start turning. Place the record on the mat ensuring the centre piece is in place. When the record is on the platter remove the centre piece and place it in spindle cap rest on the top plinth. When you are not using the record player either leave the Xerxes Power Supply on but in standby or switch it off completely.

If you suspect that your ROKSAN **Xerxes.20 Record Player** is not operating properly, first check all the connections carefully. Below are some likely encountered problems with suggestions for possible cure. The list is not exhaustive: If you have any unresolved problems, please consult your appointed ROKSAN dealer or distributor.

SYMPTOM	LIKELY CAUSE	SUGGESTED REMEDY
Platter not turning	Motor drive lead not inserted properly Motor drive not switched on Drive belt not fitted	Ensure Motor drive lead is fully inserted Switch Motor drive on Fit drive belt and try again
Start-up too slow (>10sec.)	Motor locked in transit position Belt dirty or sticky  Main bearing 'dry'  Main bearing ball missing	Remove motor transit Clean belt with wax based furniture polish Check, if no damage to bearing, recharge with Roksan main bearing oil ( <i>see above</i> ) Check, if no damage to bearing, fit new Xerxes.20 main bearing ball ( <i>if in doubt consult your Roksan retailer</i> )
Belt falling off	Incorrect motor alignment	Check and realign motor ( <i>see above</i> )
Platter touching the plinth	Incorrect main bearing alignment	Check and realign bearing ( <i>see above</i> )

## GUARANTEE

## XERXES.20 Record Player

There are no user-serviceable parts on your **Xerxes.20 Record Player**. If a fault should develop, refer any servicing to your appointed ROKSAN dealer, distributor or approved service agent.

Your ROKSAN **Xerxes.20 Record Player** is guaranteed against any defect in materials and workmanship for a period of **two years** from the date of purchase.

This guarantee only becomes effective if the warranty card is validated by the ROKSAN retailer from whom the equipment was purchased and returned to ROKSAN within **28 days** of purchase.

This guarantee excludes:

1. Damage caused due to accident, misuse, neglect and incorrect installation, adjustment or repair.
2. Liability for damage or loss during transit from the retailer or purchaser to ROKSAN or its authorised distributor for the purposes of repair or inspection.

Carriage costs to ROKSAN shall be borne by the consignor.

All claims under this guarantee must be made through an authorised ROKSAN retailer.

If equipment returned for repair to ROKSAN is found on inspection to comply with the product specification ROKSAN reserves the right to make a charge for examination and return carriage.

*Unauthorised servicing will void this guarantee.*

Main Bearing Spindle	Hardened tool steel
Roundness & Concentricity	< 5 Microns
Length to Diameter ratio	11:1
Main Bearing Ball	Super precision Tungsten Carbide
Roundness	< 1 Micron
Diameter	2mm
Main Bearing Housing	Solid Phosphor Bronze
Clearance	2/1,0000"
Inner Platter	2 Piece Solid Aluminium alloy <i>Interference fitted non-resonant</i>
Outer Platter	2 Piece Solid Aluminium alloy <i>Interference fitted non-resonant</i>
Structure	3 Plinth Design
Isolation	3 Level De-coupling
Motor	Custom made 24 pole synchronous
Pulley	Solid Aluminium alloy
Roundness & Concentricity	< 1 Micron
Drive Belt	Precision ground Neoprene
Motor Mount	Unique synchronizing bearing
Motor Drive	External speed controller
Wow & Flutter	< 0.02%
Rumble	< -80dB
Dimensions	450 x 370 x 115mm
Weight	12 Kg

**Xerxes.20 Record Player**

Serial Number: .....

**Purchase Date**

Year ..... Month ..... Day .....

**ROKSAN Retailer**

Name: .....

Location: .....

*Please keep a record for future reference*