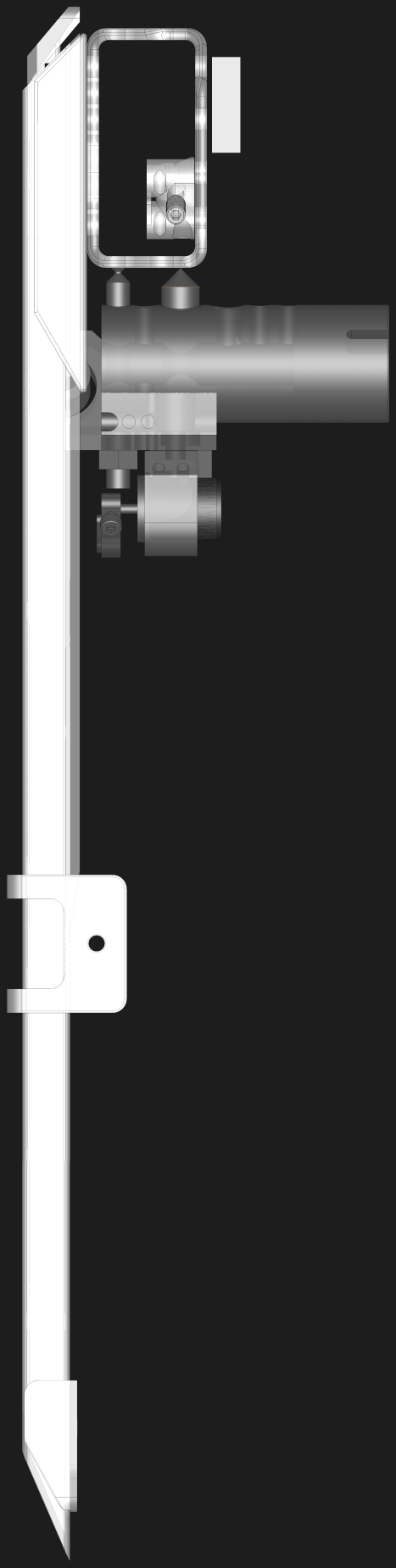
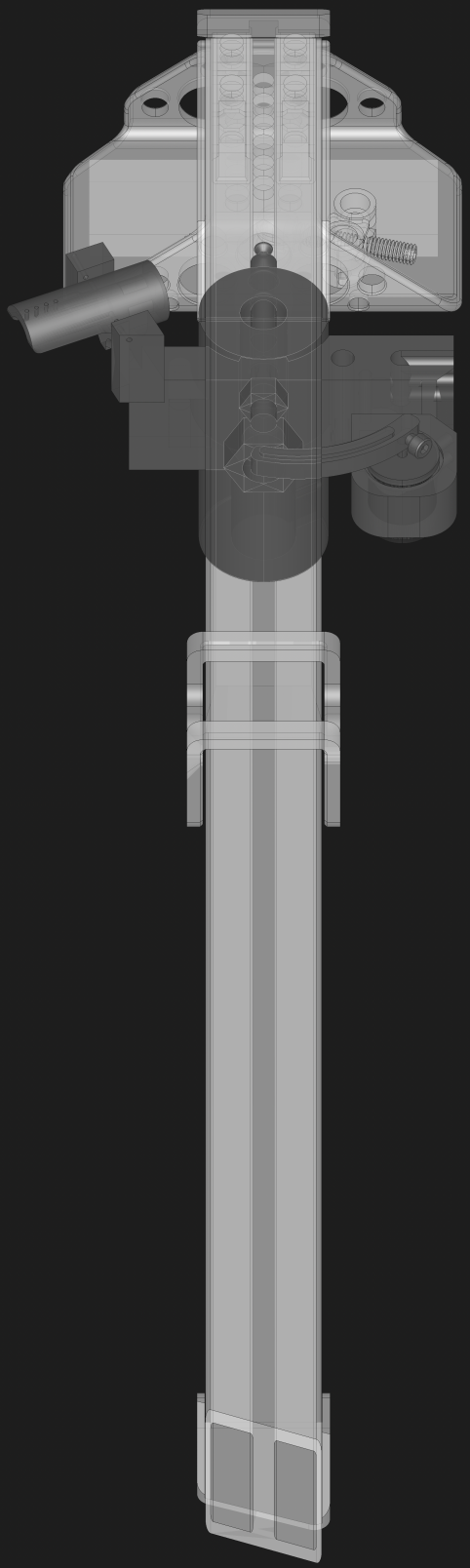
SUPATRAC





# Nighthawk

Instructions

supatrac.com

# SUPATRAC Nighthawk

Thank you for choosing the **SUPATRAC Nighthawk**, a revolutionary tone arm for high-performance turntables.

The **Nighthawk** is the world's second Sideways Uni-Pivot Arm (SUPA) with a patented* bearing design which directly opposes the varying drag on the stylus so that signal energy and time in musical recordings are reproduced with unprecedented accuracy.

This manual explains how to install, set up and maintain your **Nighthawk** Sideways Uni-Pivot Arm for a lifetime of dependable performance.

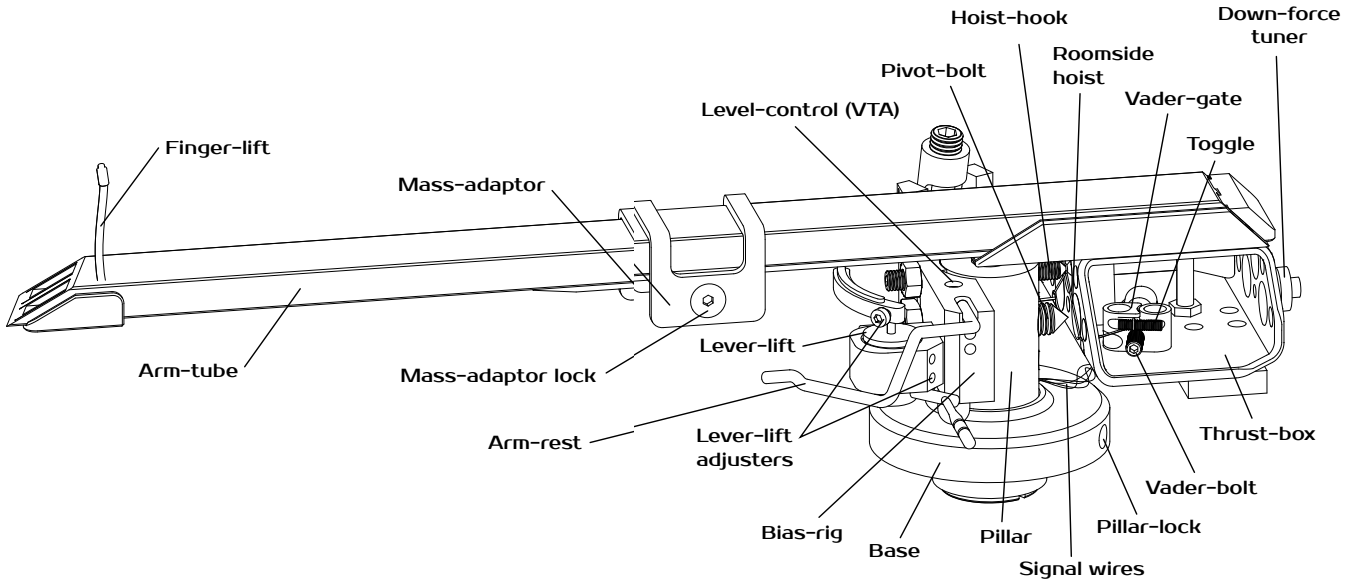
* UK Patent 2599073, international patents pending

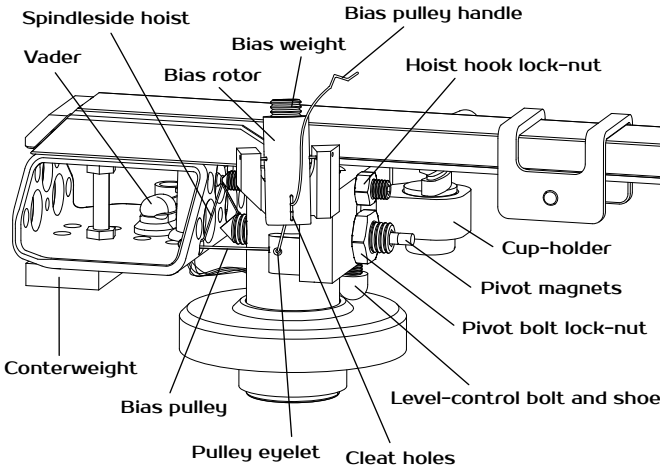
# INDEX

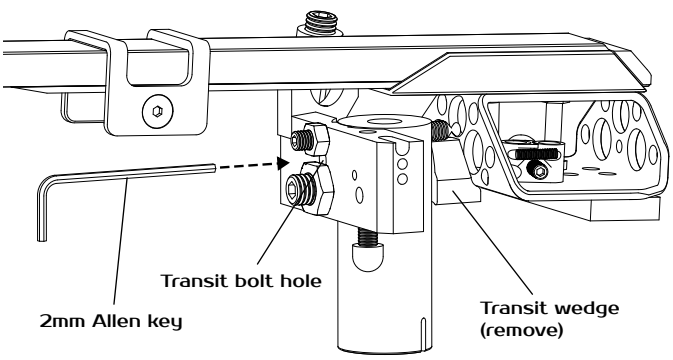
# HAZARD WARNING: SHARP EDGES – USE GLOVES PROVIDED TO AVOID INJURY

# DANGER WARNING: SMALL MAGNETS – KEEP AWAY FROM CHILDREN

## Nighthawk Parts and Their Names



# BOX CONTENTS

- Tone-arm
- Mounting base
- Counterweights
- Pivot magnets
- Dais/SME mount bracket
- Mass adaptor
- Amplifier cable
- Downforce scale
- Rigid finger-lift
- Bendy arm rest
- Base bolts & washers
- Alternative bias weights
- Spare filament
- Allen keys and spanners
- Protractor
- Instructions & warranty

Please note that some items may be concealed underneath the top layer of foam in the box.

# CARRIAGE

To transport a turntable short distances with your Sideways Uni-Pivot Arm attached it is recommended that you...

1. place the transit wedge or a several-folded tissue between the pivot and thrust box
2. stabilise the arm with a support
3. attach a stylus guard

For short journeys, install the transit bolt and transit wedge. For longer journeys, install the transit bolt and remove the arm from the turntable so that it can be packed separately. See the chapter on ‘Disassembly’.



# HANDLING

The hoists which suspend the arm are rated to bear 20lb. You are unlikely to damage them.

The carbon fibre arm tube is fibrous like thin bamboo, so avoid sharp and excessive pressure on the tube walls.

Grip the arm gently in the left hand to stop it swinging around when making adjustments.

Avoid banging the thrust surface against the bearing with force - it will scratch the thrust surface and may shorten the life of the bearing. The bearing point is robust and easily replaced at home unlike other arms, so don’t worry about irreparable damage.

Pushing the arm backwards disengages the bearing so that adjustments can be made without scraping at the bearing point. You can lift the whole arm upwards to gain access, but avoid excessive strain on the signal wires which run between pillar and thrustbox. The signal wires are covered with a fine silk which may fray from abrasion. This will not affect correct function as the wires are also coated in lacquer insulation. Take care not to trap the wires or hoists when reinstalling the transit wedge.

Parts coated in ceramic paint are waterproof and hard-wearing. It is possible to scratch them with sharp objects, but surfaces can safely be wiped with a soft damp cloth. Wear of the coating is normal around cartridge bolts, the pillar locking site and the pivot contact site but does not affect performance.

Each arm is hand-crafted and unique, with variations in the grain of the carbon fibre pultrusion, printed ABS parts and finish.

# INSTALLATION OVERVIEW

Before installing the arm, please familiarise yourself with this manual, the names of the arm parts, and the main stages of installation:

- Level the turntable and arm mount board.
- Firmly bolt the arm base to the deck in the correct position to grip the arm pillar.
- Withdraw the transit bolt.
- Insert the pillar into the base.
- Adjust pillar height with the level control.
- Set pillar orientation, lock it in.
- Attach cartridge guard and fit cartridge.
- Remove transit wedge.
- Attach counterweight(s).
- Set downforce using downforce scale.
- Confirm correct spindle-to-pivot length and pivot-to-stylus length with supplied protractor.
- Confirm pivot contact / suspension height.
- Attach pivot magnet.
- Adjust ‘azimuth’ (cartridge lean) and pillar height / arm level (‘VTA’).
- Align cartridge.
- Set anti-skate variation and strength.
- Fine-tune cartridge lean (‘azimuth’).

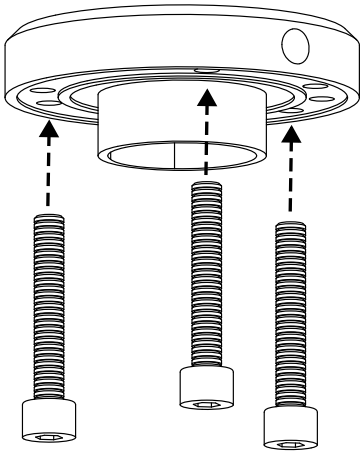


# INSTALLATION

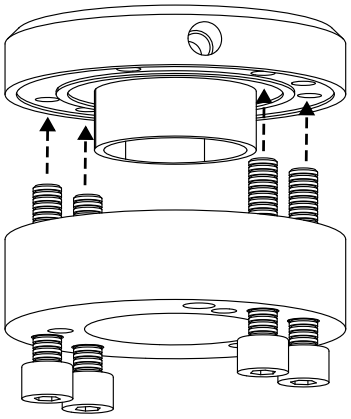
## Attach Base

Attach the base to the arm board or plinth of your turntable using standard metric bolts.

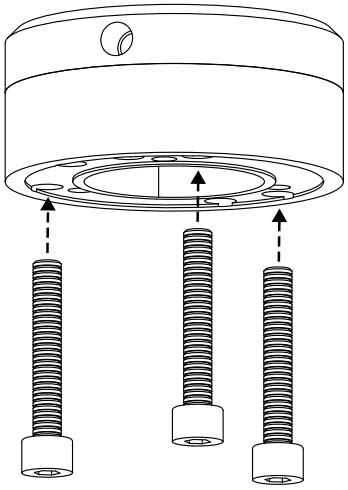
For Linn:



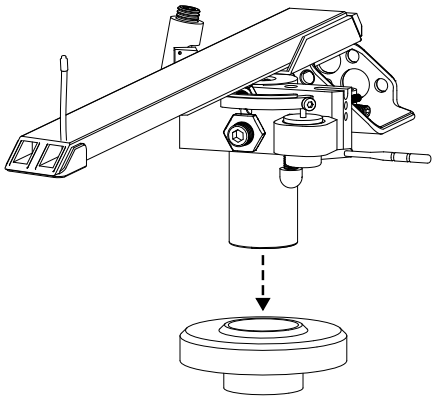
For SME:



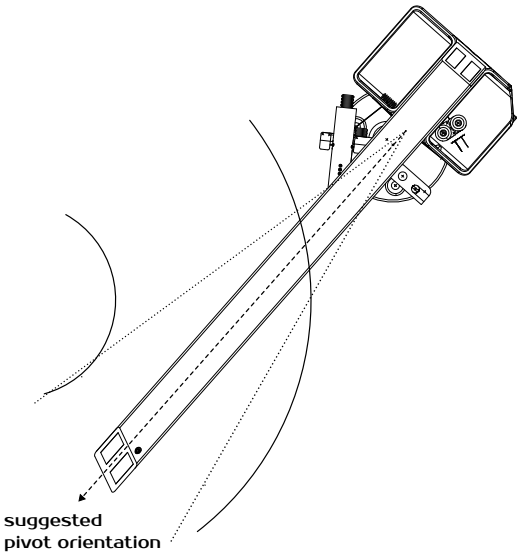
For high platters:



# Insert Pillar

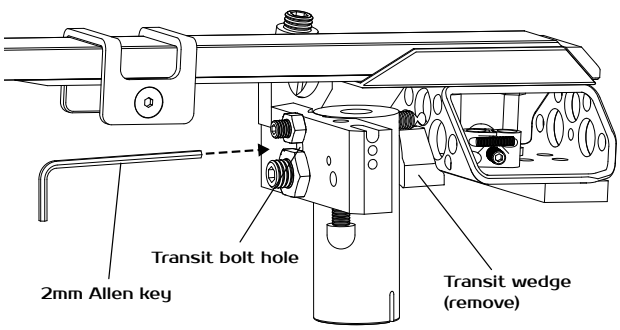


Insert the pillar into the base as shown. Set the level control bolt so that its rubber foot rests on the base and the pivot point is slightly lower than the platter surface. Do not over-tighten the pillar locking bolt. Orient the pillar so that the pivot bolt points away from the approximate halfway point of a record side.



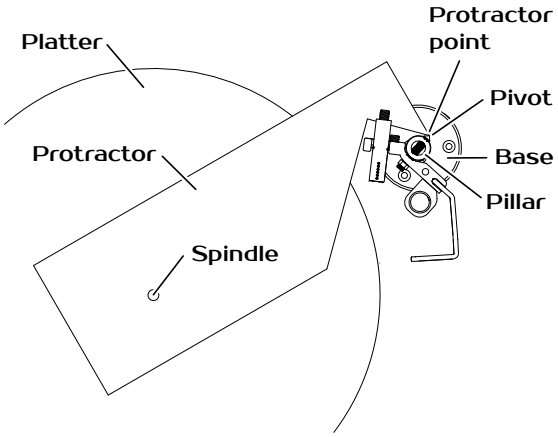

# Remove Transit Bolt

Insert the 2mm Allen key into the small hole between the pivot bolt and hoist hook lock-nuts






and turn it anti-clockwise until it jams tight. The arm is now free to move. Push the arm backwards and lift it upwards while keeping it level to gain access to the transit wedge. Remove the wedge by moving it backwards, taking care not to strain the signal wires and hoists.



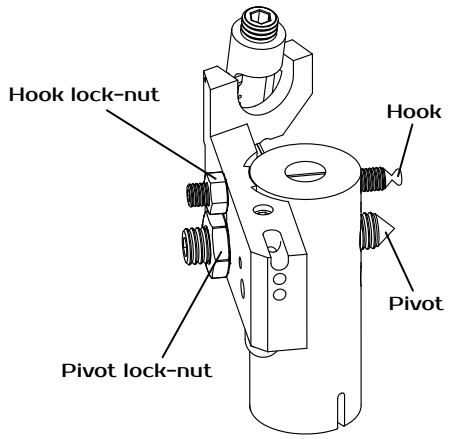

# Set Spindle-Pivot Length

Use the supplied protractor ('Supatractor') to set or measure spindle-pivot distance. It can be used either way up, as follows:

- push the protractor hole onto the spindle
- rotate the protractor point clockwise
- base position is ideal when the protractor point touches the pivot point
- if the points won't touch, close the gap by loosening the base and moving it sideways
- if moving the base can not close the gap, a shortfall of a few millimetres may be compensated by extending the pivot bolt and hoist hook bolt, see 'Extending Pivot' below
- alternatively, measure the discrepancy to calculate a new optimal pivot-stylus length
- it may be possible to change the length of the arm by 5.5mm or 11mm to match the gap, but this may require re-wiring the arm
- larger gaps will need a different arm board or arm length

## Extend Pivot (Optional)

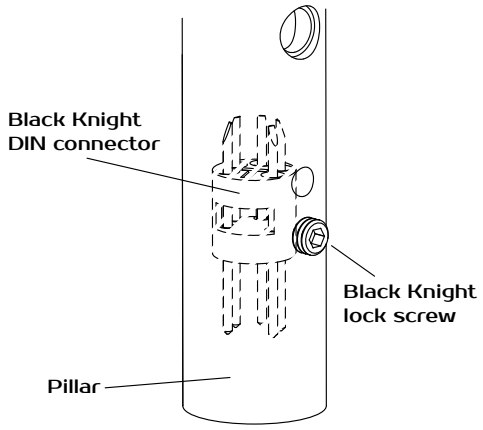
If your spindle-pivot length does not exactly correspond to your arm's pivot-stylus length, the pivot and hook bolts can be adjusted by a few millimetres at 0.8mm per turn:




- pivot and hook extensions are set to a factory default, so be sure to turn both bolts by precisely the same amount unless you are deliberately adjusting their relative extension
- loosen pivot/hook nut with supplied spanner
- turn pivot/hook bolt with supplied Allen key to withdraw or extend it by the desired length
- use Allen key to maintain bolt position when re-tightening the nuts

## Connect Amplifier Cable

Insert the amplifier cable DIN plug into the base of the pillar.




If you are using a right-angle DIN plug, you may need to rotate the Black Knight DIN connector inside the pillar so that the DIN plug exits in the desired direction.

To rotate the Black Knight:

- loosen Black Knight lock screw
- insert the DIN plug into pillar
- gently rotate the DIN plug, taking care not to bend the pins, until it is correctly oriented
- gently tighten the Black Knight lock screw
- remove DIN plug and inspect pillar to make sure lock screw does not contact pins

If there is not enough clearance for the DIN plug underneath the pillar, contact SUPATRAC about exchanging your pillar for a shorter one.

## Swap Finger-Lift (Optional)

The string finger-lift provides a firm grip on the arm without applying much sideways or downwards pressure on the cartridge.

However, if you prefer a rigid finger-lift, use tweezers to pull the base of the string from inside the arm tube, untie the knot, and remove the string. To attach the rigid finger-lift, use putty or a small loop of sticky tape on the end of a screwdriver to hold the nut in place to receive the bolt. Once the nut and bolt have engaged, insert a flat screwdriver between the nut and the inner wall of the arm tube to stop it while you tighten the bolt. Do not over-tighten as this could damage the fragile carbon-fibre arm tube.

## Install Cartridge

If you did not install your cartridge before mounting the arm, place the transit wedge or a folded tissue between the pivot and thrust box to protect them during cartridge installation.

For a three-bolt mount, remove the finger-lift and use its hole to access the third bolt with an Allen key or screwdriver.

## Attach Counterweight

When setting downforce, always obstruct movement of the arm by holding it in your left hand while adjusting the counterweight with your right. Attach a magnetic counterweight under the thrust box and squeeze it forwards for more downforce or backwards for less. Keep the counterweight centred on the axis of the arm by pinching the thrust box from both sides between thumb and fingers. You can centre the counterweight by feel. Very small adjustments of counterweight from left to right allow very fine adjustment of lean (azimuth).

Multiple counterweights are supplied to cater for a wide range of cartridge weights.

To measure downforce, place the supplied downforce scale on the bare platter with either a penny, a cent or a centime as a balancing weight in the appropriate bed. The dimples in the scale represent 1/10 gram increments in the range 1.2g - 4g. Adjust the counterweight until the scale almost balances with your stylus resting in the dimple corresponding to your desired downforce.

## Level Arm (VTA)

The 'Vertical Tracking Angle' or arm level must be set by raising or lowering the arm pillar. Insert an Allen key into the top of the level control screw, slightly loosen the pillar lock bolt and adjust arm height. The pillar is narrower than the hole to give a better grip, so do not over-loosen the pillar lock screw. Once the level is set, gently tighten the pillar lock. Rails in the



base bore bring the pillar upright so there is no need to adjust lean after setting the arm level..

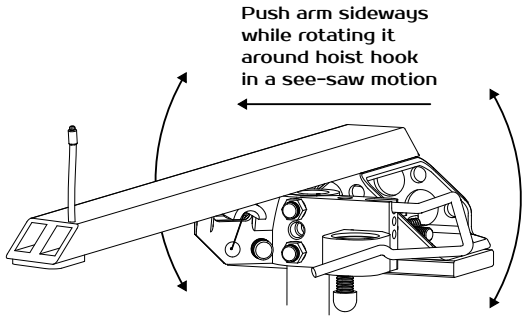
## Adjust Hoists

Hoist length is set when the arm is made, but they may stretch a little when bedding in. Ensure that the turntable is level before adjusting the hoist lengths. Tighten or loosen the Vader bolt to shorten or lengthen the hoists. Ensure that the pivot makes contact with the thrust box exactly on the straight line between the flex points where the hoists meet the thrust box. See the section on Calibration for more information about configuring the hoists.

After adjusting the hoists length the arm will lean to the left or right. See next section 'Adjust Lean' to correct this.

## Adjust Lean

You can adjust lean ('azimuth') by the length of the hoist to each side of the arm, as shown below. Be sure to hold the arm back a little to disengage pivot contact while adjusting lean.




The hoist is rated to 20lb, so you can apply strong sideways and downwards force to persuade the knot to roll. See 'Set Azimuth' in the Calibration chapter for more information.

## Set Pivot-Stylus Length

Pivot-stylus length can be set by placing the Supatractor so that its point is in contact with

the arm's pivot point, and the protractor's bold curved line is under the stylus. You can compensate for a shortfall in spindle-pivot length using the concentric curved lines.

## Align Cartridge

Put the Supatractor on the platter spindle and use the stylus null point grids to align the cartridge. Be sure to maintain pivot-stylus length while adjusting cartridge angle.

To reduce sideways force during alignment, disable the anti-skate mechanism by holding the bias rotor in the horizontal position and gently cuing the arm as far as the record label. Remember to reset the bias after the cartridge is aligned (see 'Set Bias' below).

## Install Pivot Magnet

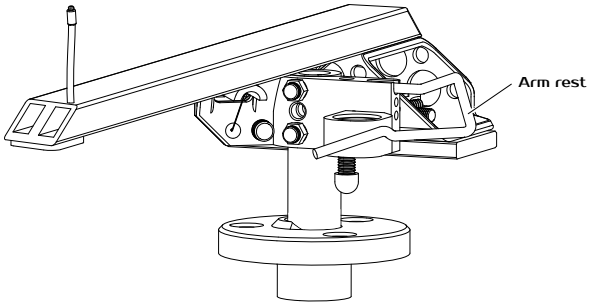
Attach one of the supplied cylindrical magnets to the blunt end of the pivot bolt to augment pivot contact. A 3mm or 4mm diameter neodymium magnet is normally adequate.

## Set Bias

Initially the anti-skate force can be set by holding the bias rotor in the vertical position and gently pulling the loose end of the bias pulley (knotted for grip) until it slips and becomes taut. Next, gently cue the arm as far as the record label so that the pulley slips back to a length which allows the playing of a full side. For optimising bias, see the Calibration chapter.



## Install Arm Rest (Optional)



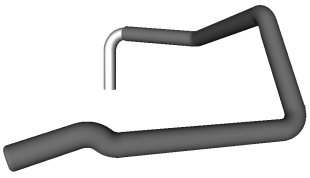

The optional arm rest is a bendy coated aluminium rod with a short uncovered right-angle section at one end. Do not mistake it for an Allen key. It may be supplied bent or not. Insert the short right-angle section into the hole in the top surface of the bias rig and fasten it with the two locking screws at the side.

It can be bent to suit the dimensions and angles of your turntable. The supplied tube spanner or a smaller stiff tube can help when bending. Make sure that it does not foul the underside of the arm at the beginning of the record.

Views of a suitable bent shape for a typical turntable:

Top view

Front view



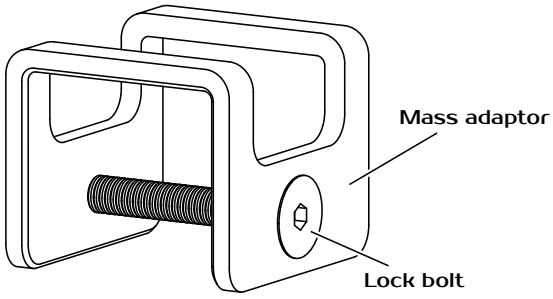
Side view

Rear half profile

Note that the platform for the arm should be at least 22mm wide and far enough from the pillar that it does not interfere with the lever lift.

## Add Inertia (Optional)

A nine-inch **Nighthawk** has an effective mass of around 18g. If you intend to use a mid or low-compliance cartridge you may wish to add mass to increase the arm's inertia. The external mass adaptor can help to establish the ideal arm mass for your cartridge.




See the chapter on Calibration for more information on using the mass adaptor.

## Attach Lever Lift

If it is not attached, bolt the lever lift holder onto the bias rig. Rotate it so that the platform makes contact evenly with the underside of the arm. A small locking screw stops the holder rotating. Adjust height via the platform bolt or the locking screws in the side of the holder. If the lever will not stay up, unscrew the mechanism's drum top slightly.

# CALIBRATION

Follow the check-list below routinely to establish and maintain optimum performance, especially with a newly-installed arm.

(1) Level Turntable
(2) Set Downforce
(3) Level Arm (Vertical Tracking Angle)
(4) Set Pivot Contact
(5) Clear Signal Wires
(6) Attach Pivot Magnet
(7) Set Pivot Height
(8) Set Cartridge Lean (Azimuth)
(9) Set Bias
(10) Adjust Inertia

A quick guide to calibration is at

www.supatrac.com/calibration

As with all tone arms, inaccurate configuration can produce poor results, whereas precise calibration will enable you to get the best from your records.

## Level Turntable

It is important to level the turntable so that the arm hangs reliably against the bearing.

## Set Downforce

Place the downforce scale on the bare platter with either a penny, a cent or a centime in the appropriate hollow. The dimples in the downforce scale represent 1/10 gram increments in the range 1.2g - 4g.

Hold the arm in your left hand and squeeze the counterweight forwards for more downforce or backwards for less. Adjust the counterweight position until the scale balances with your stylus resting in the desired dimple.



Keep the counterweights centred on the axis of the arm by pinching thrust box and counterweight from both sides so that it is not necessary to adjust lean (azimuth) after adjusting downforce.

## Level Arm (VTA)

The arm level (Vertical Tracking Angle) can be set accurately by slightly loosening the pillar locking bolts and turning the level control screw to an appropriate height using an Allen key. The tightness of the pillar locking screw can affect the sound, so adjust it to taste. Tighter is not always better. It may be worth re-adjusting arm level after optimising counterweights or hoists.

## Set Pivot Contact

It is crucial to the correct function of the SUPA bearing that very gentle contact is maintained between the pivot point and thrust box during playback. To ensure this, remove the pivot bolt magnet and put the arm in the play position with a stylus guard on. Gently tap the back of the thrust box. Any gap between the pivot point and thrust box should be discernible by sound, feel and watching thrust box movement. If there is a gap, you can correct this misconfiguration as follows:

- take care not to pinch the hoists with any tool
- insert an Allen key into the hoist hook bolt
- loosen the hoist hook locking nut
- turn the Allen key anti-clockwise until the thrust box comes into contact with the pivot
- check that contact is maintained at all playback positions
- use the Allen key to ensure that the hoist hook bolt does not rotate while you tighten the hoist hook locking nut

## Clear Signal Wires

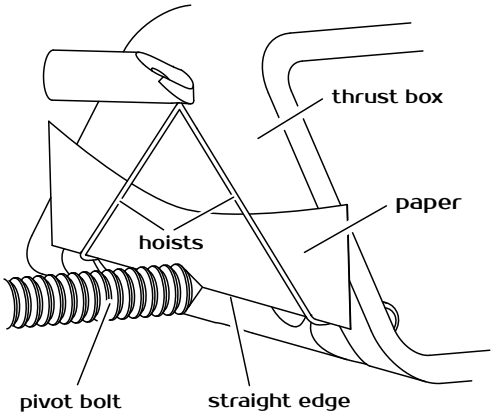
Ensure that the wires below the thrust box are not tangled or obstructing arm movement.

## Attach Pivot Magnet

Do not forget to return the pivot bolt magnet to the blunt end of the pivot bolt after adjusting.

## Set Pivot Height

An 8mm x 60mm slip of paper with a straight edge can be used to set correct pivot height.



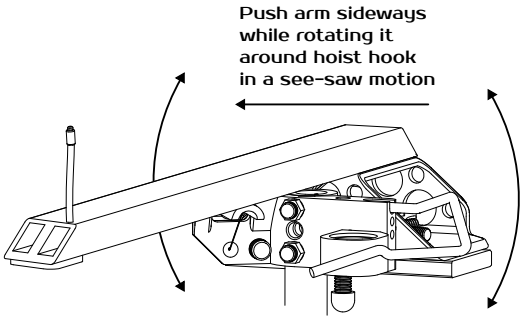

Raise the headshell high and insert the paper between the hoists and the thrust box so that the paper's straight edge sits on the flex points where the hoists meet the thrust surface. Pivot contact should occur just below the paper's edge. Adjust the vader bolt to level the arm and raise it to the correct height. After adjusting the vader bolt be sure to check and correct lean (see section 'Adjust Lean').

A period of incremental adjustments to pivot height can establish optimal performance.



## Set Azimuth

Lean, also called 'azimuth', is the extent to which the cartridge leans towards the centre of the record or away from it. Zero lean is important for accurate playback and long stylus life. Assess lean by looking at the cartridge from a position precisely on its central axis while it is playing. Further fine adjustment can be made by signal measurement or by ear if required.




Lean is adjusted by shortening and lengthening the two hoists in equal and opposite measure. Hold the arm back a little from the pivot point and firmly pull it sideways towards the side of the arm which is higher. The clove hitch at the hoist hook will roll along the hoist in small steps, lengthening the hoist on the side towards which you pull. You can increase the rate at which the clove hitch rolls along the hoist by rotating the arm around the hook in a rocking motion or pushing the arm downwards while maintaining the sideways tension.

If the counterweight is not centered, lean may gradually return. Correct and stable azimuth is therefore reached by ensuring that hoist lengths are adjusted and, no less, by pinching the counterweight between thumb and fingers to squeeze it left or right by small increments until lean no longer alters over time.

After adjusting lean, resettle the bearing by pushing the arm backwards and downwards before letting it settle gently against the pivot. Check pivot height after lean adjustments (see previous section 'Set Pivot Height').

## Set Bias

The anti-skate ('bias') mechanism is designed to balance the forces on each side of the stylus even though the record pulls the arm at an angle. The chief benefit of well-calibrated bias is stylus and record longevity.

Precise instantaneous bias is dependent on signal strength, record speed, stylus profile and other factors, so aim for a level of bias which roughly neutralises the net sideways playback forces on the stylus.

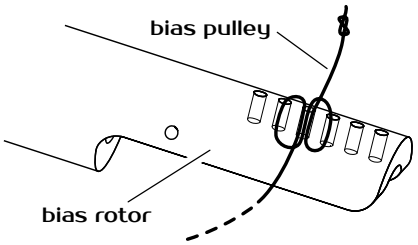
Recommended ways of judging bias are:

- looking at the cantilever exactly head-on while music is playing and at the moment when the stylus is lowered into the groove
- observing whether the arm moves centripetally or centrifugally when the stylus is lowered onto the flat surfaces between the grooves
- listening for balance across speakers with passages which are difficult to track or with a test/set-up record
- looking for long-term unloaded deflection of the cantilever to the right (inadequte applied anti-skate) or to the left (excess applied anti-skate)

To set bias, first make sure that the signal wires are free and not constraining arm movement in any way. The anti-skating force is supplied by



the bias rotor, which pulls the bias pulley, a nylon filament attached to the thrustbox.




The rotor's force can be adjusted by screwing the bolt (bias weight) at its end further in or out. Different lengths of M6 screw are supplied for compatibility with the widest range of cartridges and downforces. The further the bolt is from the rotor's axle, the more bias will be applied. Don't tighten the bolt as far as the axle.

The difference between the bias at the start and end of a record can be increased by shortening the bias pulley or decreased by lengthening it. To shorten the pulley, pull at the loose end when the arm is at rest until you feel the filament slipping through. To lengthen the pulley, gently cue the arm beyond the end of side. After adjusting pulley length be sure to adjust the bias weight screw again, since pulley length also changes the anti-skating force. Repeat until the bias at the beginning and end of the record are broadly appropriate.

Always lengthen the pulley enough to ensure that the bias rotor does not reach the vertical position before the final groove. Always shorten it enough so that the bias rotor begins to rise before the arm is cued to the intro groove.

In extreme cases the difference between start and end bias can be adjusted further by unthreading the bias pulley from the rotor and re-threading it in a different hole. The hole nearest the rotor axle will provide greater

difference in applied bias from start to end, whereas the hole furthest from the rotor axle will provide the least difference in bias as the arm progresses across the record. Re-threading the pulley in the rotor holes is easier with a needle-threader or a strand of copper wire bent into a pointed hoop and good light.

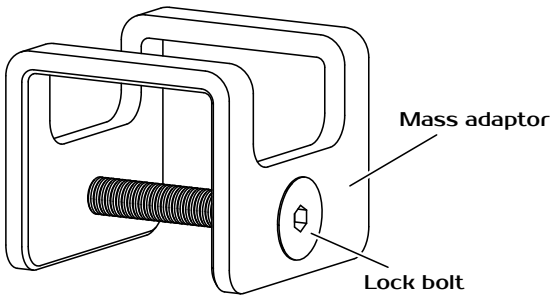
A figure-of-eight pattern through three or four of the bias rotor's holes, as illustrated above, is normally enough to grip the bias thread while also allowing it to slip when forced. Add a loop or two if it slips too easily.

Sometimes you can adjust bias by rotating the pillar in the base if you have difficulty reaching correct bias by the above methods.

Finally, if the arm has a strong intrinsic bias this can indicate that the hook or hoists are not configured properly.

## Set Arm Inertia (Optional)

When adjusting arm mass, always restrict movement of the arm by holding it gently in your left hand. Arm mass (inertia) can be adjusted to suit your cartridge suspension by sitting the mass adaptor on the arm tube and moving it to and fro the cartridge.




Any change in the position of the mass adaptor requires resetting the downforce. The further the weights are from the pivot, the higher will be the arm's inertia, and the lower its resonant frequency. Higher compliance cartridges work better with lower inertia, whereas low compliance with higher inertia.

The mass adaptor lock bolt can be used to fix the mass to the arm firmly. CAUTION! Take great care not to overtighten it as this will damage the arm tube. It need only be 'nipped up' to ensure that the mass is well-coupled to the arm.

The mass adaptor can be removed from the arm and squeezed gently to narrow its tongs for a firmer grip on the arm.

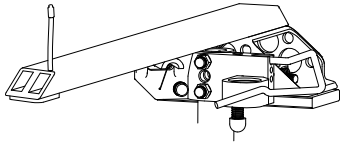
WARNING: the arm tube is fragile and may crack if excessive force is applied to it from inside or outside.

With long arms, heavy cartridges and added mass it may be necessary to place an additional counterweight inside or under the thrust box.

## Quick Set-up Guide

The following page contains a summary of all of the set-up steps for quick reference...

# SUPATRAC
# Blackbird Farpoint



## Checklist

1. Level Turntable
2. Set Downforce
3. Level Arm (VTA)
4. Set Pivot Contact
5. Clear Wires
6. Attach Magnet
7. Set Pivot Height
8. Set Azimuth
9. Set Bias

## 1. Level Turntable

## 2. Set Downforce

- place balance on bare platter
- lower stylus onto dimples to find balance weight
- hold tone-arm in your left hand while adjusting with your right
- squeeze counterweight towards pivot to increase downforce and away to decrease it
- centre counterweight on arm axis by pinching thrust box and counterweight from sides

## 3. Level Arm

- put arm in play position
- view arm from side to see level
- loose pillar lock bolt
- raise or lower pillar using vertical arm level bolt at 0.8mm per revolution as required
- do not overtighten pillar lock bolt

## 4. Set Pivot Contact

- remove magnet from pivot bolt
- place arm in play position on stationary record
- gently tap back of thrust box to check for pivot contact
- look across thrust surface to check hoists form vertical plane
- adjust hoist knob extension if necessary by loosing hoist knob lock nut
- take care to resettle clove hitch with each quarter turn of knob

## 5. Clear wires

- check that the arm wires can move freely and are not tangled or snagged
- tease them clear of any contact using an allen key
- make sure they apply no force or torque on the arm

## 6. Attach Magnet

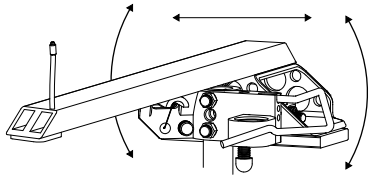
- apply magnet to pivot bolt head
- select magnet size to taste
- 3mm diameter magnet is normally adequate

## 7. Set Pivot Height

- lift headshell high
- insert a 8 x 60mm straight-edged piece of paper between hoists and thrust surface
- push paper down onto points where hoists meet thrust box
- put arm in play position
- adjust hoists so that pivot is at or just below straight paper edge

## 8. Set Azimuth

- observe cartridge from its axis while playing middle of side
- push arm at bearing towards higher side, tensioning hoist while rolling in see-saw motion



- repeat until there is no lean
- if lean returns, nudge weight towards higher side by pinching between thumb and fingers

## 9. Set Bias

- shorten bias pulley by pulling loose end until it slips
- gently cue arm to the edge of the label to extend pulley
- aim for slow motion towards centre on intro and outro flats
- lengthen pulley to make intro and outro bias more equal
- screw bias rotor bolt in or out for less or more anti-skate
- if cantilever develops a default offset, oppose it to compensate

# MAINTENANCE

## Calibrate Often

Cartridges last better on an arm which is well set up. Go through the Calibration check list regularly for optimum performance, cartridge longevity and peace of mind.

## Thrust Box Bolts

After long periods check that the bolts which attach the arm to the thrust box are tight. Do not overtighten as this could damage the tubes.

## Pivot point

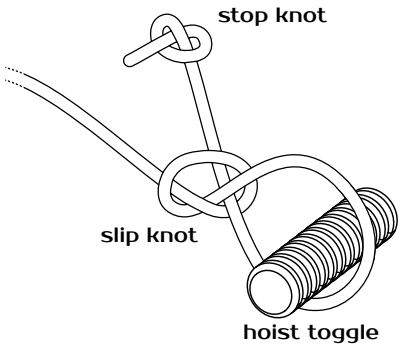
A severely blunted pivot point might compromise performance. However, it is easy to replace the pivot bolt with a newly-sharpened one. A sharpened steel M5 bolt suffices. Hardened steel pivot bolts are available from SUPATRAC. Stainless steel is not recommended as it is not ferromagnetic.

## Hoists

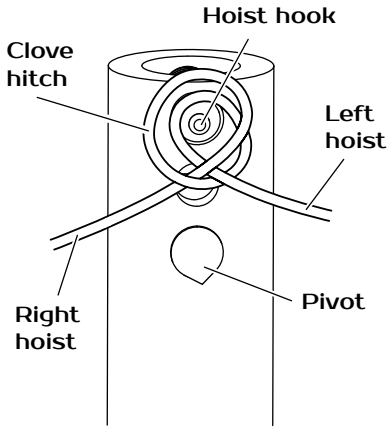
The hoists are made from an extremely hard-wearing moisture-proof braid. It is not known how long they will last before needing replacement. No visible signs of deterioration have been detected in the first few years of use. However, in case wear becomes discernible, look for fraying of the hoists at flexion points like the hoist hook and pitch axis points, which could indicate that they are ready for replacement.

When replacing hoists, terminate the ends with simple knots, and use the bend of a slip knot around the hoist toggles. The slip knot will disappear if the toggle is removed and the stop knot is pulled.






A clove hitch tied around the hook ensures that the hoists meet at a point and it fixes hoist length once the arm is levelled.




# DISASSEMBLY

To disassemble, reverse the installation:

- protect your stylus with a guard
- unplug the amplifier cable
- install the transit wedge and bolt
- loosen the pillar locking bolt and lift the arm and pillar out
- unbolt the base and remove it.

# SOLVING PROBLEMS

## Inconsistent Lean

When the arm is new, or when adjustments are made, lean may vary slightly between the start and end of a record. This will normally pass as the hoists settle in.

If this persists, it may result from under-extension of the hoist hook relative to the pivot point. To extend the hook, loosen the hook locking nut, insert an Allen key into the hook bolt and, holding the arm firmly in position, turn the Allen key clockwise until the hook is directly above the pivot point and contact between pivot point and thrust box is only just maintained. Do not over-extend the hook lest contact at the pivot be lost. After extending the hook, you can test that contact is still maintained at the pivot by tapping the back of the thrust box towards the pivot. There should be no play or movement.

## Excess Bias

Sometimes it can be difficult to set appropriate bias. The first step in solving excess bias is to make sure that the arm's yaw equilibrium is on or near the playing surface. Balance the arm with the counterweight so that it floats above the record surface or rises slowly. Disable the bias rotor in the upright position with a match or piece of paper. Observe the default track position of the arm. If it is not on or near the playing band, unhitch the left hoist toggle and feed it around the right hoist in one direction or the other, and reinsert the hoist toggle, before pushing the arm backwards and gently allowing the bearing to resettle. Repeat feeding the left hoist around the right in one direction or the other until the arm's yaw equilibrium is in or near the playing band. Once this is achieved, use the three other methods described in the installation and tuning chapters to reach appropriate bias across the record.

Excess bias may also arise from the hook being too near the post as compared to the pivot, in which case extend the hook as described above.

Contact SUPATRAC if you have any other problems with the arm.

# FURTHER INFORMATION

SUPATRAC tone arms are designed and made by hand in Chelsea, London, England.

For further information, please visit www.supatrac.com or email info@supatrac.com

# WARRANTY

Conditions of the Five Year Warranty

(For tone arms sold within the UK)

Subject to the terms and conditions hereinafter, your Supasound tone arm is automatically covered by a 5 Year parts and labour Warranty (except for those tone arms or components specified in Clause 2). No registration is required. Warranty start date will commence from the initial date of purchase of the tone arm and any tone arm greater than 5 years old from Supasound Ltd shipment date will require proof of purchase. This Warranty is transferable from owner to owner and will apply and remain with the tone arm from the initial date of purchase for a 5 Year term in the UK. This Warranty is not transferable outside the UK.

1. What is included in this Warranty?

If a Supasound tone arm is defective in normal domestic use due to a fault in materials or workmanship, Supasound Limited ("Supasound") will at its discretion either regulate, adjust, repair or replace it free of charge (subject to the following), within a reasonable time after such tone arm is returned to Supasound's address at 109 Cheyne Walk, London SW10 0DJ, United Kingdom. This Warranty covers the cost of parts and associated labour required to correct such defects in materials or workmanship intimated to your retailer or Supasound during a period of 5 years from the initial date of purchase.

2. What is excluded from this Warranty?

This Warranty does NOT cover:

A. damage to Supasound tone arms while in possession of a shipper, retailer, or consumer and not caused by defects in materials or workmanship;

B. damage to Supasound tone arms arising due to or from normal wear and tear;



C. damage or defects caused by abnormal or unreasonable use (including repairs or alterations of tone arms by a anyone other than Supasound);

D. damage, defects, deterioration, malfunction or failure to meet performance specifications resulting from (i) accident, acts of nature, misuse, abuse, neglect or unauthorised tone arm modification, (ii) improper installation, removal or maintenance, or failure to follow instructions supplied with the tone arm, (iii) repair or attempted repair by anyone not authorised by Supasound to repair the tone arm, (iv) shipment of the tone arm (claims to be presented to your retailer to be passed on to the carrier), (v) any cause other than a tone arm defect due to a fault in materials or workmanship;

E. cleaning, initial set-up, check-ups with no defects found, or charges incurred for installation of the tone arm;

F. accessories supplied in the original box;

G. any Supasound tone arm purchased outside the UK;

3. What Supasound will do and pay for if you qualify for this Warranty coverage and how Supasound will provide the required service.

Supasound will pay for all parts and labour covered by this Warranty. You must pay for all shipping charges if it is necessary to return the tone arm to Supasound. However, if the required repairs are covered by this Warranty, Supasound will pay for the shipping from Supasound Limited back to any buyer within the UK. Whenever warranty service is required for any tone arm greater than 5 years old from the Supasound ship date you must present the original dated sales receipt or other proof of purchase.

4. How do you get service?

If your tone arm needs service, please contact Supasound for advice regarding packing and carriage.

5. Legal Status

You have legal rights as a consumer under applicable national legislation governing the sale of consumer goods which this Warranty is given without prejudice to and does not affect. Nothing herein shall be construed as an express or implied warranty in respect of the future performance of any Supasound tone arm (including any tone arm or replacement tone arm which is regulated, adjusted, repaired or replaced by Supasound under this Warranty).

6. Limitations

A. All implied warranties, including the warranties of merchantability and fitness for a particular purpose are limited to the duration of this warranty. Upon expiration of this warranty all implied warranties, including the warranties of merchantability and fitness for a particular purpose are hereby disclaimed.

B. All consequential and incidental damages are hereby disclaimed and excluded.

C. Some countries do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.

D. The restrictions in this Warranty shall not apply where void.

Warranty covered by the laws of England.