

# Simon Yorke Designs

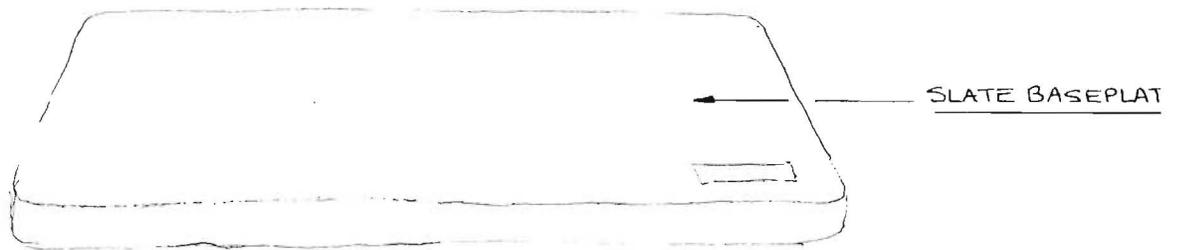
precision  
analogue disc transcription  
system

PAT2-01

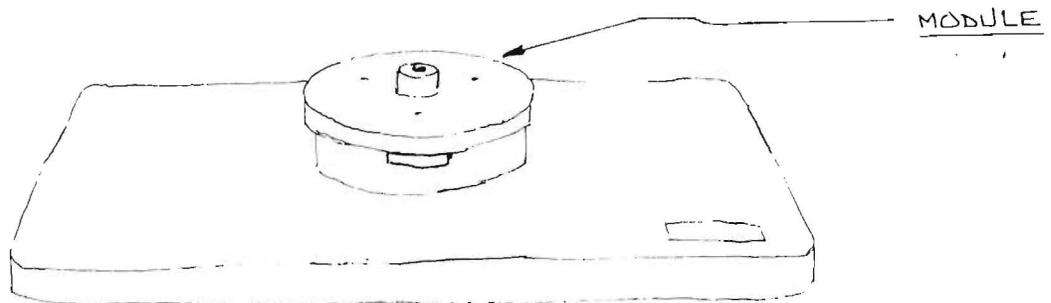
instructions for use

## Installation of the turntable

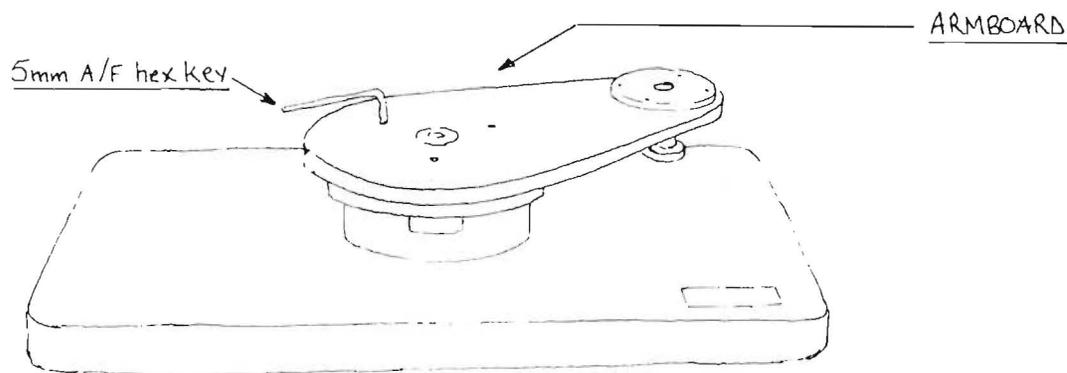
Please handle all the turntable parts with care :  
Try and avoid scratching any surfaces or leaving  
finger prints.



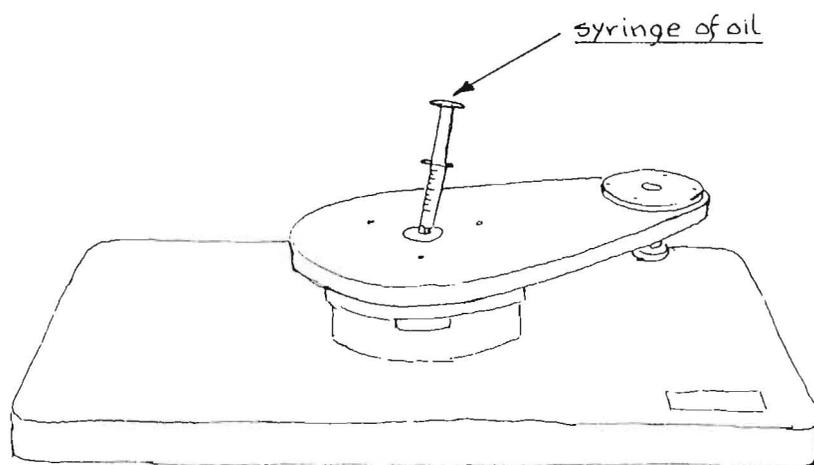
Place the slate baseplate on the chosen supporting table and, with a spirit level, ensure that it is perfectly horizontal. Placing spikes or other supports beneath the slate is fine - experimentation is good - but be careful not to damage the visible surfaces (slate is quite soft). Clean the slate with a damp cloth and a little mild detergent, if necessary. 'Baby Oil' rubbed into the slate will produce a gloss surface appearance.



Position the module in the centre of the baseplate and orient the unit such that the 'nameplate' faces to the front. Connect the drain wire to the small earthing screw at the rear. Remove the rubber stopper from the bearing orifice, and check that the thrust ball is held captive in the bottom of the bearing well.

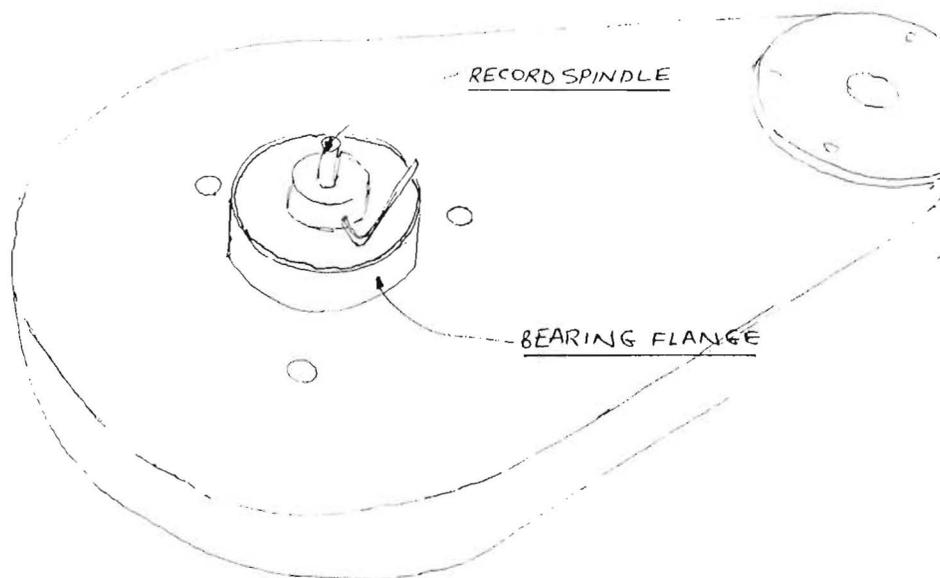


Affix the armboard, counterbore side up, using the three M6 x 20 cap screws provided. Tighten the armboard fixing screws until they begin to 'bite' and no more. Do not overtighten these screws: nothing will be gained except damage to the armboard.

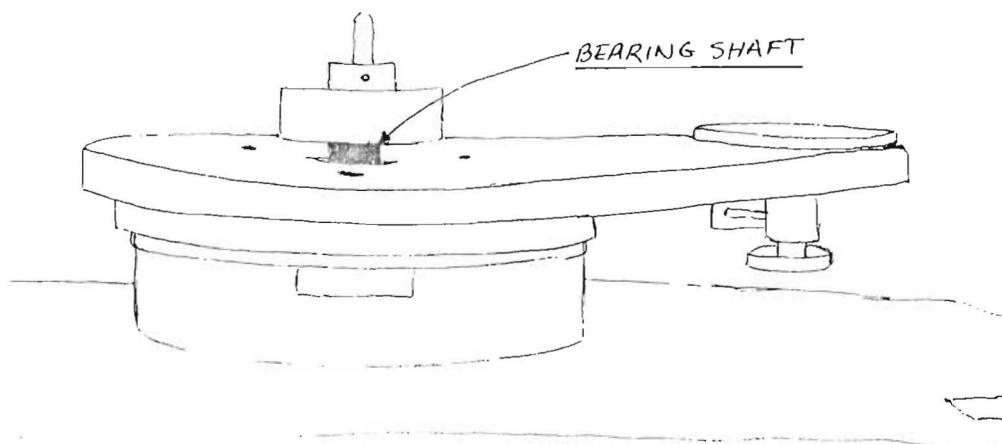


Add 2-5-3-0ml. oil to the bearing hole before inserting the bearing shaft. Immediately remove any overspill of oil from the armboard surface. This is important. The armboard must not be allowed to become wet at any time - or it may warp and require replacement.

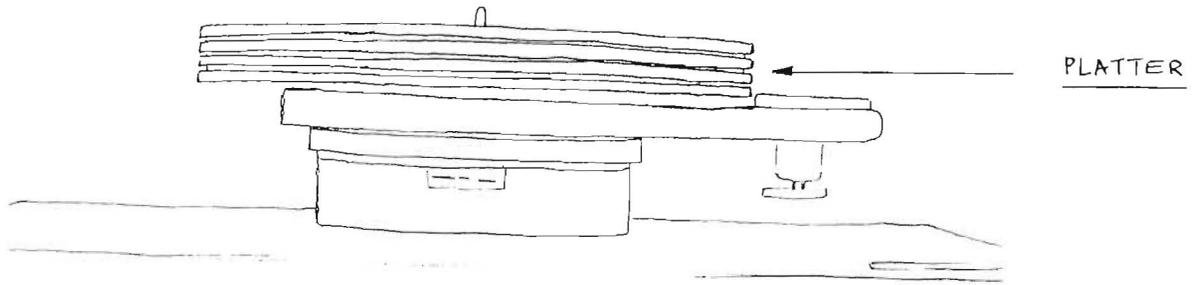
The record spindle may be removed or replaced - the locking set screw is in the side of the bearing flange:



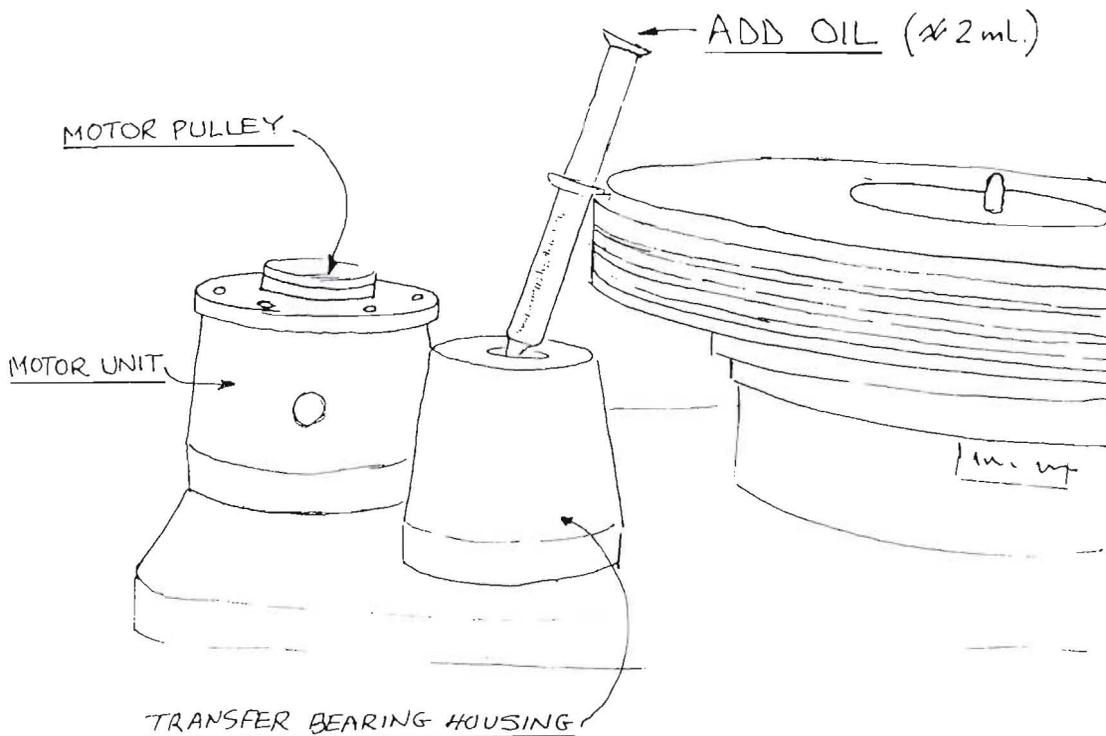
Insert the bearing shaft and press it slowly down until it bottoms. Now wipe any overspill of oil from the armboard surface. If no oil is ejected from the bearing housing, add further oil until the housing is completely flooded when the shaft is inserted.



Ensure that the bearing housing is kept flooded at all times - inadequate flooding of the bearing will cause friction levels to increase and optimum results from the unit will not be obtained. Ensure also that the oil is kept replenished and clean at all times. Check this every 3-6 months.



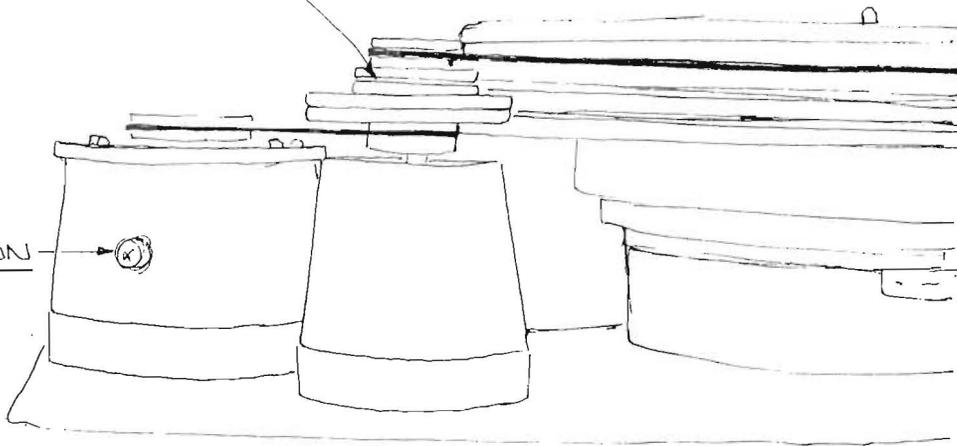
Gently lower the platter onto the bearing shaft flange, taking great care not to inflict any torsional force upon the bearing shaft.



place the motor unit and transfer bearing assembly to the left of the turntable. Flood the transfer bearing assembly with 1.5 - 2.0 ml. of oil and add the transfer bearing rotor (see previous instructions relating to oil and main bearing).

TRANSFER BEARING ROTOR

BUTTON TO SWITCH ON

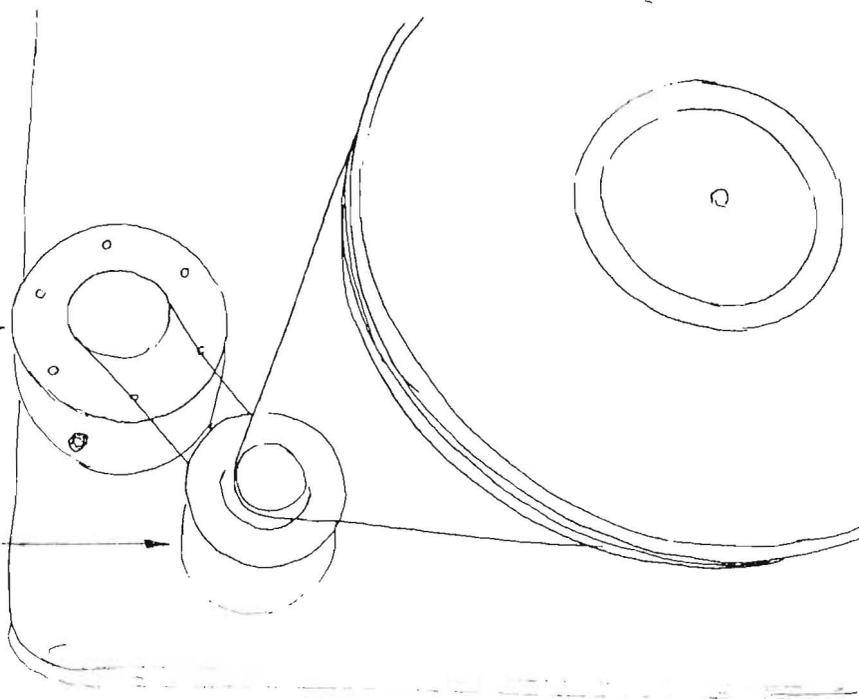


Loop the small drive cord around the motor drive pulley and the bottom groove of the transfer bearing rotor.

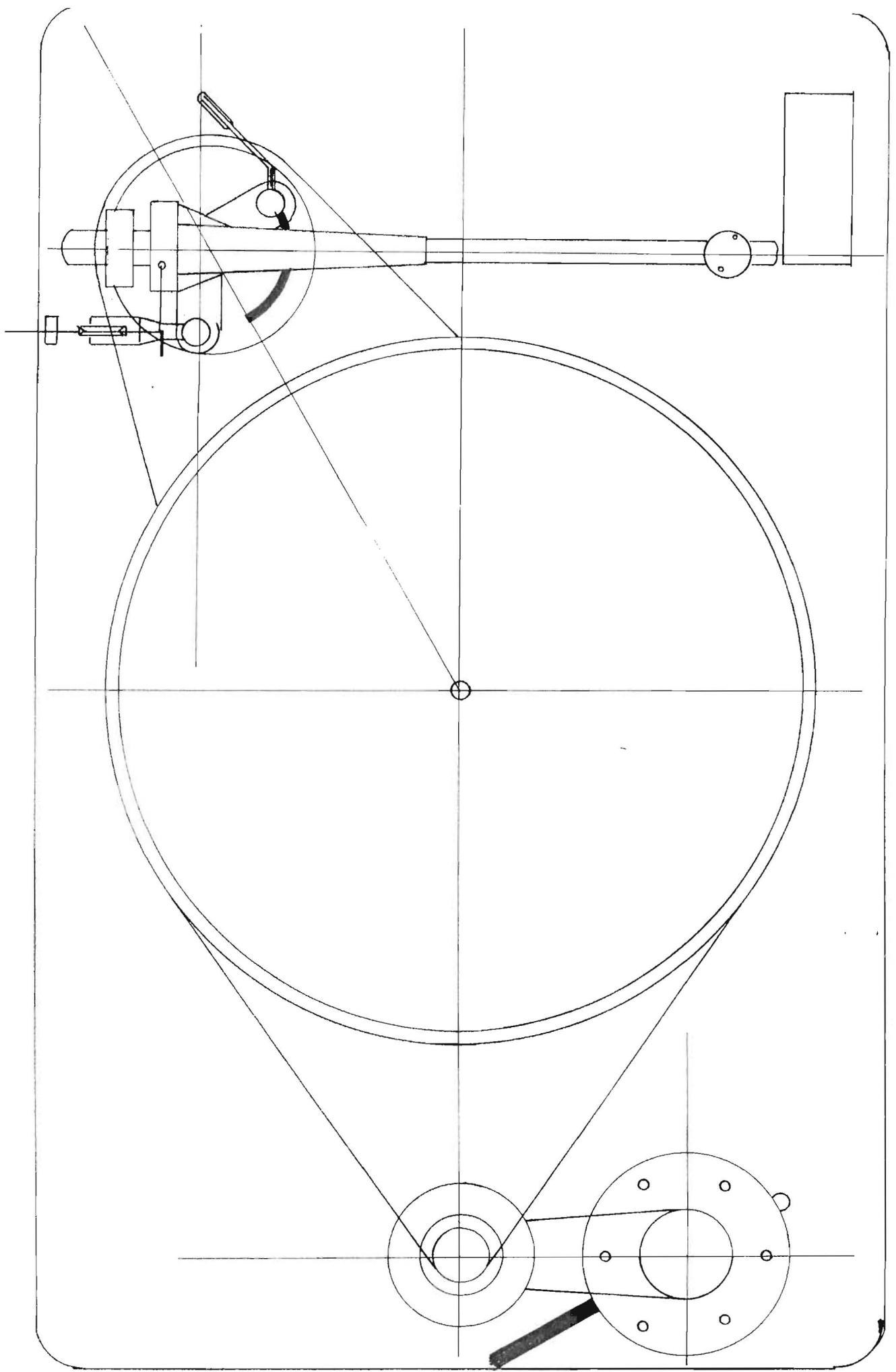
Loop the longer drive cord around the top grooves of both platter and transfer bearing rotor.

MOTOR UNIT

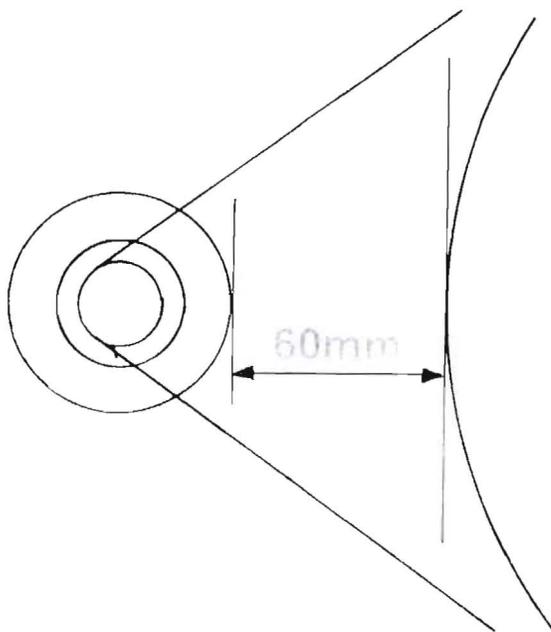
TRANSFER BEARING



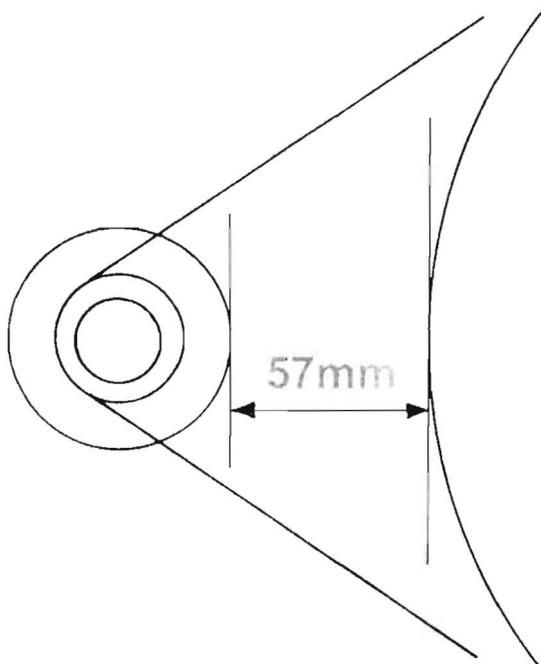
Suggested positioning of motor and transfer bearing assembly. Further information relating to drive cord tension is contained in further pages.



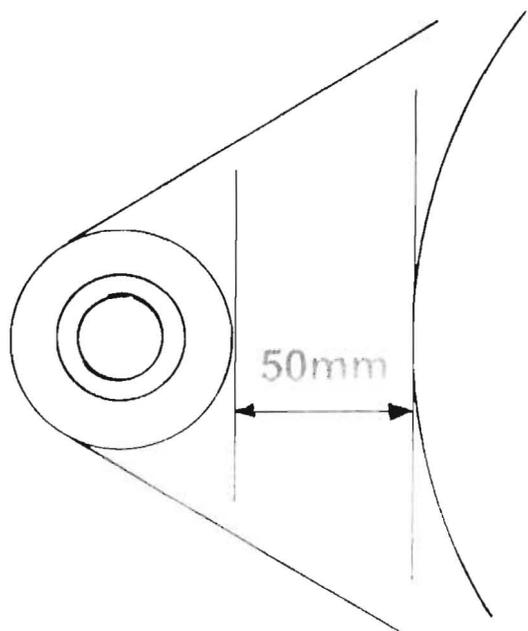
**33rpm**



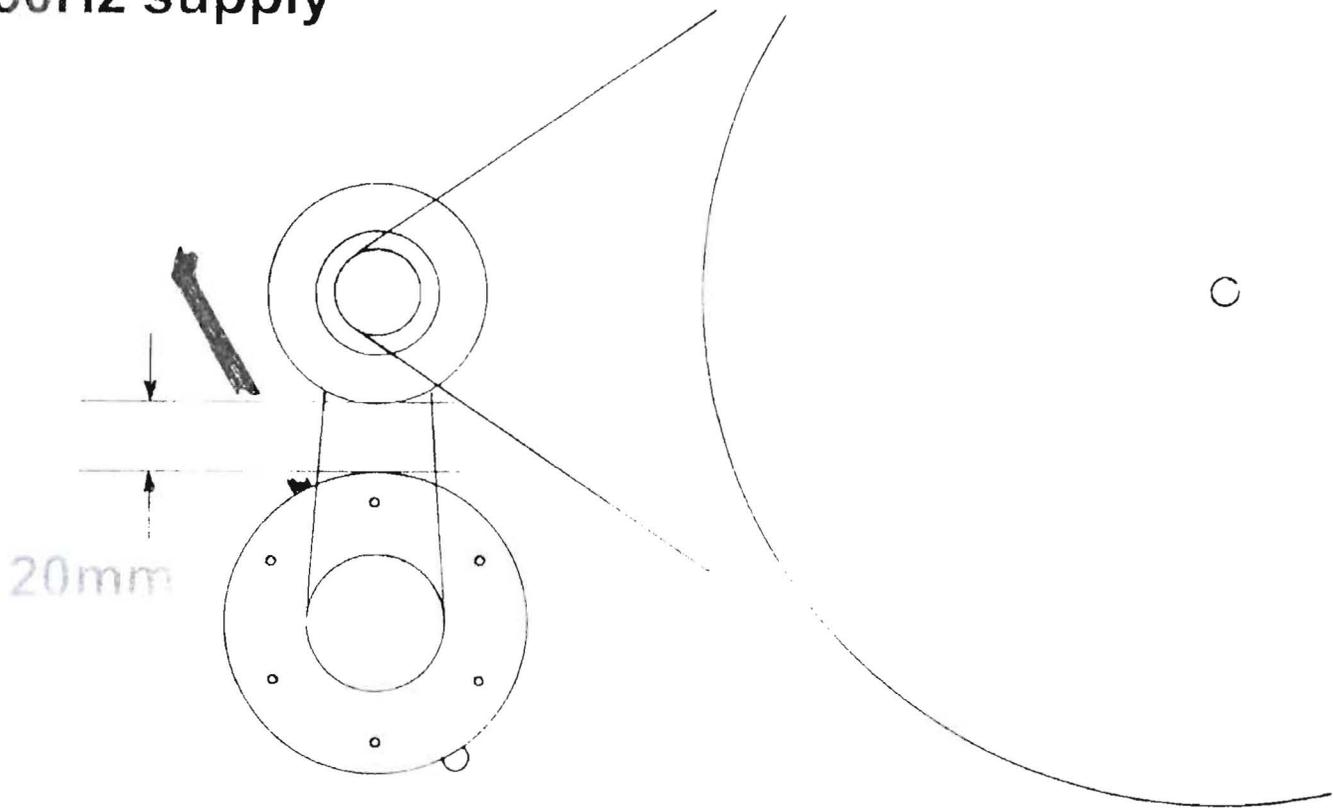
**45rpm**



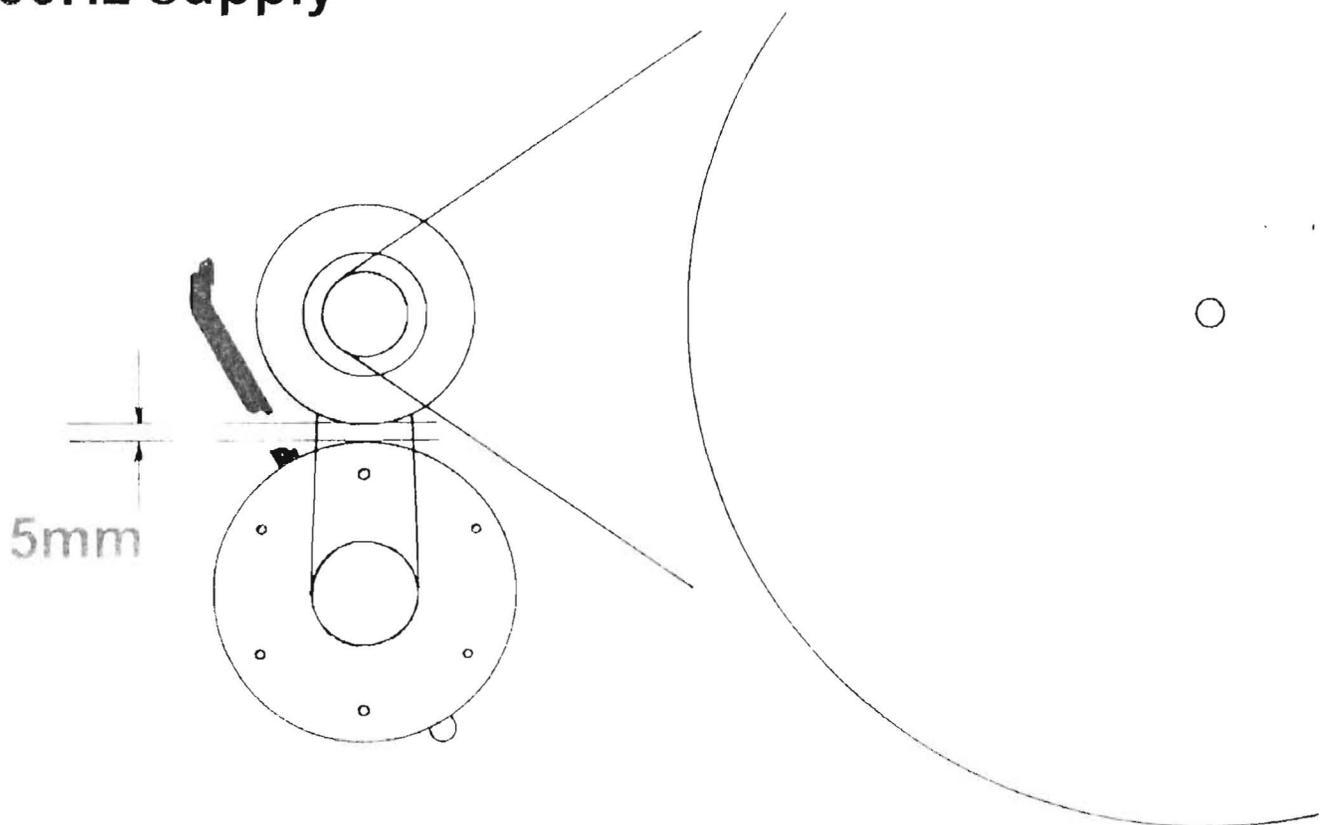
**78rpm**



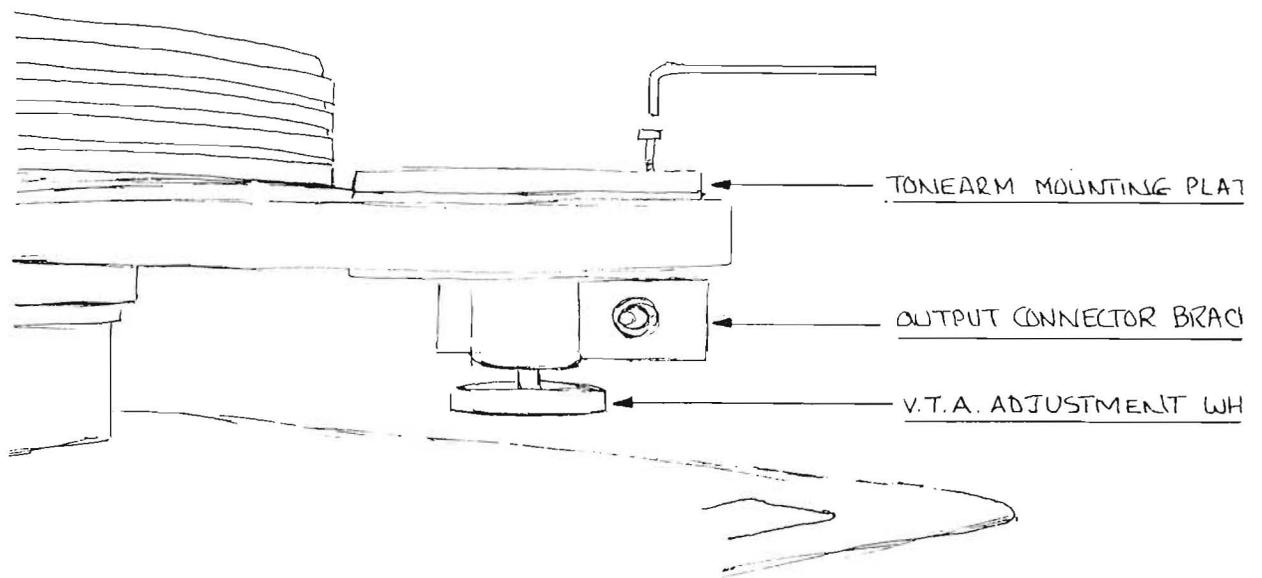
### 50Hz supply



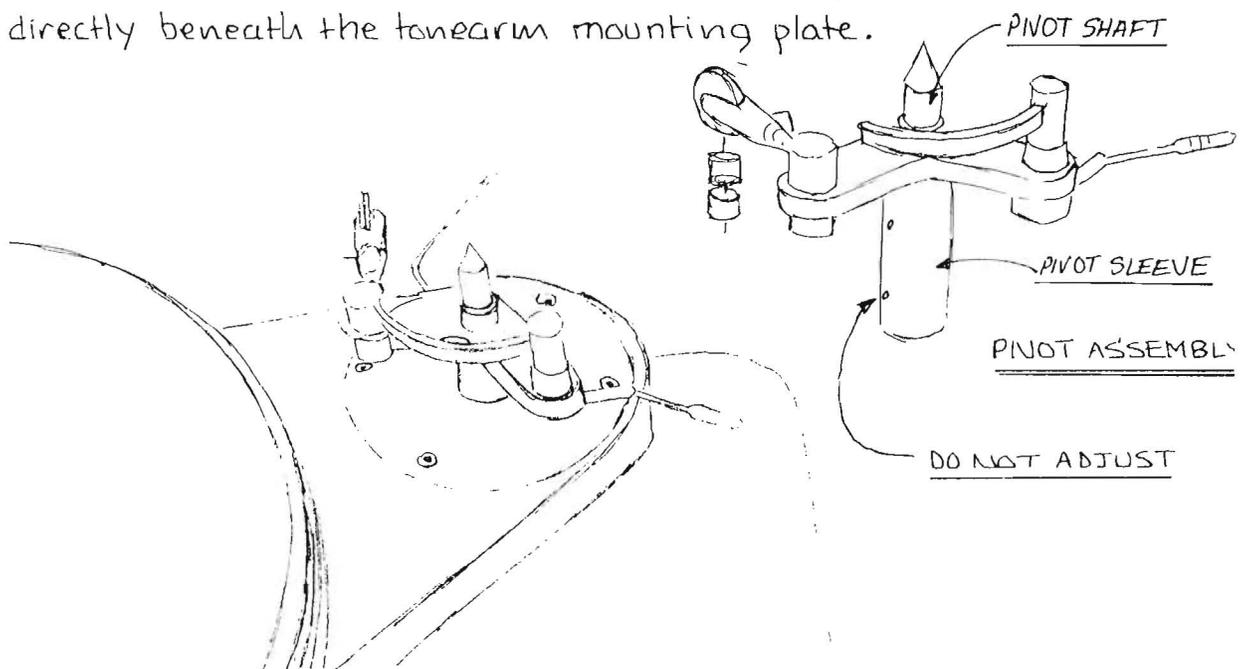
### 60Hz supply



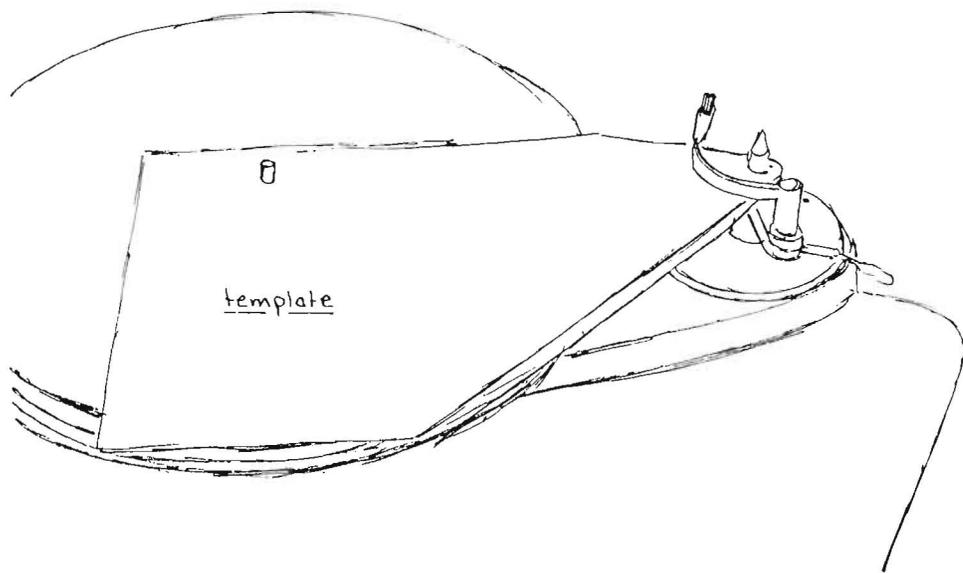
## Installation of the tonearm



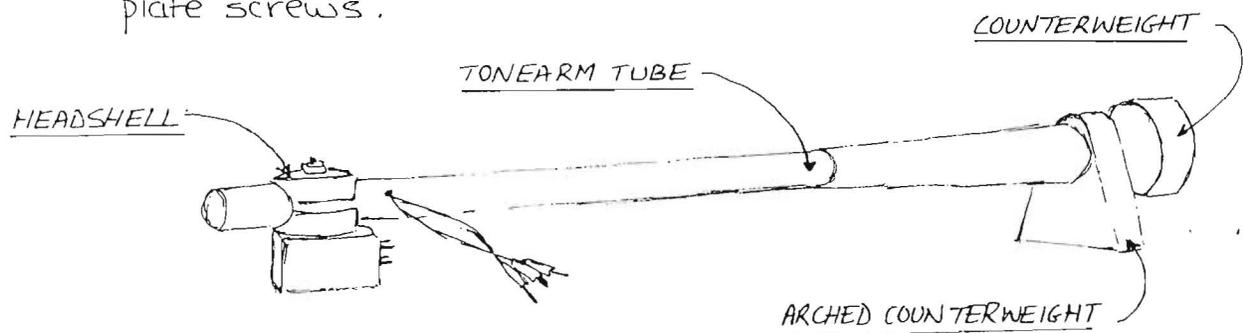
Affix the tonearm mounting plate to the turntable arm-board using the M3 x 25 screws supplied. The output connector bracket should be simultaneously mounted directly beneath the tonearm mounting plate.



Slide the pivot assembly into the tonearm mounting plate, aligning the vertical slot with the height-locking set screw.



The pivot centre should be positioned exactly 215.35mm from the turntable centre. The template supplied will establish the correct position: place the template over the record spindle and move the mounting plate assembly inwards until the pivot shaft is located against the hole shoulder. Now securely tighten the mounting plate screws.



Affix your cartridge to the headshell assembly using the M2.5 fasteners supplied (nuts uppermost, unless using an M2.5 threaded body) and gently slide the assembly onto the tonearm beam, taking care not to scratch the tube surface.

Do not overtighten these screws or you risk damage to both tonearm and cartridge. Think gentle!



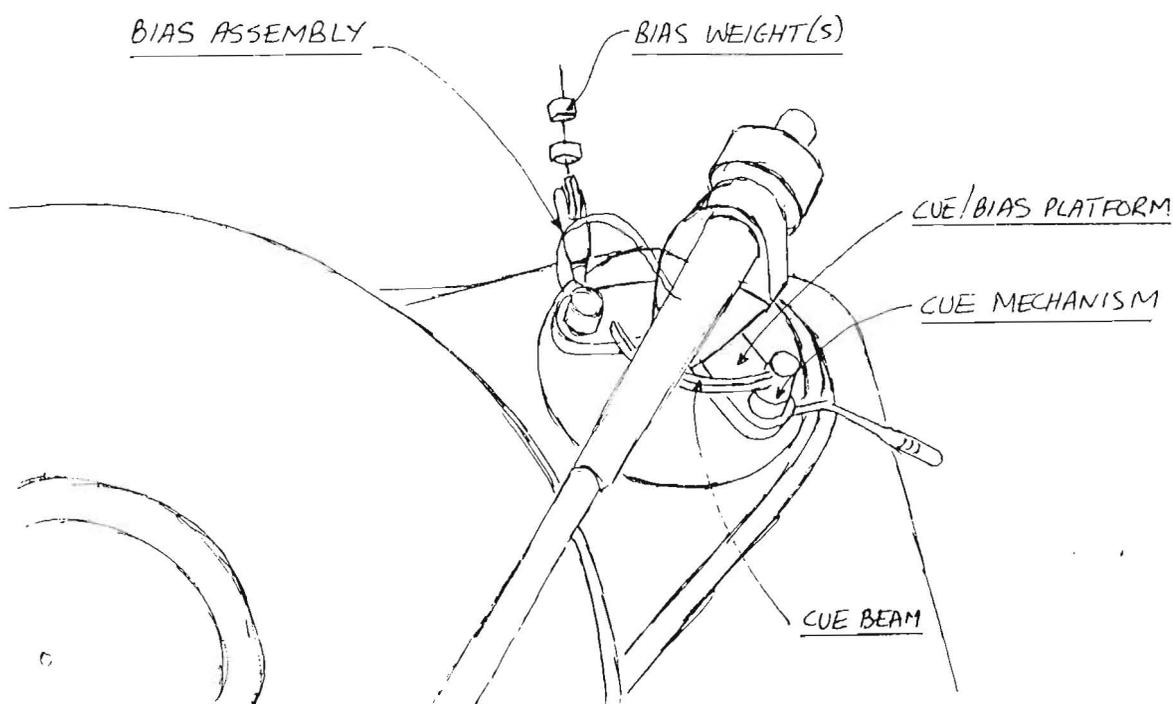
Electrically connect your cartridge accordingly:

RED = RIGHT CHANNEL LIVE (usual colour code = RED)

BLACK = LEFT CHANNEL LIVE (usual colour code = WHITE)

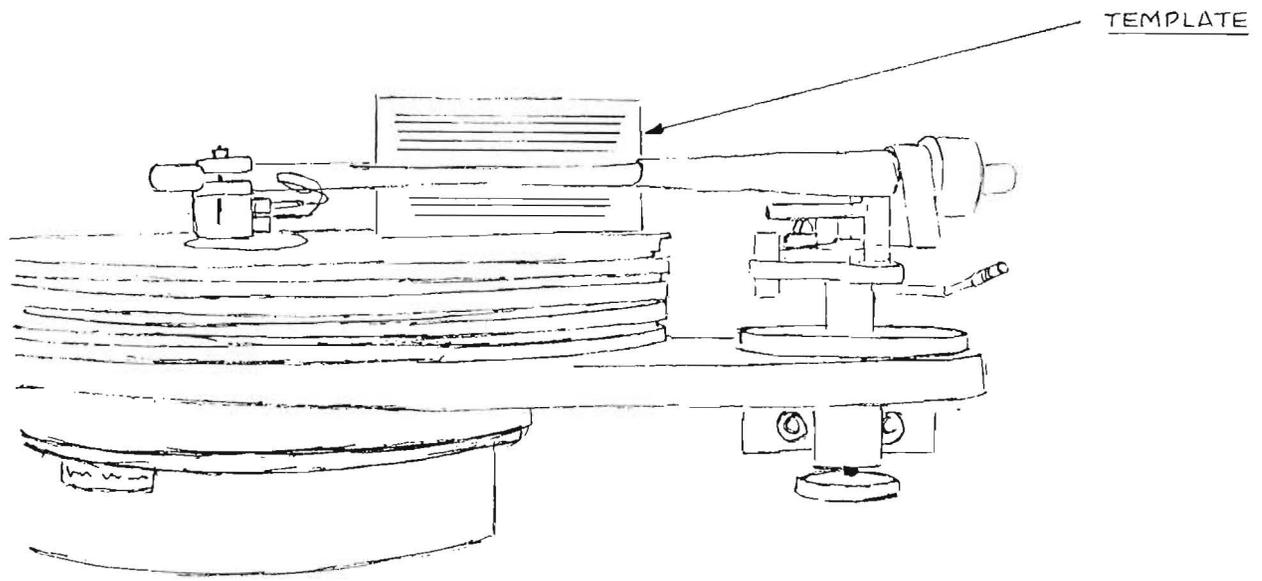
BLUE = RIGHT CHANNEL GROUND (usual colour code = GREEN)

YELLOW = LEFT CHANNEL GROUND (usual colour code = BLUE)

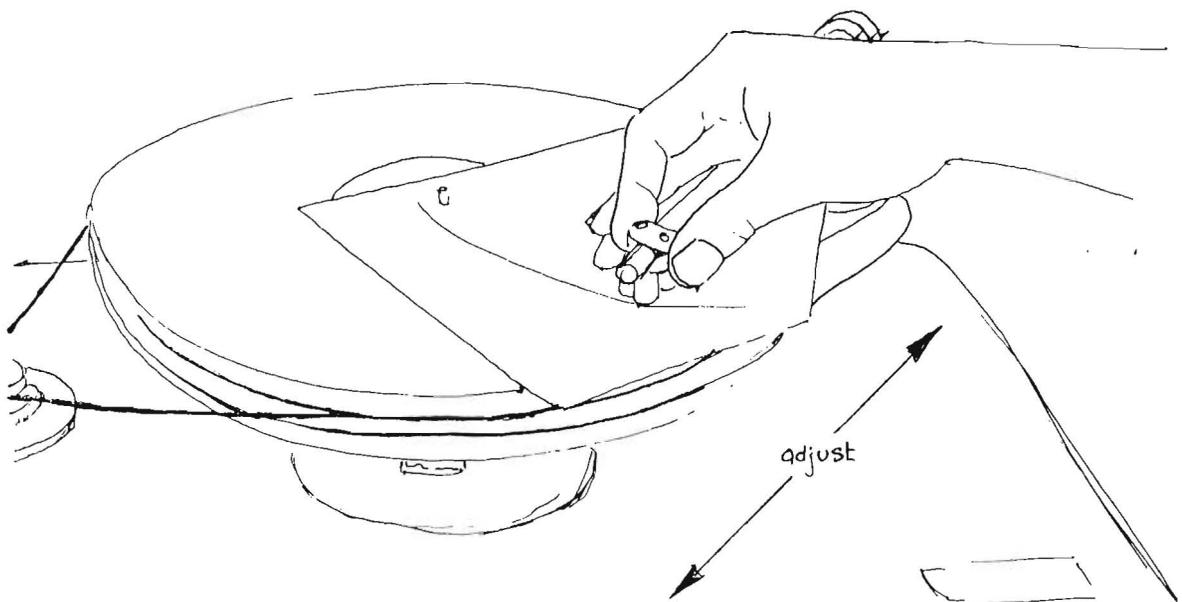


Take the tonearm beam assembly and lower it gently onto the tonearm pivot ensuring correct location in the pivot cup. The tonearm will be obviously insecure if location is incorrect. The white p.t.f.e. ring should be located centrally in the pivot guide plate.

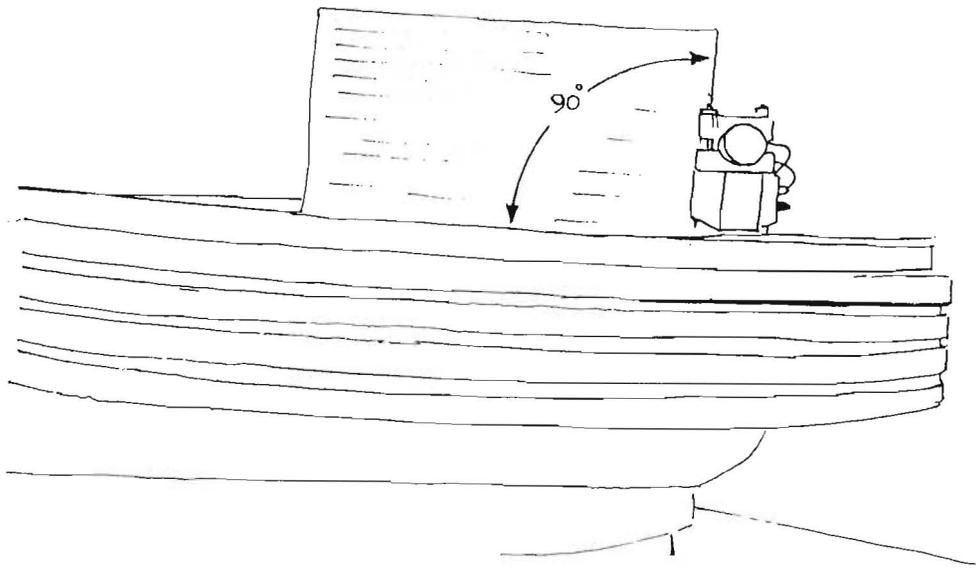
Place a disc on the turntable and adjust the tonearm geometry as follows:



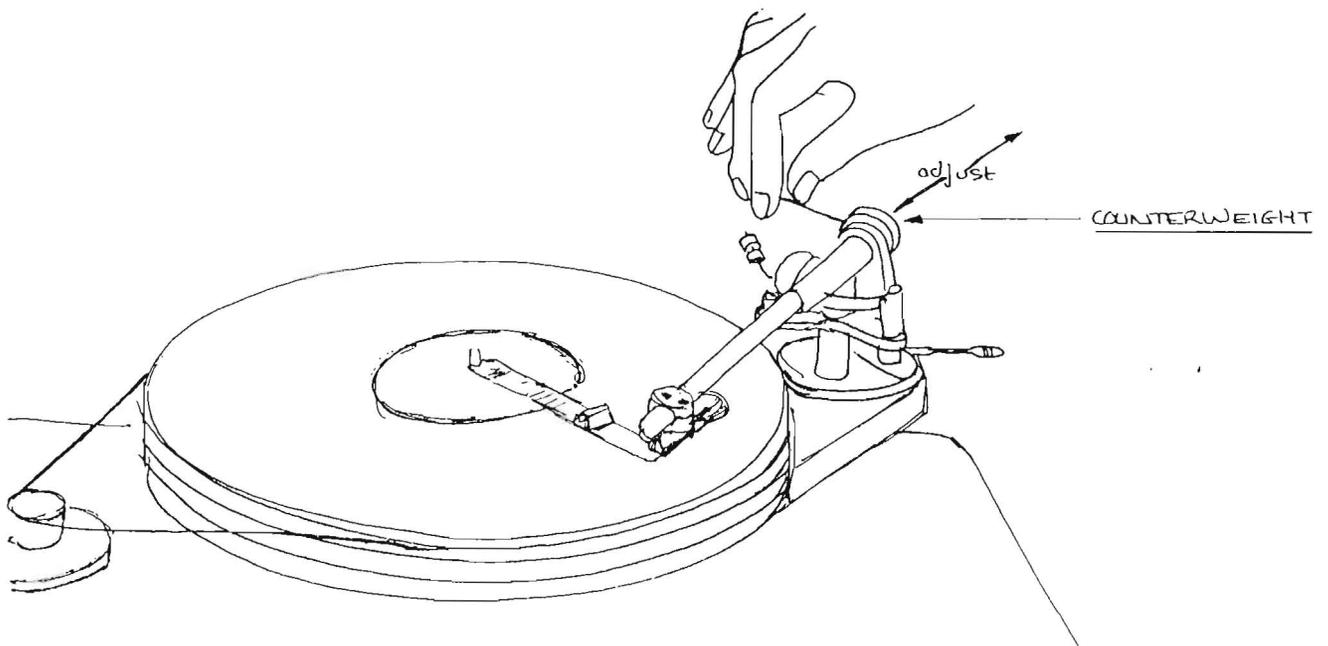
The tonearm beam should lie exactly parallel with the disc surface. Raise or lower the tonearm pivot by means of the VTA adjustment wheel —  $360^\circ$  revolution = 1mm vertical movement =  $0.25^\circ$  VTA.



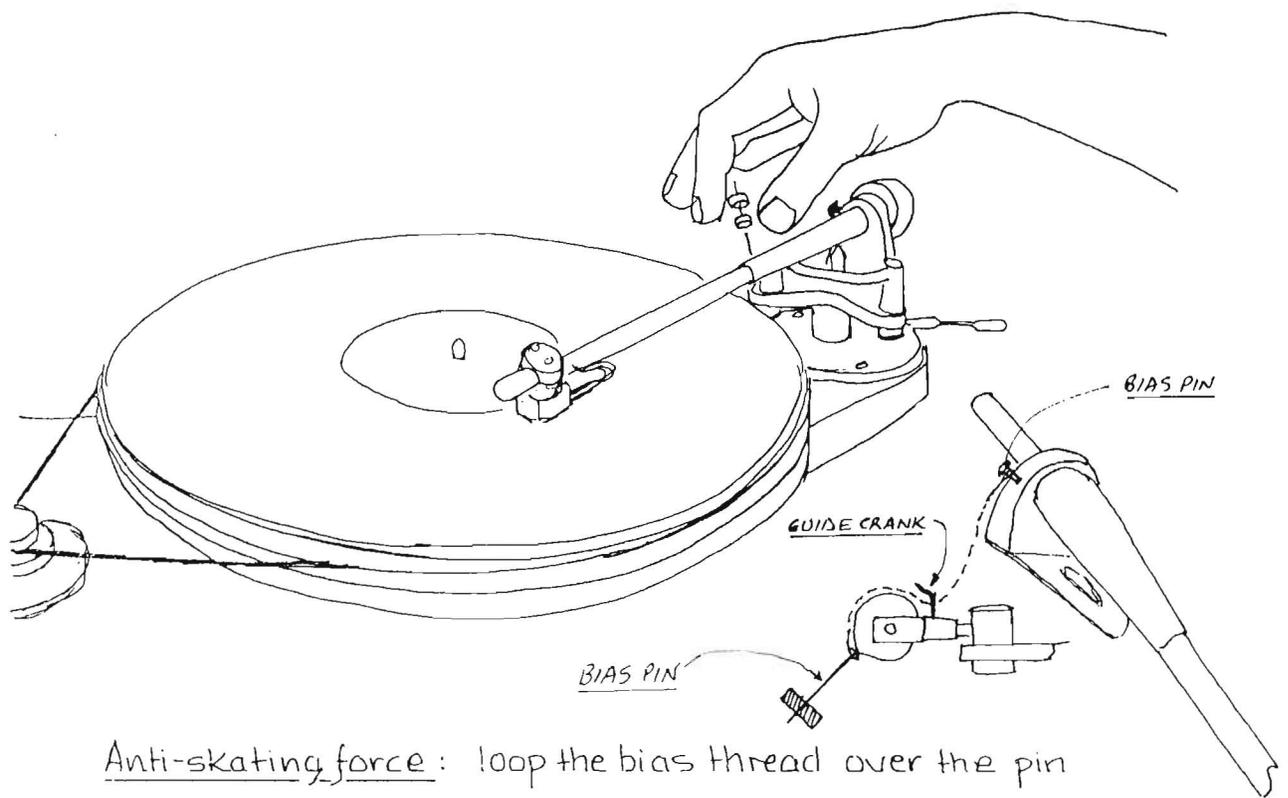
Stylus overhang is set by moving the headshell assembly back and forth along the tonearm beam. The correct overhang (17.8mm) may be found by using the template supplied: simply set the stylus to follow the radial line printed on the template.



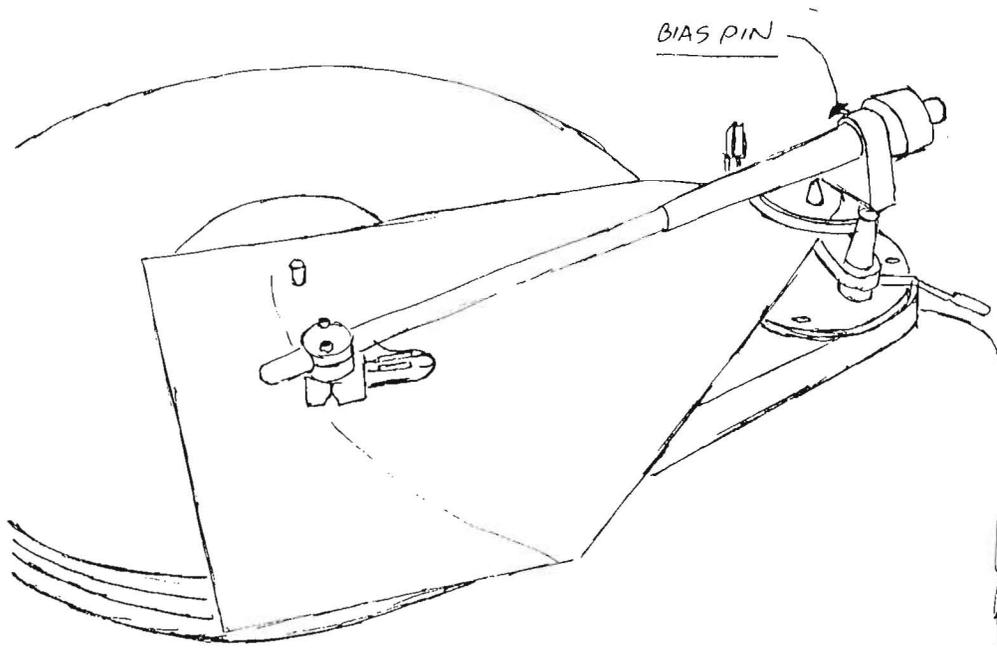
Cartridge Azimuth should be set simultaneously with stylus overhang: the cartridge body should be exactly parallel to the disc surface.



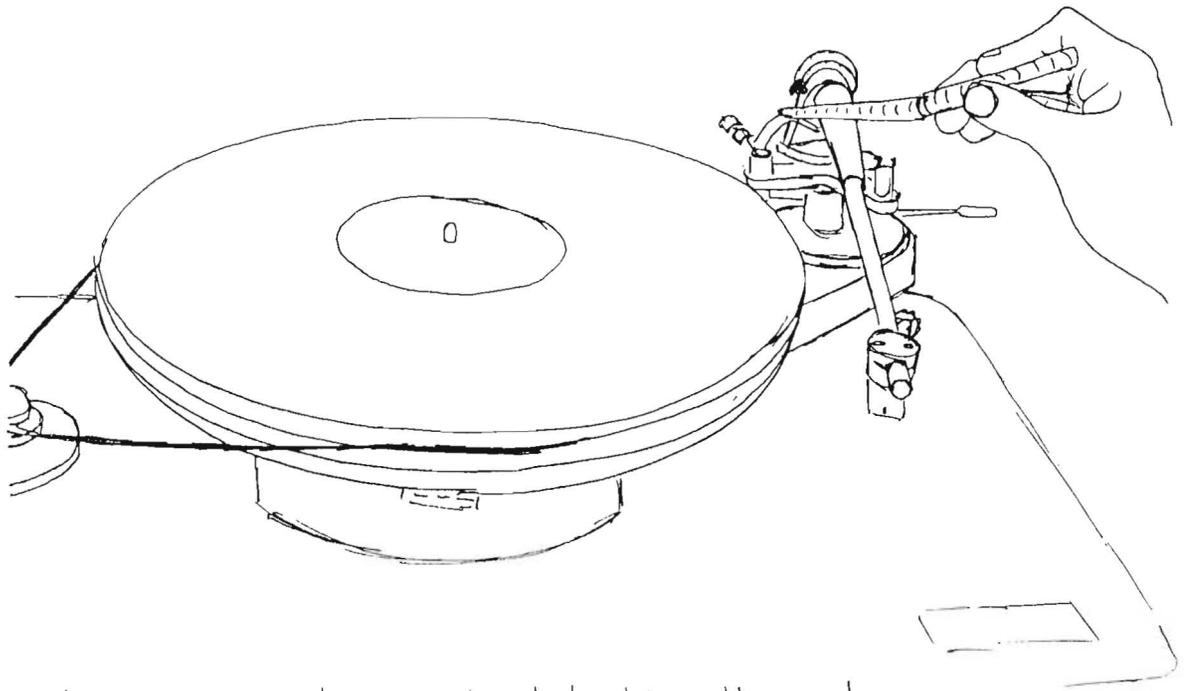
Stylus downforce is adjusted by moving the round counterweight back and forth along the counterweight beam. Using a calibrated stylus force gauge, adjust the downforce to a figure recommended by the cartridge manufacturer. Then lock the counterweight in position and re-check the downforce.



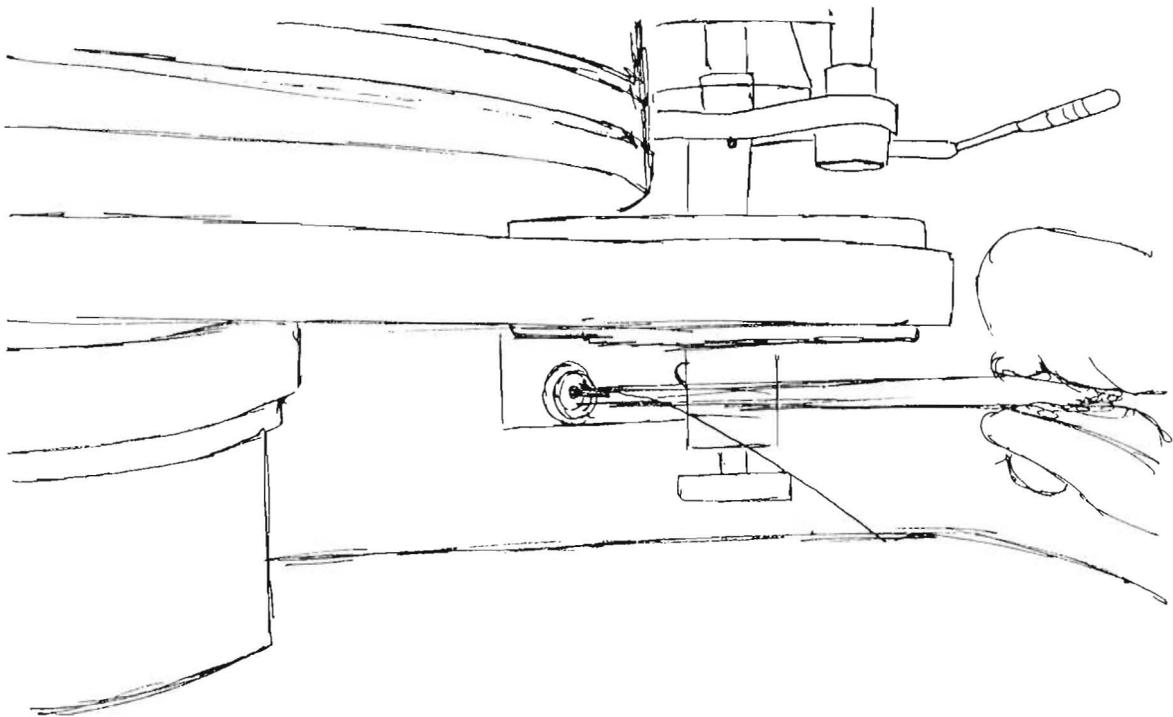
Anti-skating force: loop the bias thread over the pin of the bias wheel, around the guide crank, and over the bias pin on the arched counterweight. Add and adjust the bias weight(s) until a satisfactory bias force is obtained.



Check once again all cartridge alignment parameters: overhang, azimuth, downforce and bias. If all is o.k., ensure all adjustment-locking screws are tight and secure.



Use tweezers to manipulate bias thread.  
Make sure that the tonearm output wires are freely falling to the rear of the tonearm mounting plate and do not interfere with the bias system.



Slip the tonearm output cables through the hole in the connector plate centre and make appropriate connections with the sockets below. Use tweezers.

*Further Information:*

**The turntable is heavy** because it is constructed almost exclusively from Austenitic (non-magnetic) Stainless Steel. Please do not drop any parts of the turntable on your foot - such carelessness is unlikely to damage the turntable but will do serious damage to your foot.

**Don't try and lift the turntable in its fully-assembled state.** Always remove the platter first - take care of your backbone.

**Don't try and lift the turntable by gripping the armboard.** Lift using the module rim only - the armboard will be damaged otherwise.

**Beware of the free-standing nature of the motor unit.** If the motor falls, pulley-side down, the drive unit will have to be replaced. If the transfer bearing falls, sufficient damage will be done to require total (and expensive) replacement. So, be careful, please. You have been warned.

**If the turntable runs slow,** the problem will almost certainly be of a mechanical, rather than electrical, nature. Ensure that the turntable and transfer bearings spin freely (clean thoroughly and add fresh oil if not) and that the drive cords are correctly located, tensioned and free of oil contamination (clean them with a mild household detergent if soiled).

**If the turntable runs fast,** the most likely cause will be incorrect alignment of the drive cords (not running in the pulley grooves but on a surrounding rim): simply re-align the offending drive cord (typically on the transfer bearing rotor).

**Tensioning of the drive cords** will be arrived at by 'feel' once you have the initial set-up performed. The accompanying diagram indicates a useful starting point. The basic objective is to establish a tension which generates sufficient torque with minimum start-up time. However, if the tension is too great, there will be insufficient 'slip' for the motor to initially spin and synchronise. If there is too little tension, the drive cords will vibrate excessively and turntable start-up time will be very slow.

**When using the 78rpm pulley** it will be necessary to give the platter a helping hand from standstill - once the drive has synchronised, there will be sufficient torque to attain and maintain correct speed. It is beneficial to give the platter a 'push start' in all circumstances - drive cord life will be extended and motor stress reduced.

**Placing of the turntable unit should be carefully considered.** This turntable will give excellent results in almost all circumstances but, when placed on an truly solid base, even better results can be obtained. A 30mm thickness slate baseplate (size 580 x 358mm) is typically supplied with the unit for this purpose. This should be mounted on a dedicated support table or wall-mounted platform.

**Do not allow the armboard to become wet at any time.** The armboard should only be dusted with a dry cloth and, perhaps, a little dry polish.

**Drive cords:** The platter drive cord is a one-piece moulding of neoprene rubber. The specification is ID360 x 1,6mm section (thickness). The 'flashing' residual left over from the moulding process has been kept to a minimum but is, to some degree, an inevitable consequence of the manufacturing process. As the cord rides in a 'V' groove (rather than a semicircular groove) the flashing will not make actual contact with either the pulley or platter groove and thus is not of mechanical importance.

Whilst it is always preferable to replace a worn drive cord with a new one, an effective repair to a broken cord can be made as follows: square off the broken ends of the drive cord and bond together with a small drop of cyano-acrylate adhesive (super-glue). This bond will effect a temporary repair to keep the turntable operational until a new replacement cord can be obtained. The butt joint just described is simple, effective and fast. A better joint is the 'scarf joint': this involves splicing the two ends of the cord at an angle of approximately 45 degrees. The scarf joint is a more reliable joint and offers greater longevity but is more difficult to make and dislikes bending around small diameters.

If it is not possible to obtain an original drive cord, a workable drive cord can be made by purchasing a one metre length of 1,6mm (or 1/16") neoprene 'o'-ring cord and splicing it into a ring as described above.

The transfer bearing drive cord is made of a similar (though more rigid) polymer to a nominal specification of ID 3,5" x 1/16" section (for 60Hz units: ID3.25" x 1/16"). An emergency cord can be fabricated by the method described above, though in this case the length of cord prior to bonding should be 280mm (for 60Hz: 260mm).

Please note that whilst the exact internal diameter of the drive cords is not so critical, the cross-section (or thickness) of the cord is important. A thicker section of cord will cause the turntable to run fast and a thinner section will make the turntable run slow - so, stick to the 1/16" section cord specified.

The drive cords will stretch with age but the free-standing nature of the motor drive system means that drive cord life can be extended simply by moving the motor and/or transfer bearing assembly further from the platter and/or each other. (The platter drive cord can be heated in an oven at 130 degrees C for 30 minutes to bring about some shrinkage of the internal diameter if overly stretched, though this is not recommended unless you enjoy food which tastes of rubber - it is more sensible to simply replace the drive cord with a new one.)

Exposure to ultraviolet light and ozone will shorten the life of the drive cord polymer (along with old age) so don't expose the turntable to either if you can help it. Multiple spare drive cords are not included with the equipment because of the natural ageing process - it is best to purchase replacement drive cords when necessary (from a fresh polymer batch).

**Oil:** It is essential to keep the bearing assemblies fully flooded with clean oil at all times. A high quality, clear and non-viscous oil is optimum - as supplied. Don't use thick, viscous and exotic oils under any circumstances: these might attack the bearing bush linings and cause all manner of difficulties. Keep it simple!

**Lift/Lower Mechanism:** To raise the tonearm, the cueing lever should be lifted upward into the vertical position. To lower the stylus onto a disc, the cueing lever should be depressed forward and downward until the lever is horizontal. When raised, the stylus should rest about 5-8mm above the disc surface - adjustment can be made by loosening off the small set screw in the cueing beam body, and raising or lowering the lifting beam, or the entire cueing mechanism may be raised or lowered by adjusting the height of the whole cue/bias platform. It is not necessary to add oil or any other lubricant to the cueing mechanism - this has already been done. The mechanism should require no maintenance at any time, though the rubber lip on the cueing beam may be wiped with a mild detergent solution to restore its tack if contaminated by oil or dust.

**Bias Assembly:** The purpose of an anti-skating force is to counteract the natural tendency for the tonearm to swing inwards and over the centre spindle. This action is attributable to the overhanging nature of the stylus and is an unavoidable aspect of any pivoted tonearm. The bias assembly applies a counteracting force. It should be noted that the skating tendency of the tonearm is not constant across the whole disc surface. It is best to initially set the anti-skating force for optimum response nearest the inner groove radii. Later experimentation will confirm whether or not this initial setting will need to be revised. Bias adjustments can only be set dynamically, whilst the tonearm is tracing a record. Using the ear to detect tracing distortion is probably the only truly satisfactory method of setting the bias force correctly. Should the bias wheel 'stick', a small drop of lubricating oil on the wheel journal should help.

**Tonearm Wiring.** The tonearm tube is wired with four strands of silver-plated copper wire, sheathed in a ptfе (Teflon) coating. This choice of wire was made with due consideration to both sound quality and flexibility. A unipivot tonearm, by its nature, prohibits the tonearm wire from exiting through the bearing centre - cable flexibility is thus an important issue as an inflexible wire will impede free movement of the tonearm. Very small gauge wiring may be more flexible, though often at the expense of sonic constriction and mechanical fragility. The chosen wire has a powerful and clean sonic signature and, providing care is taken to ensure that its routing to the connector assembly does not impede tonearm movement, will provide both good sound quality and mechanical integrity (very fine wires are easily broken, involving intricate re-soldering operations of a irritating nature). As the tonearm tube is sealed at both ends, and internally damped, rewiring of the tube will not be possible. Please therefore take care not to break any of the wires.

**Surface Finish:** All the surfaces of the tonearm have been stress-relieved and satin-finished. The aluminium parts are NOT anodised because the anodising process forms a thin but very hard layer of aluminium oxide on the metal's skin. Whilst this anodic film helps protect the basemetal from corrosion and scratches, it also creates a 'hard edge' to the 'sound' of the tonearm. For me, this is an unacceptable compromise. I have therefore chosen to protect the metal with a film of soft wax (a natural anodic skin will develop in time anyway), leaving the acoustic properties of the tonearm uncompromised, if not improved.

Furthermore, anodising can only be successfully employed where the basemetal is a high-purity aluminium - such aluminium is also very soft and therefore structurally ill-suited to use in an application such as this. Alloying of the aluminium with other metals to create a high-strength material, therefore, often precludes the possibility of later successful surface anodising.

The stress-relieving process applied to the tonearm further inhibits a successful anodising treatment by interfering with the electron flow necessary for a high-quality clear anodised finish.

*For these reasons, special care should be taken whilst handling the tonearm not to scratch the delicate surfaces.*

**Output Cable:** The Output Cable carries the very small signals from the tonearm to the phono amplifier. This cable should be of a larger gauge than the internal tonearm wiring. The connector bracket is typically fitted with two high-quality insulated RCA phono sockets (fully balanced connectors may be supplied to order), permitting a standard phono-to-phono cable set to be used. This arrangement allows experimentation with different cable sets to be made with ease. Please note that although the RCA phono connector is essentially an unbalanced connector, the insulated configuration of the connector plate socketry permits a quasi-balanced mode of operation without the need for complex (and expensive) non-standard balanced cable sets. As some systems (and listeners) are more cable-sensitive than others, final choice should always rest with the individual user. An earthing drain wire may or may not require to be run from the phono amplifier ground terminal to the ground terminal on the tonearm connector plate - this will depend entirely upon the overall earthing arrangement of the individual system. A drain wire connected in this way will effectively earth the entire tonearm assembly and may also be routed to the turntable module body to earth the entire turntable assembly, too.

**Tonearm Geometry:** This tonearm utilises a geometry and mounting system compatible with the well-known SME tonearms. Specifications are as follows:

	9" model	12" model
Distance from tonearm pivot to stylus tip:	233.2 mm	308.8 mm
Distance from tonearm pivot to turntable centre:	215.4 mm	295.6 mm
Cartridge offset angle:	23.64 deg	17.63 deg
Overhang:	17.8 mm	13.2 mm
Inner null radius:	66.0 mm	66.0 mm
Outer null radius:	120.9 mm	120.9 mm

#### Guarantee:

This equipment is guaranteed to operate faultlessly, ad infinitum. If you experience any difficulties please contact your dealer or myself directly for advice and/or assistance. Excepting damage inflicted through careless handling or operation, all necessary servicing or replacement parts will be supplied free of charge (excluding all freight charges, where applicable). A statutory guarantee of 24 months will always be honoured, thereafter at my discretion.

Please look after this equipment: keep it clean, free from excess dust and ultraviolet light, maintain adequate clean oil in the bearings, and use it on a strong and rigid supporting table at all times. Treated thus, and with appropriate respect, this equipment should provide you with a lifetime's listening pleasure. Running the unit from an incorrect voltage supply or without adequate lubrication in the bearings will invariably damage the unit and must be avoided.

If you have any comments to make concerning the design or operation of this equipment, I would be pleased to hear from you - user feedback is essential in the developmental process of any product. Please write or fax the address given below.

Finally, thank you for buying this product. I hope it brings you much pleasure over many years and helps save you from the eternal damnation that is digital audio.

Simon Yorke Designs, C. Mayor 48, Cañada del Trigo, 30520 Jumilla, Murcia, Spain

tel: (+34) 966 976 022      fax: (+34) 966 976 019      [simon@recordplayer.com](mailto:simon@recordplayer.com)

Whilst this manual and these specifications are presented in good faith, I reserve the right to make changes or modifications wherever and whenever I deem either appropriate or necessary.

# CERTIFICATE OF PROVENANCE



Item: Precision Analogue Disc Transcription System

Number: PAT2-01

Date of commission: December 17<sup>th</sup> 2002

I certify that this item is the original work of Simon Yorke, and was conceived, designed and hand-crafted by me.

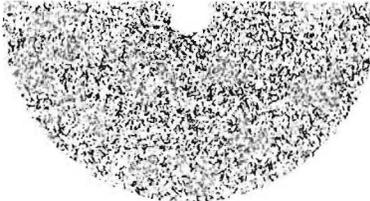
Signed:

Handwritten signature of Simon Yorke.

Date:

17/12/02 Origin: CDT

S74-158  
S74-183, 184 (12<sup>n</sup>)



**Simon Yorke Designs**

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Tel: (+44) 01207-580394 Fax: 01207-580399 VAT: GB 605-3558-50

**Certificate of Compliance**

Product: Simon Yorke Designs - Series 7 record player system

I certify that I have applied the following directives to the above equipment and, when used in an appropriate manner, this equipment will comply with these directives.

This equipment must only be used indoors and in conjunction with ancillary equipment which complies with same directives. Any such ancillary equipment shall be constructed and operated in like manner, in accordance with principles generally accepted within member states of the European Union as constituting good engineering practice in relation to safety matters.

**Electromagnetic Compatibility Directive (89/336/EEC)**

UK Statutory Instrument 1992/2372

**EN55013**

Limits and methods of radio interference characteristics of domestic audio equipment.

**EN55022**

Limits and methods of radio interference characteristics of professional audio equipment.

**Low Voltage Directive (73/23/EEC)**

UK Statutory Instrument 1989/728

This declaration is made on behalf of Simon Yorke Designs.

dated: 14 May 1999



Simon M R Yorke  
Technical Director.