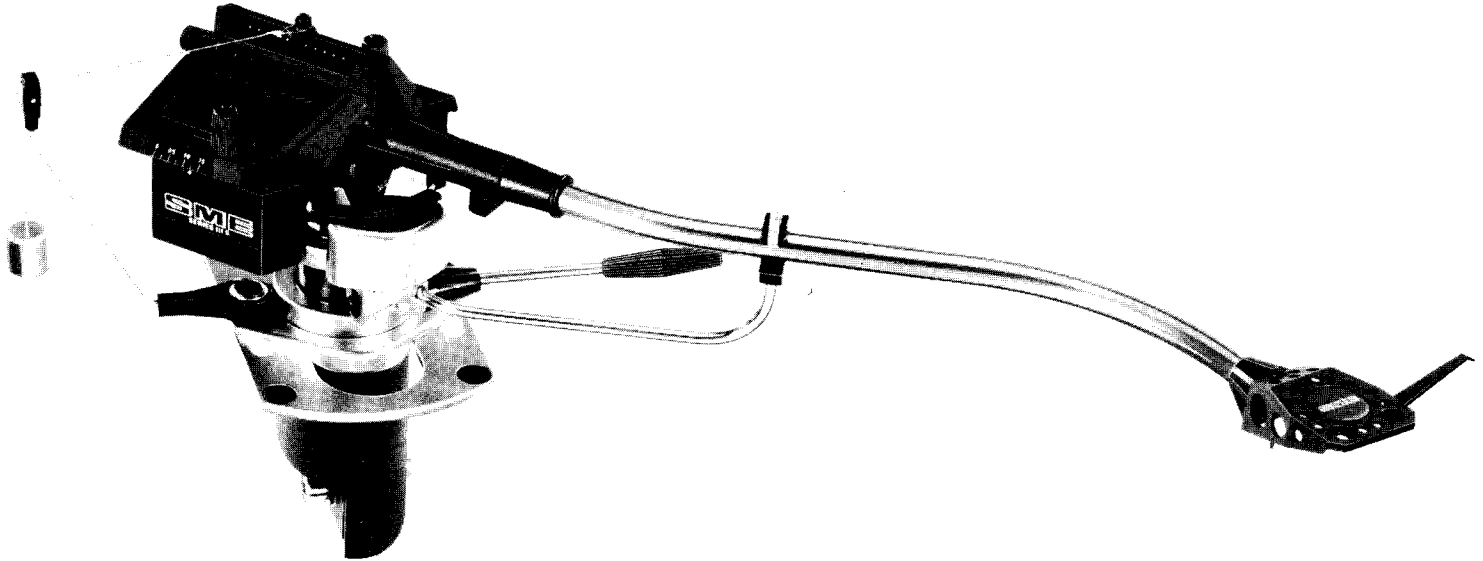


SME

Series III S Precision Pick-up Arm



INSTRUCTION BOOK

Introduction

This booklet has received the same attention to detail in its preparation as the Series III S precision pick-up arm. Please read it carefully before attempting installation and use. Time spent in this way will be rewarded in realising the performance capabilities of this unique product.

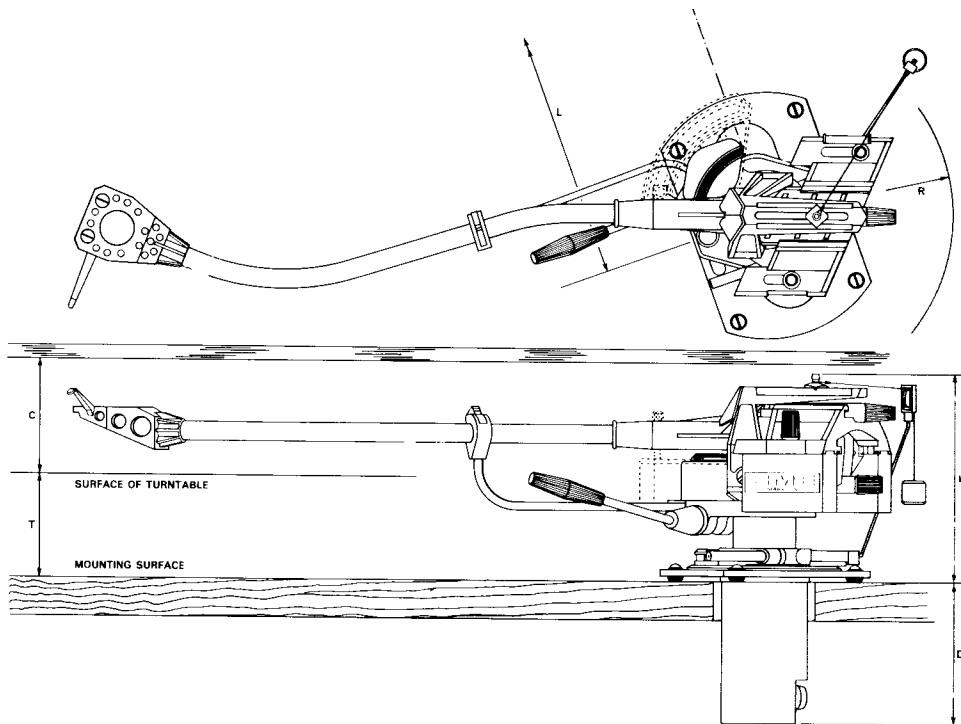
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4	Contents of the pack
5	Dimensions
6	Assembling the arm
7	Layout
8	Fitting the arm
9	The audio lead
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12 - 13	The balance system
14	Balance and tracking force
15	Height adjustment
16	Cartridge azimuth
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18	Bias adjustment
19	Operation
20	Fitting the damper
21	Filling the damper
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Contents of the pack

The pack is the only one in which your Series III S precision pick-up arm can be safely transported. Please keep it for possible future use. It contains the following:—

- 1 — Main assembly
- 1 — Carrying arm CA-1
- 5 — Balance weights
- 1 — Balance weight clamp
- 1 — Bias weight and filament assembled with
- 1 — Bias guide
- 1 — Set cartridge fixing screws, nuts and spacers
- 1 — Sachet of cartridge seating compound
- 1 — Audio lead
- 1 — Base clamp spanner
- 1 — Hexagon wrench
- 1 — Set of 4 woodscrews
- 1 — Instruction manual
- 1 — Mounting template
- 1 — Alignment protractor
- 1 — Guarantee registration card



Dimensions

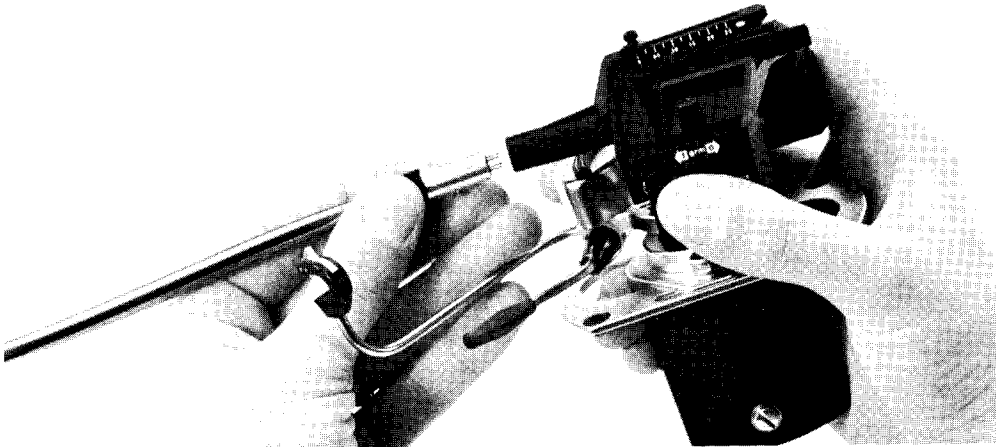
	Inches	mm.
Nominal length, pivot to stylus	9	229.0
Distance from bedplate centre to turntable centre (L)	8.48	215.4
Tracking adjustment	$\pm \frac{1}{2}$	± 12.7

Height above mounting surface (H)—adjustable		
max.	$3\frac{1}{4}$	82.6
min.	$2\frac{3}{8}$	60.3

Height of turntable surface above mounting surface (T)		
max.	$1\frac{5}{8}$	41.3
min.	1	25.4

Note: When the turntable surface is more than $1\frac{5}{8}$ " (41.3 mm.) above the surface on which the arm is mounted, a spacer, SME accessory P1, is required.

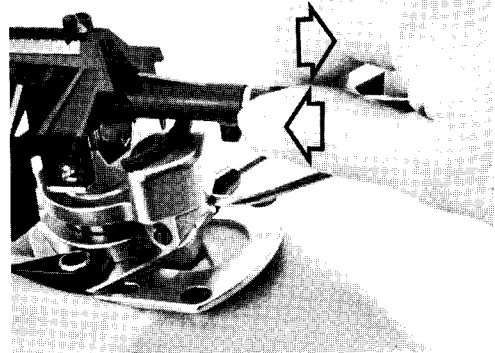
Depth required below mounting surface (D)	$1\frac{7}{8}$	47.6
Clearance required for balance weights (R)	$2\frac{1}{8}$	54.0
Clearance required between turntable surface and cabinet lid (C)	$1\frac{3}{4}$	44.5



3S 01

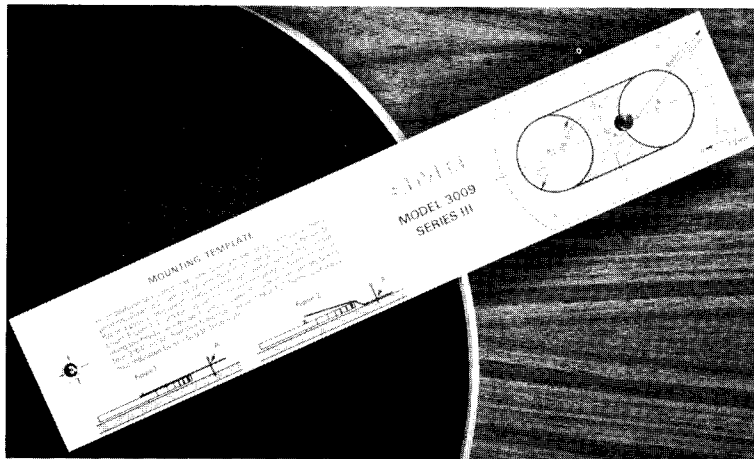
Assembling the arm

3S 01 Insert the carrying arm into the bearing carrier and push fully home. When this is achieved there will be virtually no gap.



3S 02

3S 02 To remove the carrying arm, support the bearing carrier and withdraw the arm from its socket. It is helpful to exert steady pressure on the lug of the bearing carrier with the thumb during this operation.

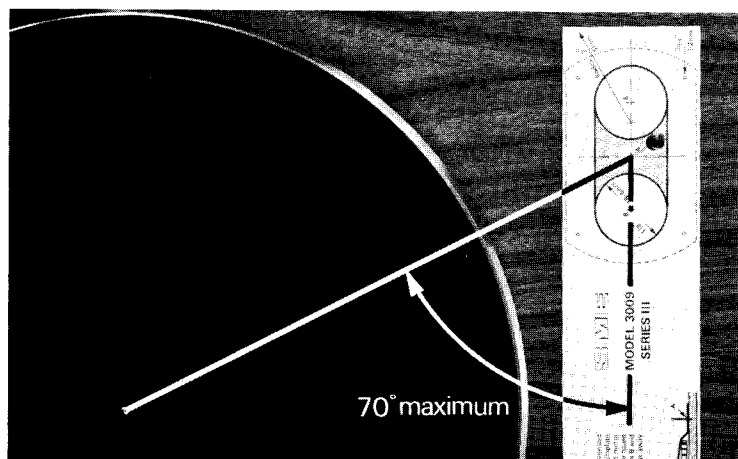


3S 03

Layout

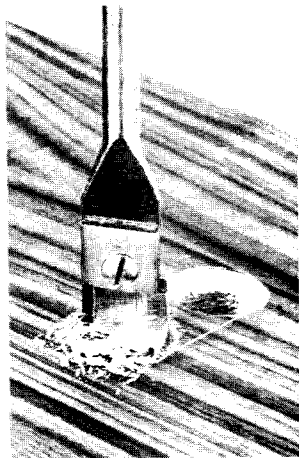
Some turntables are prepared to receive SME arms. When a motor-board or pick-up mounting board must be cut, proceed as follows:

3S 03 Establish the position for the bedplate with the mounting template in accordance with the instructions printed on it.

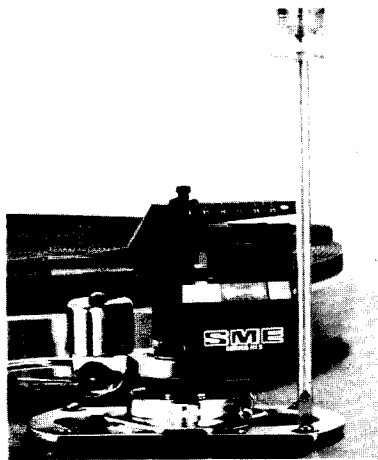


3S 04

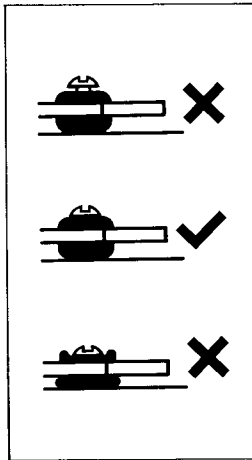
3S 04 Normally the arm will be installed so that the centre line of the bedplate is radial with the turntable. When this is not possible it may be turned into another position. This reduces the effective range of tracking adjustment available but is not detrimental provided it is placed so that the requirements of the alignment protractor can be satisfied. A departure of 70° is probably the maximum that will allow this.



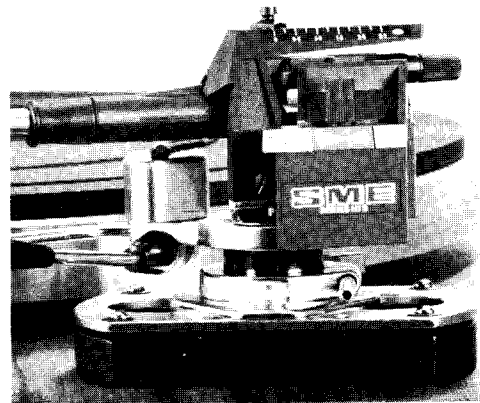
3S 05



3S 06



3S 07



3S 08

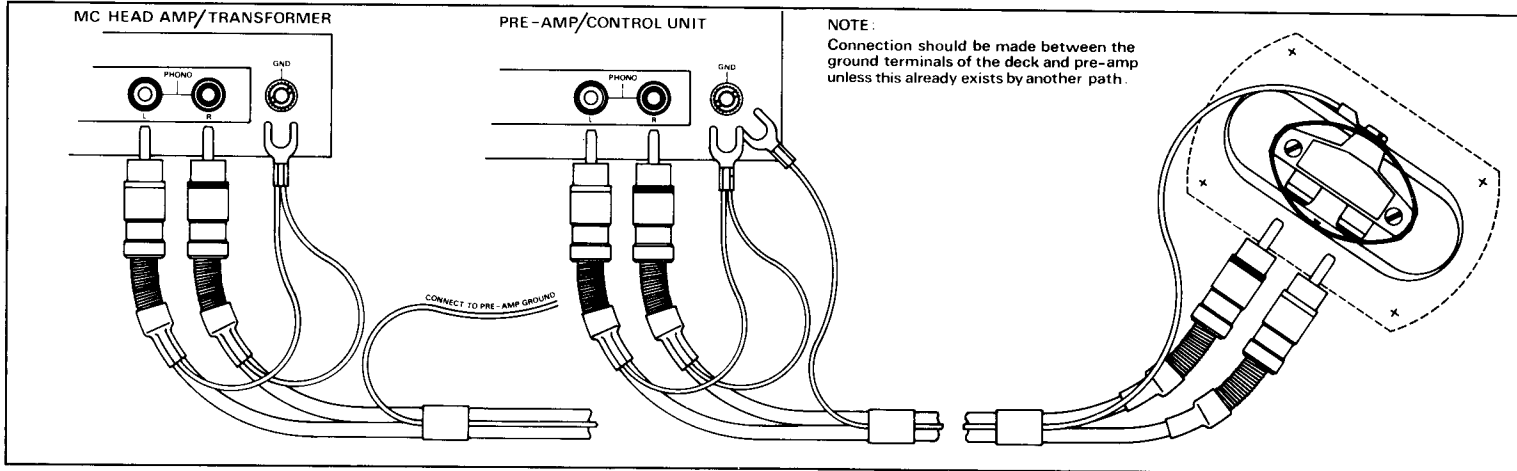
Fitting the arm

3S 05 Drill and form a cut-out in accordance with the template. Ensure that it is large enough to clear the screening can completely. Drill four $\frac{3}{16}$ " (1.22mm) pilot holes for the woodscrews. This is important to avoid damaging them.

3S 06 Insert the four woodscrews through the grommets in the bedplate and screw partly home. As delivered the arm is adjusted to suit its pack. It may therefore be necessary to refer to Page 15 paragraphs 3S 31 and 3S 32 at this point and readjust it to clear the turntable.

3S 07 Adjust the screws as shown.

3S 08 When the surface of the turntable is more than $1\frac{1}{8}$ " (41mm) above that on which the bedplate is mounted, a spacer SME accessory P1 is required. It is complete with woodscrews. Nuts and bolts are available on request for fixing to metal decks.



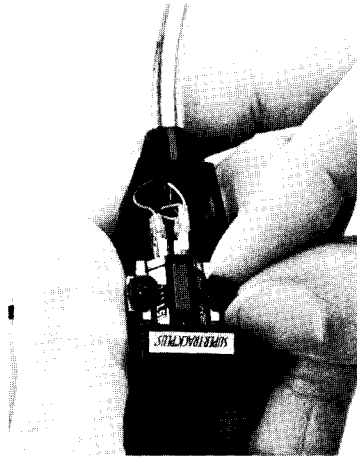
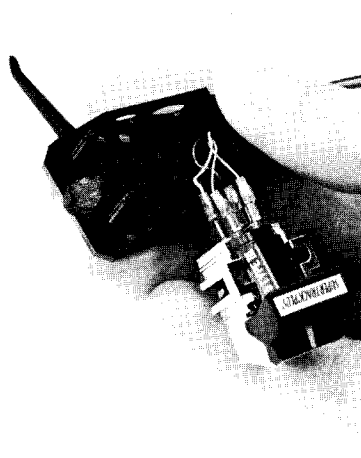
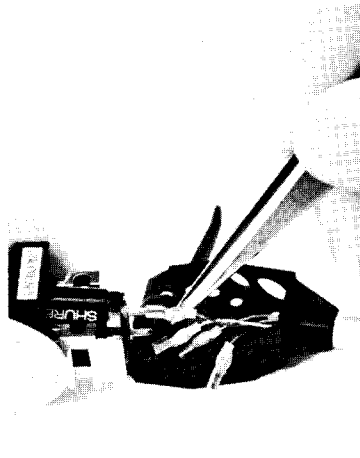
New LCOFC audio lead (modification)

The illustration shows use with and without a mc head amp/transformer and phono plug connections should be made accordingly.

Connect the ground lead serving the arm to the pre-amp ground, and those from the rear of the phono plugs to the ground terminal on the piece of equipment to which these plugs are connected.

If the turntable has a ground terminal, it too should be connected to the pre-amp ground, provided it is not already grounded by another path.

The system has been designed for a high S/N ratio and if this is not achieved multiple ground paths or the over proximity of mains equipment will be likely causes. Some cartridges have an external foil tag connecting the right channel ground terminal to the cartridge body. For use in a metal shell it will be necessary to remove this with a small pair of tweezers or the point of a blade, lifting the tag off over the terminal pin. If this is not done a ground loop may be formed, causing hum on the right channel.



3S 13

3S 14

3S 15

3S 16

Fitting the cartridge

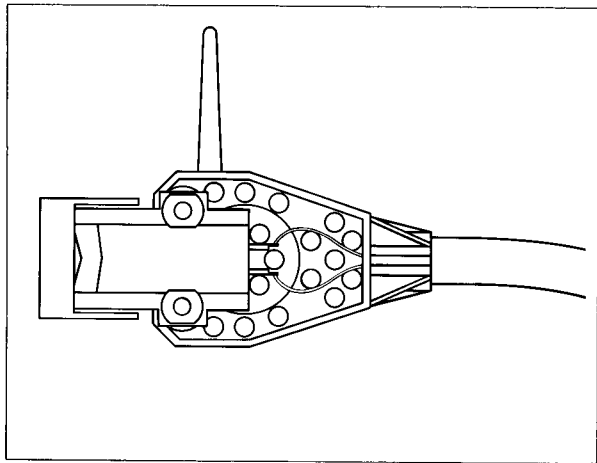
For convenience the carrying arm should be removed — see 3S 02 page 6.

3S 13 Place a small piece of cartridge seating compound inside the shell between the cartridge mounting holes.

3S 14 Fit the pin jacks to the cartridge terminals using a small pair of fine nosed pliers — White to left channel: Red to right channel: Blue to left ground: Green to right ground. To accommodate variations in terminal diameter the jacks may have to be closed down with the pliers or opened up with a screwdriver blade as required. Connections to the cartridge terminals must never be made by soldering. The shell has been kept as compact as possible. To accommodate some cartridges it may be necessary to bend the tags of the pin jacks outwards at a right angle so that they do not project beyond the ends of the terminal pins.

3S 15 Select screws of appropriate length for the cartridge. Do not use spacers between the cartridge and shell unless the cartridge contours make it unavoidable.

3S 16 Fit the nuts. Sometimes it is convenient to place spacers between the cartridge and the nuts or even to invert the screws, placing the nuts on top of the shell. Afterwards, any excess shank length can be removed with a pair of sharp scissors followed by a trim with a nail-file. This is important in some instances to prevent the screws touching the records.

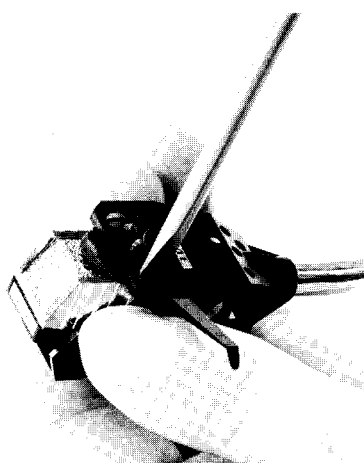


3S 17

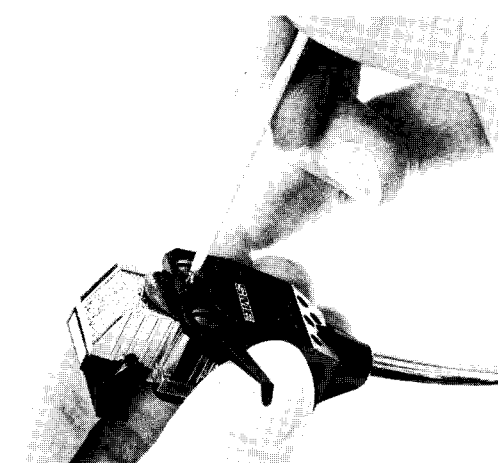
Fitting the cartridge (Cont'd)

3S 17 Check that the cartridge lies symmetrically in the shell. This is important.

3S 18 Press the cartridge body firmly against the shell to squeeze out excess compound and tighten the screws taking care to preserve the position of the cartridge. Align the screw slots and nuts for a neat appearance.



3S 18



3S 19

3S 19 Excess cartridge seating compound can be removed using a cocktail stick or something similar. Temporarily replace the carrying arm.

Cartridge seating compound use is discontinued, please disregard the instructions referring to it

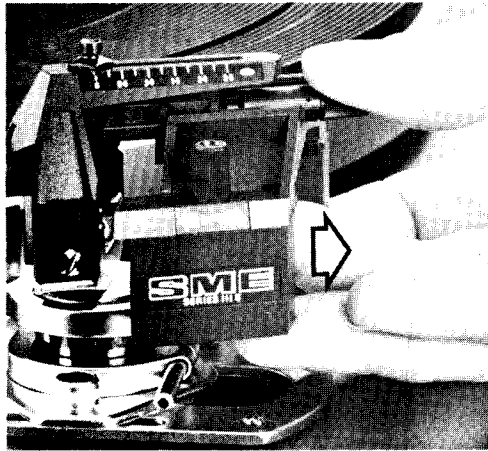


3S 20

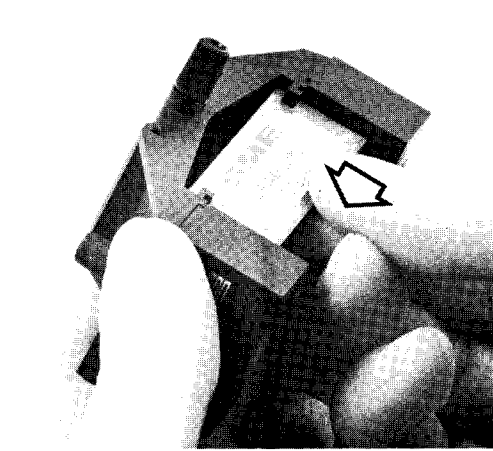
The balance system

3S 20 Unscrew the balance adjustment until the thread disengages.

3S 21 Slide the complete balance assembly backwards drawing it off its guides.



3S 21



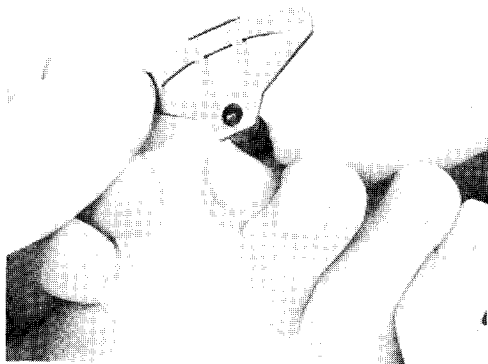
3S 22

3S 22 Slide the lead weights onto the carrier rails to balance the cartridge in use. For a neat appearance the warning label of the rearmost weight should face inwards.

Number of weights	Weight range of cartridges balanced. Grams.
Weights and clamp omitted	0.2 — 2.4
1 Weight with clamp	1.1 — 4.1
2 Weights with clamp	2.3 — 6.0
3 Weights with clamp	3.9 — 8.1
4 Weights with clamp	5.9 — 10.8
5 Weights with clamp	8.1 — 13.7

Always use the heaviest combination of weights which will balance the cartridge.

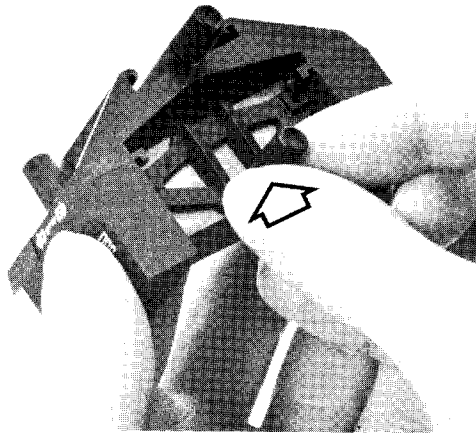
WARNING: The weights are made of lead (Pb). Please keep them away from children.



3S 23

The balance system (Cont'd)

3S 23 Rotate the screw of the weight clamp, so that it does not project beyond the clamp face.



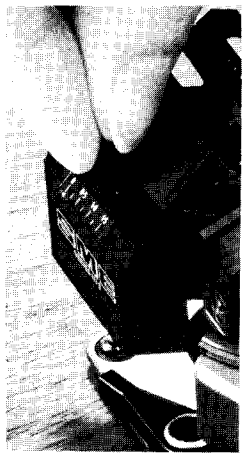
3S 24

3S 24 Ensure that the weights are pushed fully home. Position the clamp against the weights and move it upwards so that it fully engages the slots in the carrier rails.

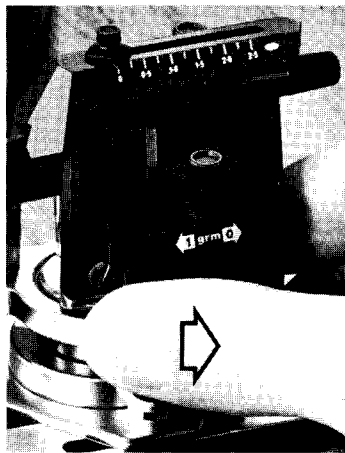


3S 25

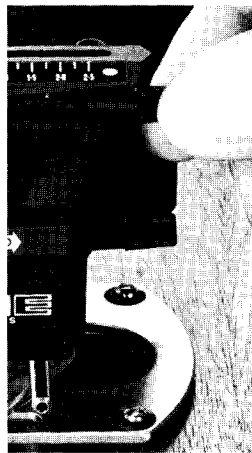
3S 25 Tighten the clamp screw to secure the weights. Replace the balance assembly on the arm.



3S 26



3S 27



3S 28



3S 29



3S 30

Balance and tracking force

3S 26 Unlock the fine rider weight and set it to zero. Relock.

3S 27 Unlock the course rider weight and push it as far as it will go in the direction of the arrow marked O. Relock.

3S 28 Rotate the balance adjustment until the arm balances in an approximately level position.

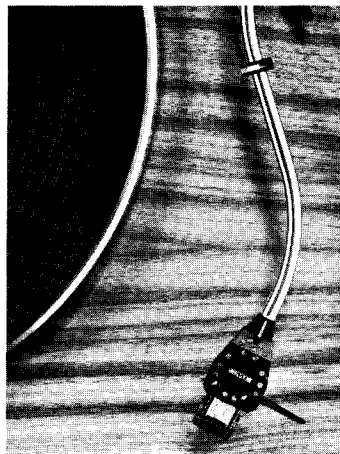
3S 29 Unlock the fine rider weight and set the required tracking force. Relock.

3S 30 If a tracking force in excess of 1.5 grams is required unlock the course rider weight and push it as far as it will go in the direction of the arrow marked 1 gram. This adds 1 gram to the tracking force indicated on the fine adjustment scale, increasing the total range to 2.5 grams. Relock.

NOTE: Use of the course rider weight as an adjunct to initial balancing is sometimes convenient. Changing its position before adjustment 3S 28 does not change the values indicated on the rider weight scale. Changing its position after adjustment 3S 28 will add or subtract up to a maximum of 1 gram from the figure indicated by the rider weight scale.



3S 31

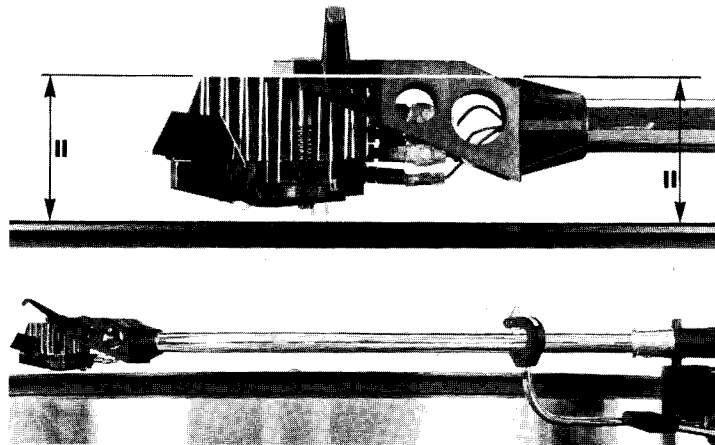


3S 32

Height adjustment

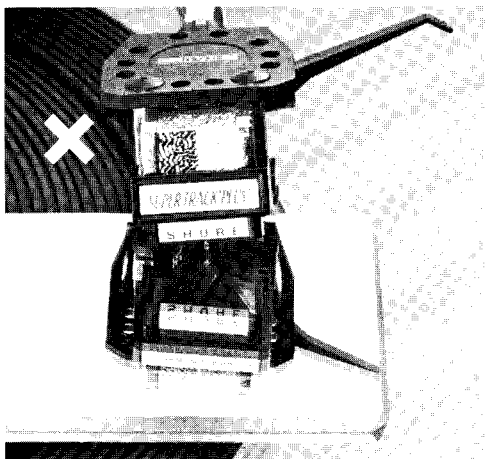
3S 31 Insert the hexagon wrench in the base clamp. Hold the main assembly just above the base and release the base clamp with the other hand.

3S 32 Rotate the pillar to move the arm-rest into a convenient position relative to the turntable. The headshell must not be more than 3" (76 mm.) and not less than 1" (25 mm.) from the edge of the turntable. At the same time raise or lower the pillar in the base so that the arm will be approximately parallel with the surface of the record when it is being played. Relock the pillar, view and re-adjust as necessary.

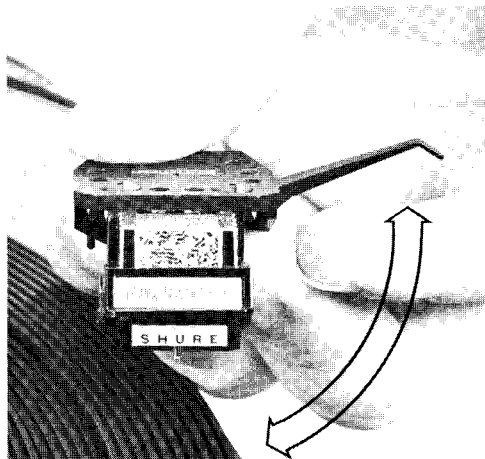


3S 33

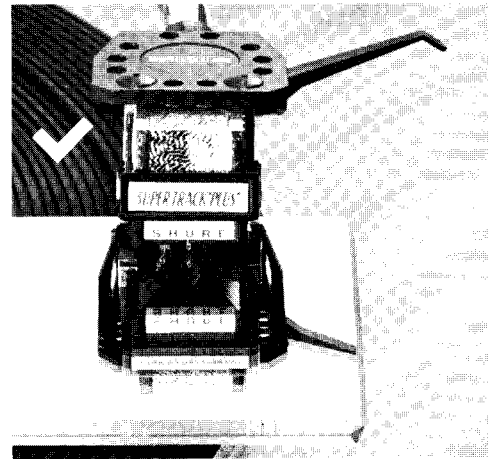
3S 33 The horizontal datum is usually the top of the cartridge and if it has been correctly fitted it will be parallel with the top of the shell and consequently with the tone-arm. If it is not, a small piece cut from thin card inserted at the appropriate point between the cartridge and shell will generally put matters right. The lowering and raising control is set at the factory to raise the stylus approximately .25" (6 mm.) above the surface of the record and this should be achieved if the arm has been correctly installed and adjusted.



3S 34



3S 35



3S 36

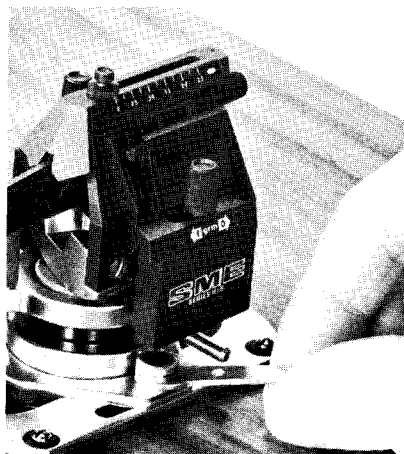
Cartridge azimuth

3S 34 Place a small flat mirror on the turntable and rest the stylus on it.

3S 35 If necessary, hold the shell firmly, close to the carrying arm, and twist in the required direction whilst holding the arm firmly with the other hand. The stylus must be clear of the mirror whilst this is done.

3S 36 Re-check with the mirror.

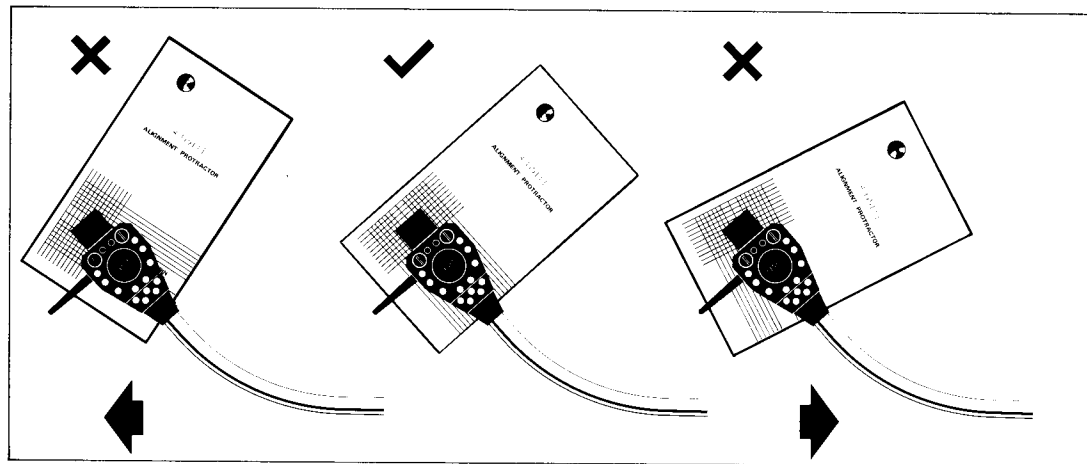
If preferred the mirror can be dispensed with and the shell and cartridge merely viewed from the front with the stylus resting on a record.



3S 37

Tracking adjustment

3S 37 Engage the spanner and release the base clamp nut.



3S 38

3S 39

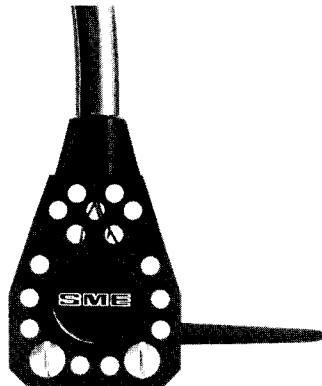
3S 40

- 3S 38 Place a record on the turntable with the alignment protractor on top of it. The large hole engages the record spindle and the stylus must be inserted in the small one. Take great care not to knock the arm accidentally under this condition as otherwise damage to the cartridge may result.
- 3S 39 Slide the base on the bedplate until the cartridge and shell appear symmetrical with the protractor (Fig. 3S 39). Relock the base clamp nut.
- 3S 40

DESIGN CHANGE

The carrying arm CA-1 has been modified to provide a larger shell and geometry optimised for 12" records.

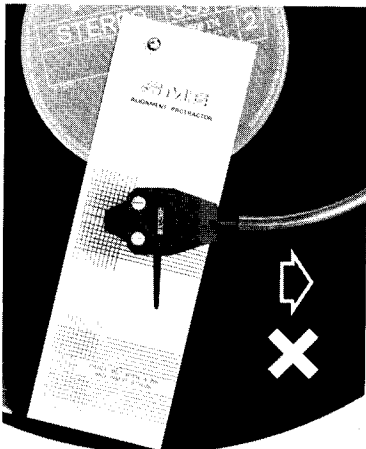
- 1 The original design. Arms of this type should be used in conjunction with the section headed 'Tracking Adjustment' on page 19 of the Series III and page 17 of the Series IIIS instruction books. The alignment protractor, with single null point at 2.375" (60 mm) radius illustrated therein, should also be used.
- 2 The modified design. This should be used with the alignment protractor with two null points, the inner at 2.60" (66 mm) and the outer at 4.76" (121 mm) radius, in accordance with the following instructions:--
- 3 Pierce the two holes in the protractor for the stylus. Place it on the turntable spindle. Position the base on the bedplate as far forward as it will go and insert the stylus in the inner pierced hole.
- 4 Move the base backwards until the cartridge and shell appear symmetrical with the lines on the protractor at the inner point.
- 5 Shows inaccuracy, similarly Fig. 3. The arrows indicate the direction of movement necessary to correct it.
- 6 Transfer the stylus to the outer pierced hole and adjust the arm until the conditions shown in Figs. 4 and 6 are both met.



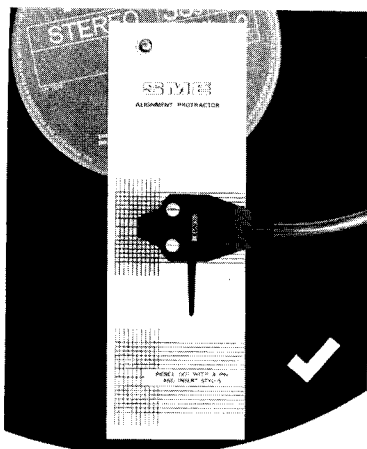
1



2



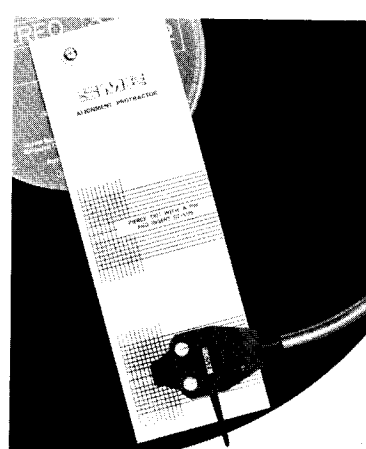
3



4



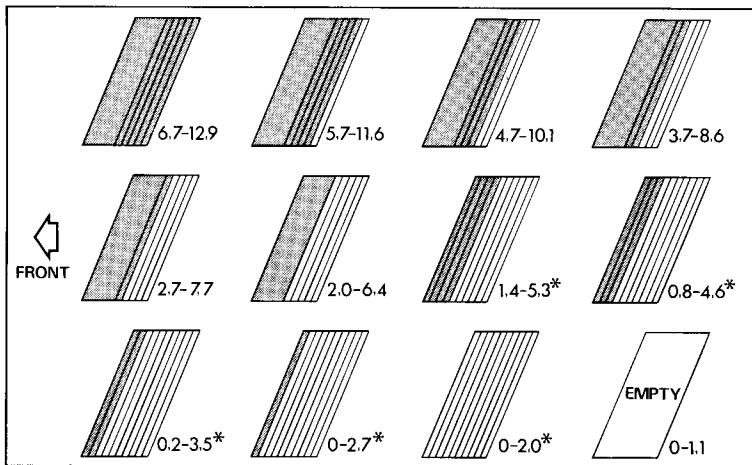
5



6

When using the modified carrying arm, CA-1, the weight range of cartridges that can be balanced, given on page 12 of the Series IIIS and page 13 of the Series III instruction books, is changed to the figures shown below:—

Series III



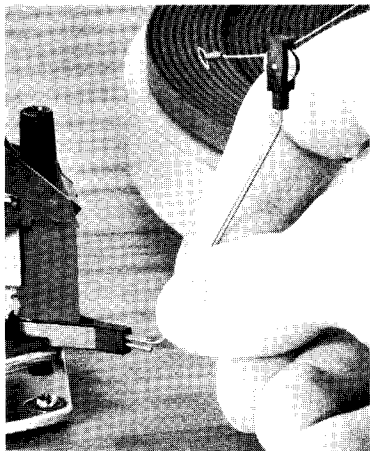
326A

Always use the heaviest combination of weights which will balance the cartridge.

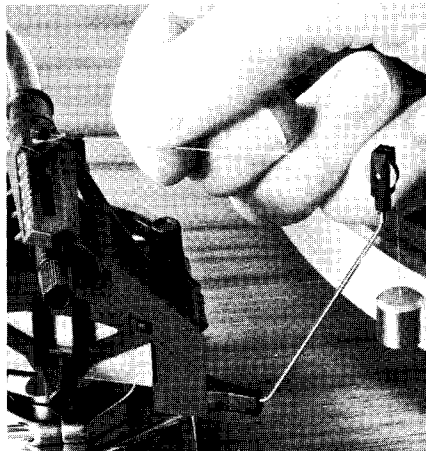
WARNING: The weights are made of lead (Pb). Please keep them away from children.

Series IIIS

Number of weights	Weight range of cartridges that can be balanced. Grams.
Weights and clamp omitted	0 – 1.1
1 Weight with clamp	0 – 2.7
2 Weights with clamp	1.1 – 4.6
3 Weights with clamp	2.7 – 6.8
4 Weights with clamp	4.6 – 9.2
5 Weights with clamp	6.8 – 12.5



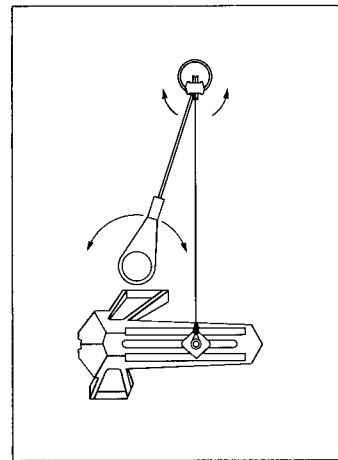
3S 41



3S 42



3S 43



3S 44

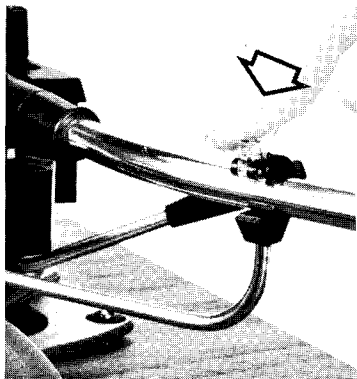
Bias adjustment

3S 41 Insert the bias guide into its housing and push firmly home.

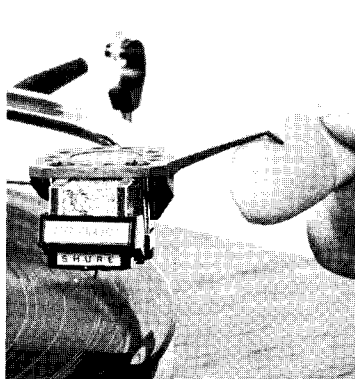
3S 42 Pass the loop of the bias weight filament over the stud on the bias indicator.

3S 43 Slide the bias indicator along its scale until the setting corresponds to the tracking force in grams.

3S 44 Position the bias guide so that the filament is at approximately 90° to the indicator slideway in the top of the bias housing when the stylus is over the outer groove of a 12 inch record. Rotate the guide pulley housing to align it with the filament and ensure that this is lying in the groove of the pulley.



3S 45



3S 46



3S 47



3S 48

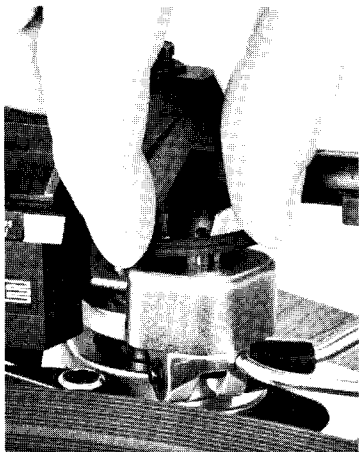
Operation

3S 45 With the control lever raised release the carrying arm from its rest.

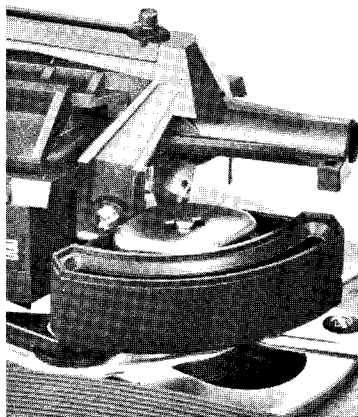
3S 46 Place the stylus over the selected band of the record.

3S 47 Move the control lever forward.

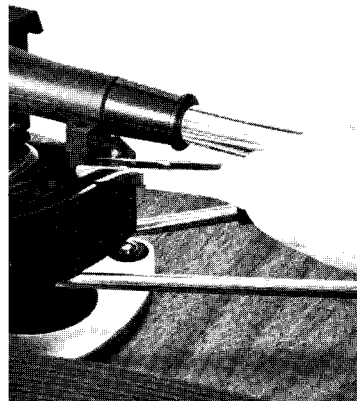
3S 48 Allow it to fall freely.
After playing, raise the control lever to lift stylus from the record. Return the arm to its rest.



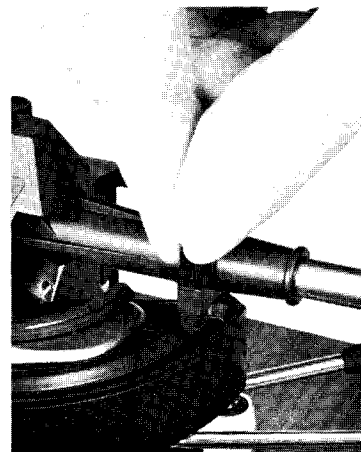
3S 49



3S 50



3S 51



3S 52

Fitting the damper FD III S (Accessory)

Use of the damper is optional but it is recommended for all cartridges. It should be fitted before balancing operation 3S 26 Page 14.

3S 49 Remove the carrying arm. Raise the control lever and holding the lift between finger and thumb, pull it upwards out of the control.

3S 50 Fit the tank over the dashpot jacket, pressing it down as far as it will go. Replace the lift ensuring that it is fully pushed home. Refit the carrying arm.

Paddles of three widths are provided. Select the paddle to suit the compliance of the cartridge by reference to the literature which accompanied it. If different figures are given for vertical and lateral compliances, consider the higher figure. Our recommendation is as follows:-

13 mm. wide (White) for compliances below 20 cu.s.

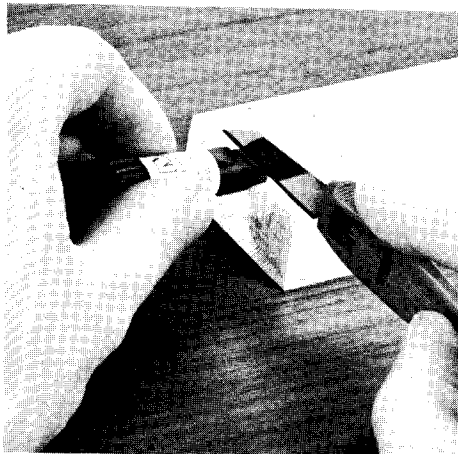
9 mm. wide (Grey) for compliances above 20 cu.s.

7 mm. wide (Black) for compliances above 30 cu.s.

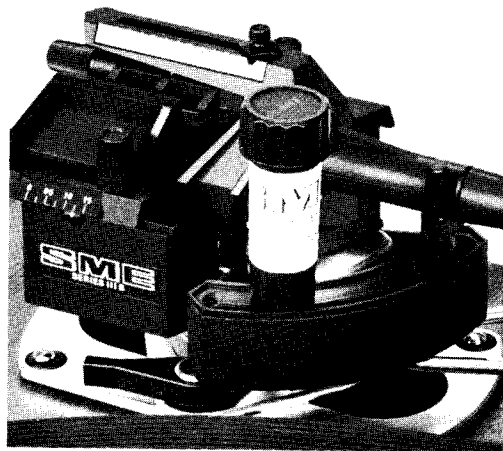
NOTE: 1 compliance unit (cu.) = 1×10^{-6} cm. per dyne. If the compliance is not stated the black paddle can be safely used whilst information is obtained from the cartridge manufacturer.

3S 51 Place the paddle in the tank ensuring that the curvature of the two parts agree. Insert the squared end of the shank into the lug on the bearing carrier.

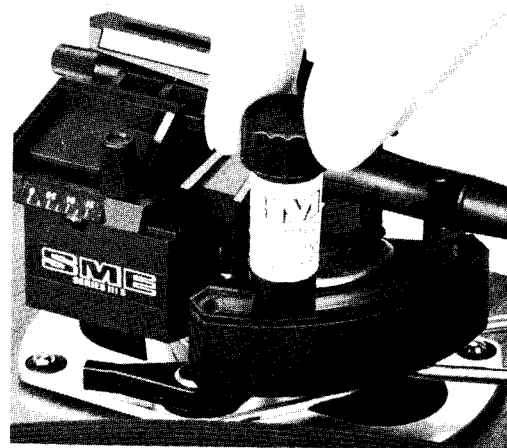
3S 52 Secure the paddle using the paddle retaining screw. It will be found with a little practice that by bringing the lug over the paddle it can be drawn up into it with the screw without the need for tweezers.



3S 53



3S 54



3S 55

Filling the damper

The damper should be filled after balancing as follows:

3S 53 Slice off the end of the flask of damping fluid with a sharp trimming knife at the point indicated. The flask contains 2 ml.s., sufficient to fill the tank to a depth of $\frac{1}{4}$ " (6 mm.).

3S 54 Engage the flask in the top of the tank so that it stands upright.

3S 55 Unscrew the cap from the flask allowing the fluid to flow into the tank and settle. This will take between 20 and 30 minutes. Carefully remove the flask and put it safely away. Silicone fluid can cause irritation to the eyes and care should be taken to wash any off the hands.

The recommended damping rates are a good compromise to maintain a substantially similar motion pattern of stylus and cartridge in the subsonic range, assuming records in normal condition and a realistic tracking force. The situation however

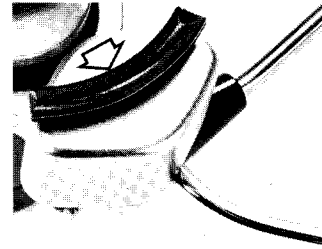
has a number of variables, the degree of warp, the compliance of the particular cartridge etc. In certain cases a small degree of 'tuning' may be necessary, for example where difficulty in negotiating a warped record occurs. It may be achieved in three ways:-

1. Remove some of the damping fluid a little at a time with a matchstick, returning it to the flask for possible re-use. The bottom of the flask will need to be re-sealed and stored with the screw cap downwards.
2. Proceed as 1 above and reduce the viscosity of the remaining fluid by the addition of REDUCING FLUID, available from SME.
3. Use a smaller paddle, unless the smallest one is already in use. It is only rarely that conditions require alteration of the standard recommendation.

We hope these instructions have made the installation of your SME Series III S precision pick-up arm simple and straightforward. Care for it as you would a camera. Do not attempt to take it to pieces. Do not apply oil or other lubricants to it.

If the arm drifts outwards during lowering and raising it usually indicates the presence of contaminant on the rubber insert in the arm lift. To restore positive working proceed as follows:-

- a) Clean the rubber insert in the arm-lift with lighter fuel used sparingly on a paper tissue.
- b) Rub the insert with an unused portion of the tissue until it is quite dry.
- c) Clean the underside of the tone-arm in the same way where it contacts the rubber insert.




If you have a problem concerning the operation or repair of the arm, write to the address overleaf. We provide quick and efficient service direct from the factory to any part of the world. In the first instance please write quoting the model, type and serial number. Do not send the arm to us unless requested to do so.

The Company's policy is the continuous improvement of its products. We therefore reserve the right of any departure from illustration or specification that this may occasion.

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