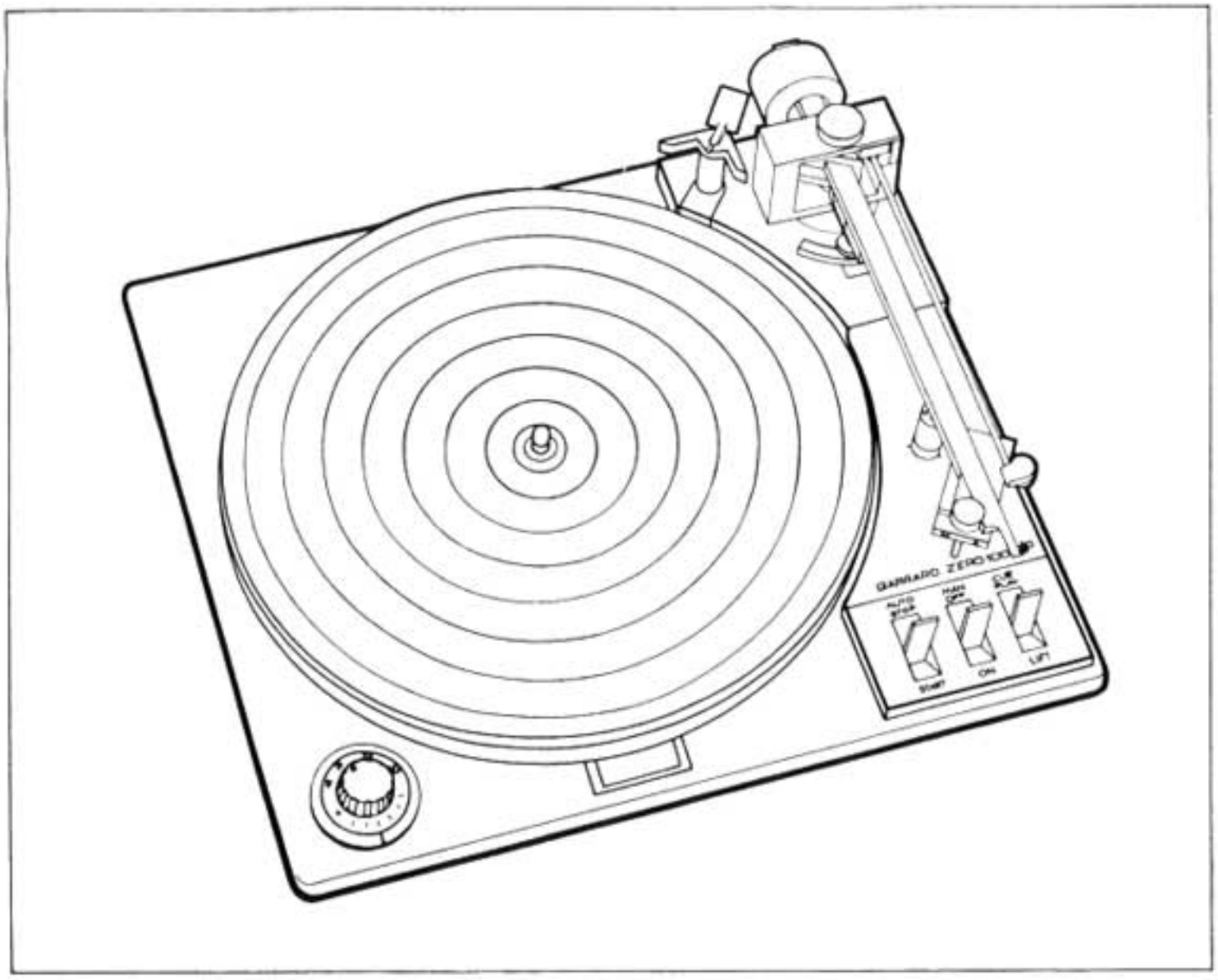


Garrard ZERO 100

AUTOMATIC TRANSCRIPTION TURNTABLE

Garrard Engineering Limited Newcastle Street Swindon Wiltshire England

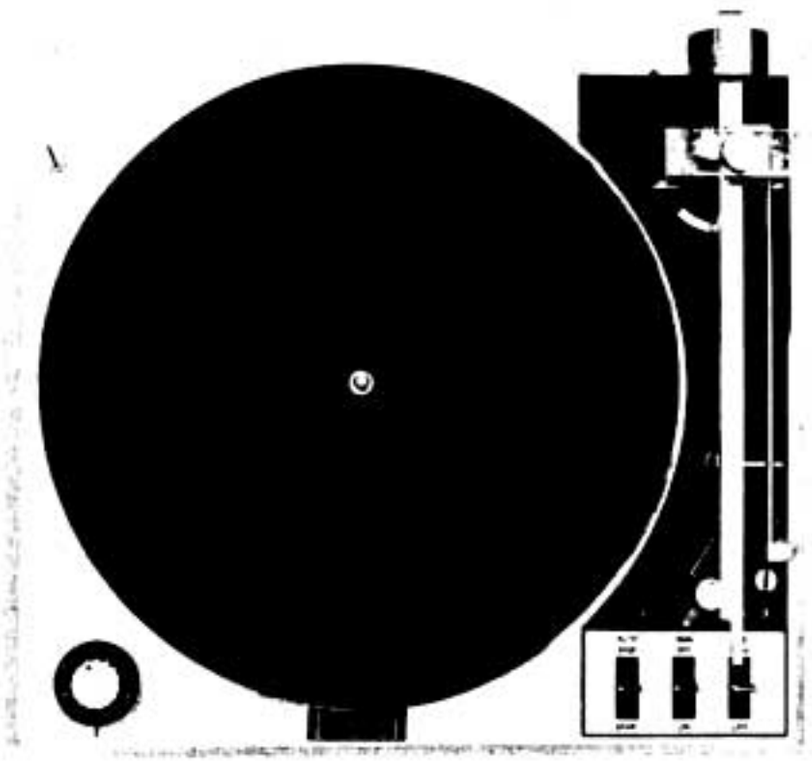
INTRODUCTION

The Garrard Zero 100 is a superb two-speed transcription turntable with such special features as

- an ingenious tonearm virtually without tracking error (Patent applied for) with damped cueing action.
- a magnetic tonearm anti-skating system (Patent applied for).
- a motor with the advantages of both induction and synchronous motors (Patent applied for).
- a record speed and pitch control system with built in stroboscopic checking.
- a tilting device to set the cartridge at a 15° tracking angle.

In addition to manual operation it will automatically play single 7in (17cm), 10in (25cm) and 12in (30cm) records, or a stack of up to seven 12in records. (Adaptors are available to play records with large centre holes and to play a stack of 7in records.)

Naturally, you will be keen to put your turntable into use as soon as possible but, as you realise, it is a precision instrument. For this reason, we strongly advise you to read the instructions before installing or operating it so that you will obtain the full benefit of its many capabilities.



BRIEF TECHNICAL SPECIFICATION

Power Supply Voltage: 110/125V AC or 110/120 and 220/240V AC dependent on the motor coil windings. Power supply requirements are shown on the motor.

Power Supply Frequency: 50 or 60Hz dependent on the interchangeable motor pulley and stroboscopic turntable fitted.

Power Consumption: Approximately 9 watts.

Speeds: 33⅓ and 45 rev/min. Both speeds can be varied by plus or minus 3%. Accuracy of speed is checked by means of an illuminated stroboscope.

Motor: A 4-pole induction rotor section to provide the starting torque and a synchronous section for constant running speed. It is magnetically screened and resiliently mounted.

Tonearm (Pickup Arm): The tonearm head pivots laterally as it tracks a record to maintonearm anti-skating system is calibrated for both conical (spherical) and elliptical cartridge styli.

A tilting arrangement allows the cartridge to be set in the correct position to give a 15° tracking angle when playing a single record or, alternatively, at the height of three records for automatic play.

It is lowered gently by viscous damping.

Wow: Better than 0.10% rms at 33⅓ and 45 rev/min.

Flutter: Better than 0.05% rms at 33⅓ and 45 rev/min.

Rumble: Negligible.

Size: Approximately 14¾in (375mm) wide, 13¼in (335mm) deep and 6¾in (170mm) high.

The carton contains the following accessories in addition to the Zero 100 with its platter.

1 **A short record spindle for playing single records**
This is fitted by locating it in the centre of the platter and pressing it down into place. It turns with the record to minimise wear.

2 **A long record spindle for playing up to six records automatically**
This is fitted by locating it in the centre of the platter and turning the spindle until it can be pressed down to be held in place by a retaining clip. The spindle can be removed again by a straight upward pull.

3 **A large centre hole record adaptor**
This fits over the single record spindle to enable records with 1½in (38mm) diameter centre holes to be played singly.

4 **Two spring clips and wood screws**
The screws are used to fix the spring clips in a convenient place for storing the large centre hole record adaptor and record spindle when not in use.

5 **A kit of cartridge fixing parts**
This comprises a range of screws of different lengths, and a clear plastic setting gauge for checking the alignment of the cartridge in the tonearm.

6 **A tonearm counterbalance weight**
See below

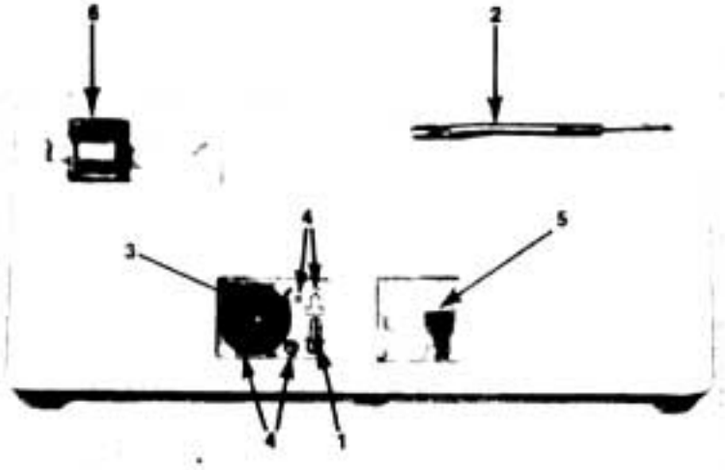


Diagram 1 Accessories in Packing Piece

THE TONEARM COUNTERBALANCE WEIGHT
Screw this on to the rear extension of the tonearm, rounded corner first, to secure it until the stylus force is set.

The counterbalance weight must be assembled and taken off the tonearm only by a screwing action.

Any other method of assembly, such as direct push or pull, may cause permanent deformation of the isolation member in the weight and result in rumble being heard through the speakers.

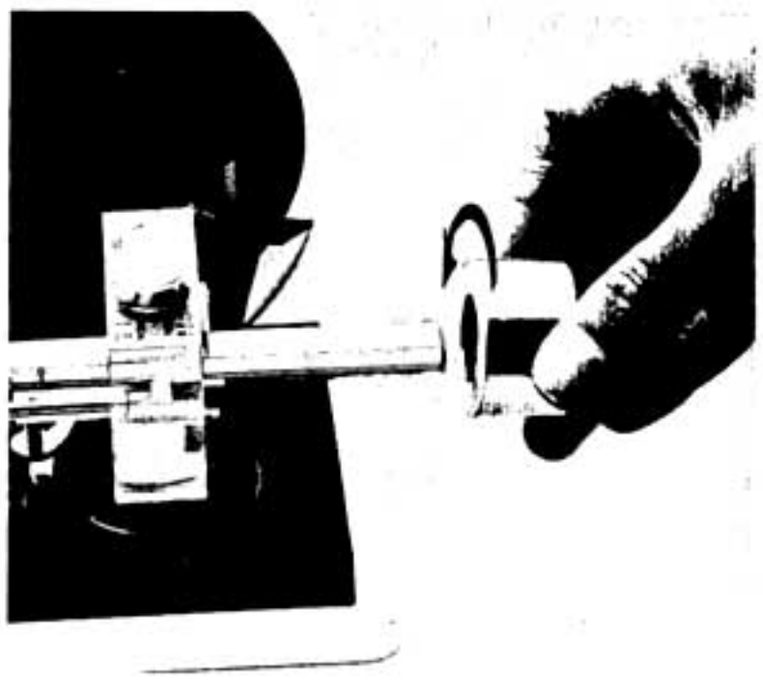


Diagram 2 Fitting Tonearm Counterbalance Weight

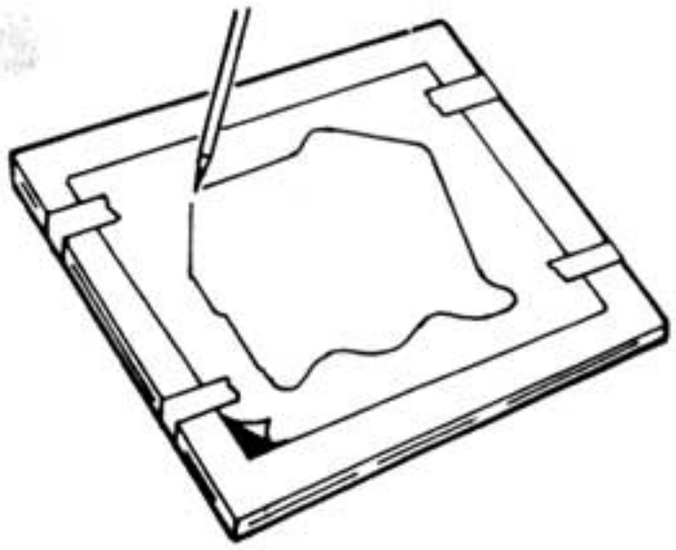


Diagram 3

PREPARING THE MOUNTING BOARD

1 Lay the paper template on the mounting board in the desired position and secure it to the board using strips of self-adhesive tape. (Glue would distort the template.) Then, using a scriber or other pointed instrument, prick around the outline of the cutout, and mark the centres of the spring mounting recesses and the transit screw holes (diagram 3).

2 Remove the template and drill two holes ($\frac{13}{32}$in diameter) for transit screws and four recesses ($1\frac{1}{4}$in diameter, $\frac{1}{8}$in deep) for the spring mountings (diagram 4).

3 Saw around the marked cutout (diagram 5).

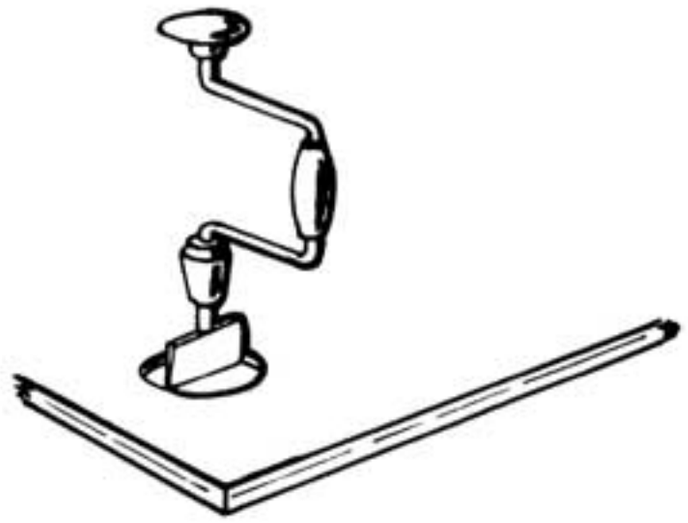


Diagram 4

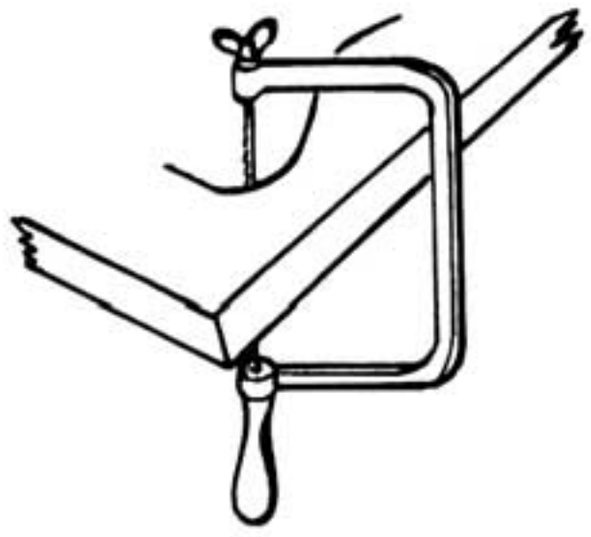


Diagram 5

INSTALLATION

1 Thread power supply, ground and phono leads through cutout in mounting board. Make sure that the leads to the motor switch and neon lamp are clear of any moving parts under the unit plate.

2 Screw transit screws right down and set locking clips vertical, then place unit in position on the board, aligning transit screws and mounting springs with their respective holes and recesses. Make sure at this point that the damping pads are in position in the mounting springs.

3 When the unit is in place press it down on its springs, then turn both transit screw locking clips horizontal.
Note: For transportation, the transit screws should be turned counterclockwise to clamp the unit against the board. Release them afterwards for playing by turning the screws clockwise.

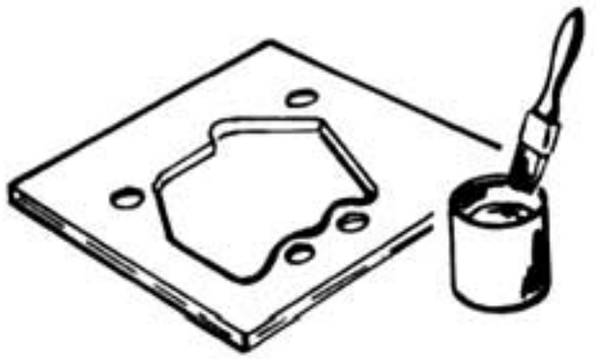


Diagram 6

CABLING INSTRUCTIONS

Your Garrard Zero 100 turntable can be used with either mono or stereo sound systems as described below.

Note: R.C.A. type output connectors are used on this turntable.

A.C. POWER SUPPLY AND GROUND CONNECTIONS

The brown AC power supply cable should be plugged into the power outlet on the amplifier or, if this is not provided, into a wall socket. The green (or green and yellow) ground lead should be connected to a ground connection on the amplifier chassis or directly to ground. The amplifier manufacturer's instructions will give more detailed advice.

A.C. Power and Ground Connections

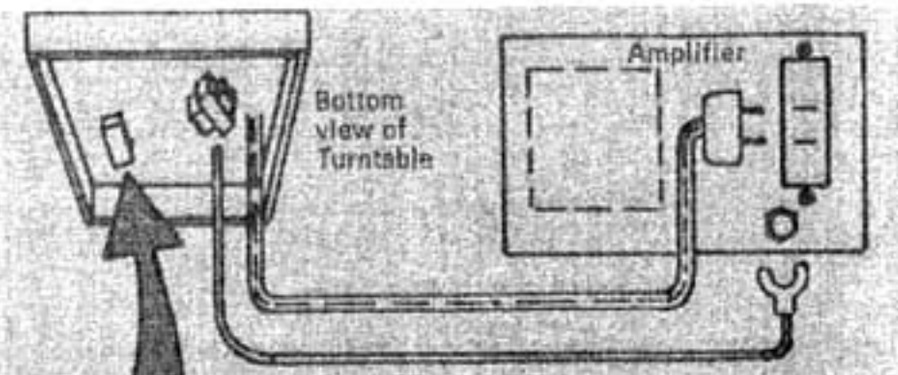


Diagram 7

CONNECTING A STEREO CARTRIDGE TO A STEREO AMPLIFIER

Plug both phono leads into the amplifier input sockets as shown in diagram 8. Make certain that the right-hand pickup output channel (R) is connected to the amplifier input feeding the right-hand speaker and that the left-hand output channel (L) is connected to the input feeding the left-hand speaker.

Stereo Cartridge – Stereo Amp Connections

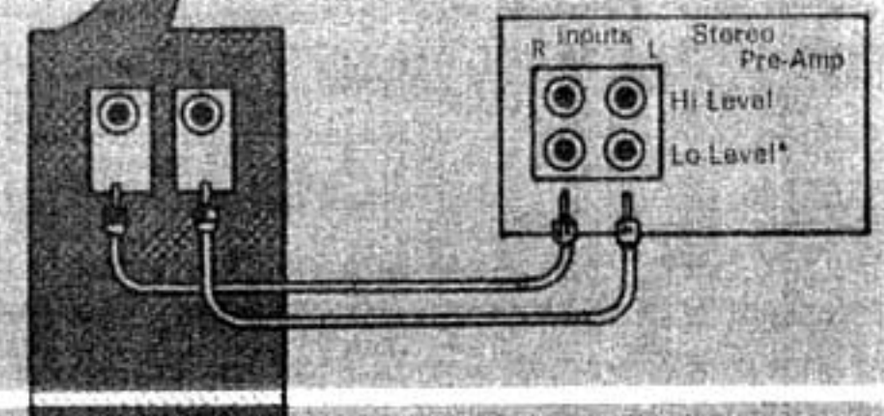


Diagram 8

CONNECTING A MONO CARTRIDGE TO A STEREO AMPLIFIER

Plug in the phono lead as shown on diagram 9. Use the right-hand pickup output channel (R) if the red and green leads in the tone-arm cartridge carrier are connected to the cartridge output pins and the left-hand output channel (L) if the white and blue leads are connected to the cartridge. Use the 'Y' adaptor only if the amplifier has no provision for connecting both input channels together in parallel.

Mono Cartridge – Stereo Amp Connections

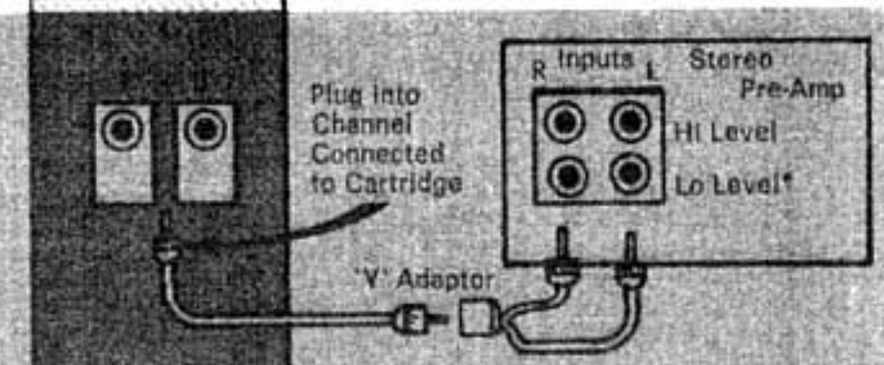


Diagram 9

CONNECTING A STEREO CARTRIDGE TO A MONO AMPLIFIER

Plug both phono leads into a 'Y' adaptor as shown in diagram 10, so that the complete output signal from the cartridge will be reproduced through the sound system.

Refer to the amplifier manufacturer's instructions for the selection of amplifier input level for the type of cartridge in use.

Stereo Cartridge – Mono Amp Connections

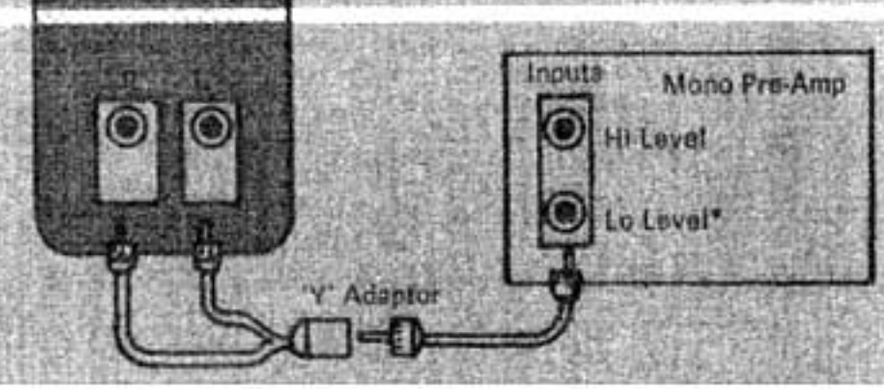


Diagram 10

MOVING THE PICKUP CARTRIDGE RRIER

port the tonearm with one hand to avoid in and withdraw the carrier with the other d. Turn the carrier over and peel off any esive tape used to hold the coloured leads ing transit.

en removing the carrier with a cartridge id, support the tonearm well clear of the rating controls to avoid risk of damage to cartridge.

TING THE PICKUP CARTRIDGE

fixing screws and cartridge setting gauge vided enable a wide range of high quality tridges to be fitted in their correct operating ition in the carrier.

eat care must be taken when fitting the tridge since it forms an integral part of the remely precise tonearm design essential to exceptional degree of tracking accuracy.

FIT THE CARTRIDGE

ecure the cartridge to the carrier by pass- ng a pair of screws through the cartridge nounting and the cartridge carrier, then crewing them into the threaded holes in the liding locking plate which slides in the channel on the opposite side of the carrier. The screws must not protrude through the ar side of the locking plate sufficiently to ouch the setting gauge.

Tighten the screws barely sufficiently to hold the cartridge in place, then slide the carrier nto the slots in the clear plastic setting gauge, taking care that the stylus does not catch on the gauge as the cartridge enters.

The stylus tip must be vertically above the point at which the lines on the gauge cross. If it is not, move the cartridge until it is correctly aligned.

A setting gauge is provided so that the cartridge may be assembled in the correct position on the carrier.

To fit the cartridge proceed as described below.

FITTING THE PICKUP CARTRIDGE CARRIER

Move the tonearm locking lever to FREE, support the tonearm over the platter away from the operating controls with one hand, to avoid risk of damage to the cartridge, and press the cartridge carrier back into place in its slot in the front of the tonearm.

STYLUS FORCE AND TONEARM ANTI-SKATING DEVICE

Set these as instructed in the following sections.

4 When the alignment is satisfactory, tighten both fixing screws, remove the gauge, and connect the insulated leads on the carrier by pushing their tags onto the cartridge output pins. Use the following colour code in conjunction with the cartridge manufacturer's instructions:
Red – Right hand channel signal
Green – Right hand channel ground
White – Left hand channel signal
Blue – Left hand channel ground

Note: If a cartridge has only three pins or tags, use the green lead, or green and blue joined together. Insulate and tuck away any lead not required.

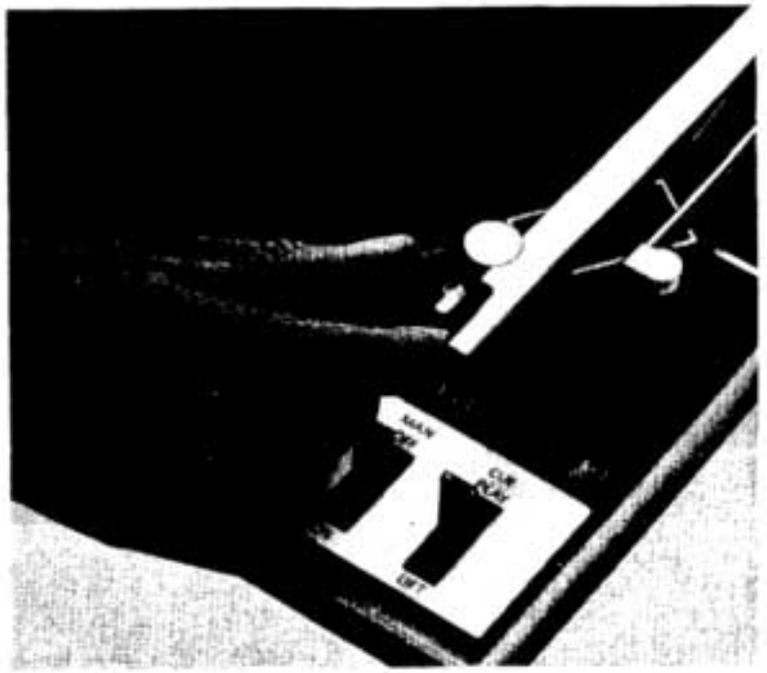


Diagram 11 Removing the Carrier

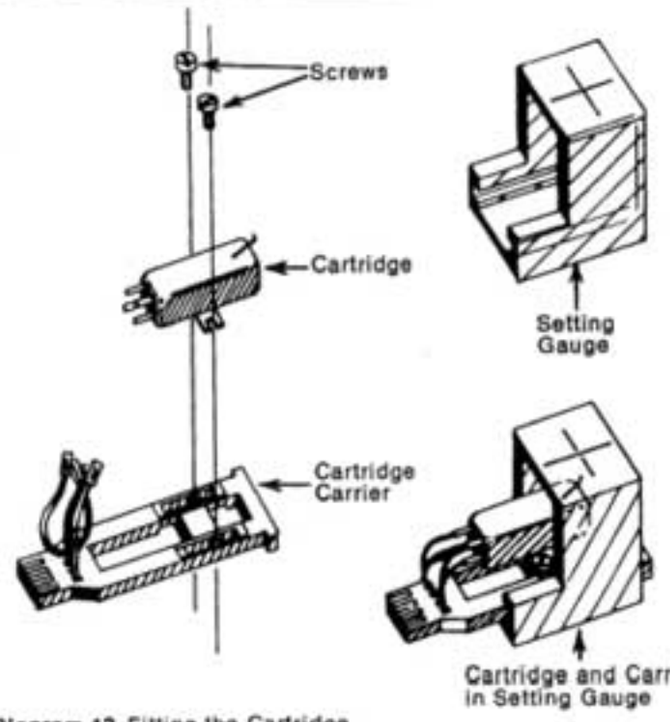


Diagram 12 Fitting the Cartridge

SETTING STYLUS FORCE

1 Move the stylus force weight so that its centre line is at 0 on the tonearm and the magnetic shield (diagram 14) so that its red line is at 0 on both scales.

2 With the cartridge fitted, remove the stylus guard and move the tonearm locking lever to FREE and move the tonearm inwards so that it pivots freely. Take care to prevent the stylus from touching the rubber mat.

3 Wind the counterbalance weight backwards or forward until the tonearm is in balance with the stylus tip at the height of the top face of one record on the platter.

4 Return the tonearm to its rest, and move the locking lever to LOCK.

5 Set the stylus force to that recommended by the cartridge manufacturer by moving the stylus force weight forward until its centre line is at the mark on the tonearm scale representing this force. The scale is calibrated up to 3 grammes in steps of ¼ gramme.

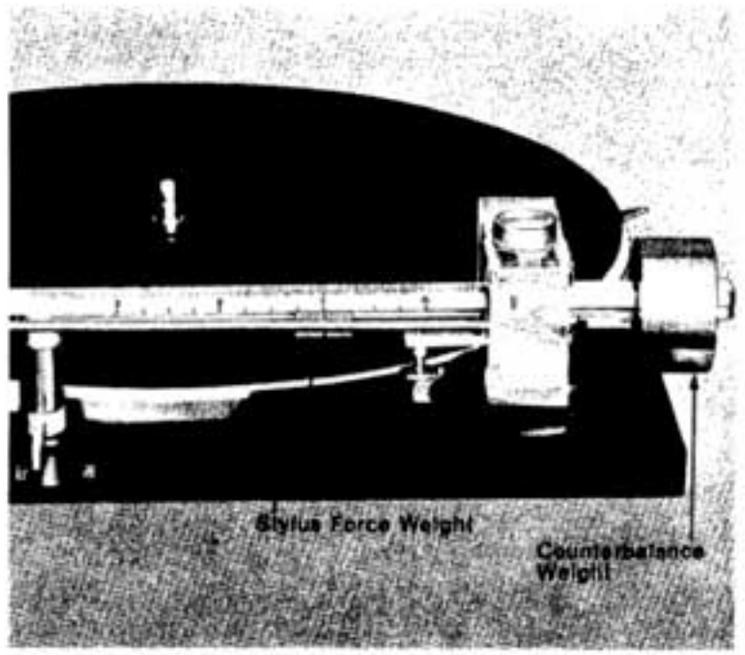


Diagram 13 Setting Stylus Force

TONEARM ANTI-SKATING DEVICE

An anti-skating control is necessary to offset the normal tendency of the tonearm to move (skate) across the record toward the centre. As the record revolves, with the arm tracking, an inward skating force is created, which must be counteracted by an equal force in the opposite direction. This minimises wear on the inner side of the groove, premature damage to the record, and sound distortion. The skating force is directly related to the stylus force set for the cartridge.

The simple but ingenious anti-skating control utilizes the well-known magnetic principle that like poles repel each other. This results in the elimination of mechanical linkage. A ceramic disc magnet is mounted on the pivoting tonearm gimbal and another affixed above it on the calibrated tonearm pivot bracket. A ferrous metal shield, slides between the two magnets, to set the anti-skating force desired. When the shield is between the total areas of the magnets, they have no effect on each other, since the shield blocks the magnetic flux. However, as the shield is moved outward, it exposes the magnetic field, creating a controllable amount of magnetic repulsion. This, in turn, exerts a measurable torsional force on the tonearm, as the two magnetic poles push apart, creating the correct amount of anti-skating force desired, as indicated on the reading scale.

SETTING THE DEVICE

1 **For a cartridge with a conical (spherical) stylus tip.** Move the magnetic shield along the transparent tonearm mounting bracket until the red calibration line on the shield is at a position on the 'conical' scale corresponding to the stylus force. If, say, 2 grammes stylus force has already been set, move the slider to the figure 2 on the scale.

2 **For a cartridge with an elliptical stylus tip.** Proceed in the same way, but use the 'elliptical' scale on the bracket.

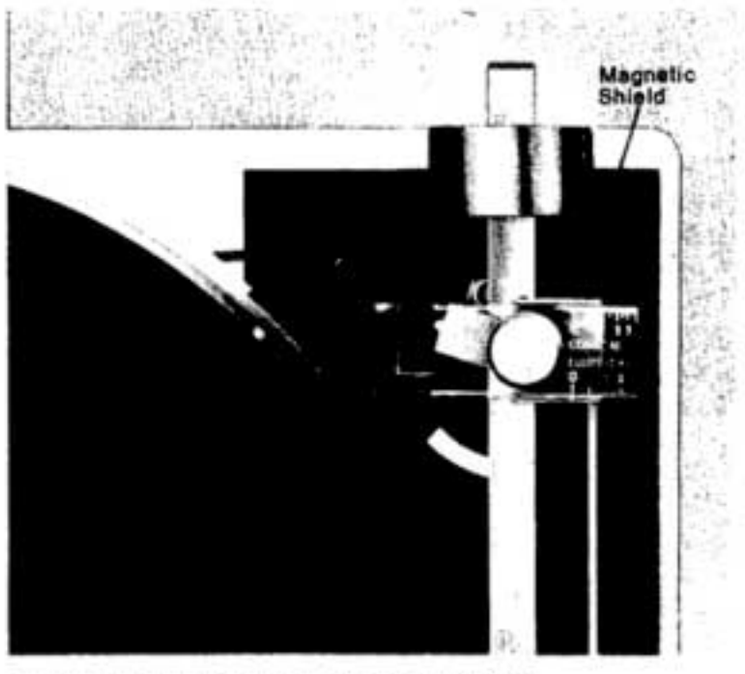
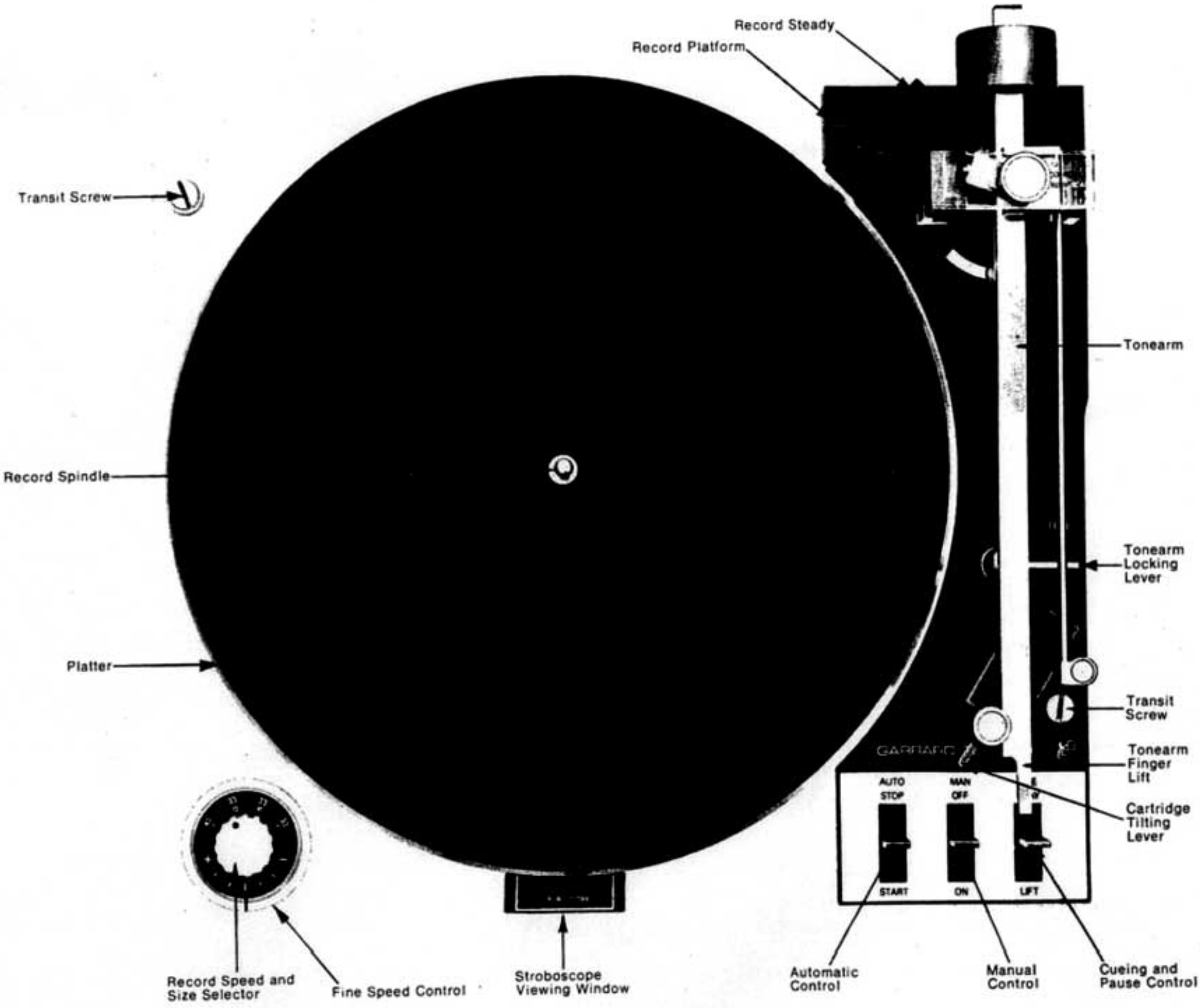


Diagram 14 Setting Tonearm Anti-skating Device


Record Steady
Record Platform
Transit Screw
Tonearm
Record Spindle
Tonearm Locking Lever
Platter
Transit Screw
Tonearm Finger Lift
Cartridge Tilting Lever
AUTO STOP
MAN OFF
START
ON
LIFT
Record Speed and Size Selector
Fine Speed Control
Stroboscope Viewing Window
Automatic Control
Manual Control
Cueing and Pause Control

ENERAL ADVICE

Keep the cartridge stylus clean and replace it when worn. Your dealer will give further advice on this.

Store and clean records as their manufacturers recommend. Do not leave records on the turntable for long periods after use.

Do not switch on unless there is at least one record on the turntable.

Do not hold or turn the platter counterclockwise.

Always allow the unit to switch itself off, or switch it off manually by one of the operating controls. If the power supply is disconnected during play, the rubber intermediate wheel will remain under pressure and may be deformed after a length of time in this condition.

6 If the cartridge has more than one stylus, make sure that the correct one is presented for the record to be played.

PREPARING THE UNIT FOR USE AFTER TRANSIT

1 Remove the stylus guard, if one is fitted.

2 Turn both transit screws fully clockwise so that the unit floats freely on its spring mountings.

3 Move the tonearm locking lever to FREE.

4 Check platter speed as described in the next section.

5 Check that all three operating tabs are upright.

Reverse instructions 1, 2 and 3 before the unit is transported again.

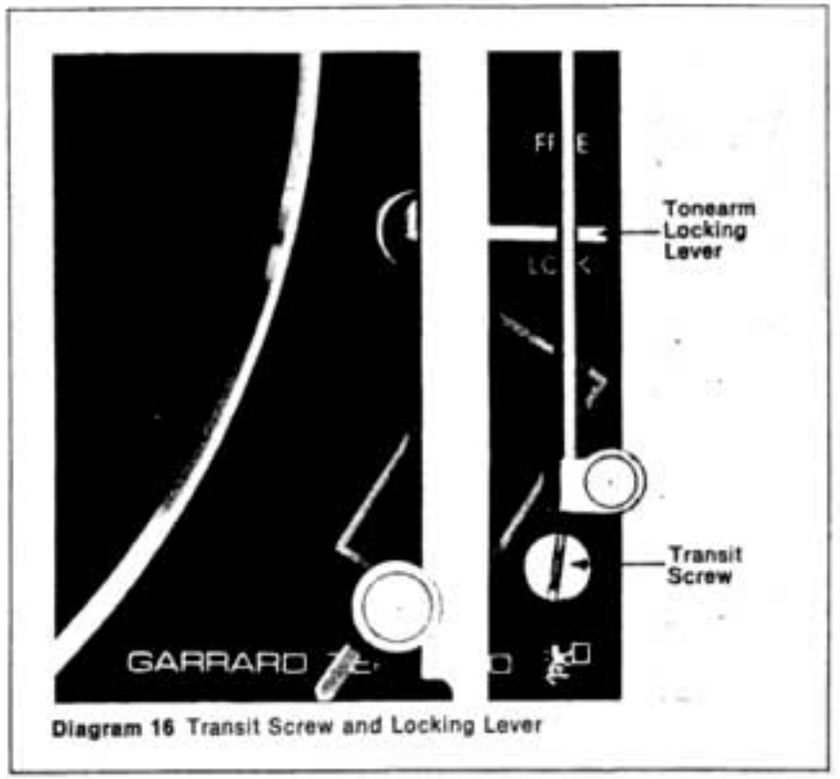


Diagram 16 Transit Screw and Locking Lever

ETTING THE FINE SPEED CONTROL

et the black marker on the control ring to the entre of the scale; this is sufficient for most urposes. However, if an even more accurate etting is required, proceed as follows:

Vhile playing a record as described overleaf, ook at the markings seen through the stroboscopic viewing window at the front of the unit. Vhen playing at the '33' setting, the row of lack and red bars further from the platter will ppear stationary when speed is exactly 33⅓ ev/min. Similarly, at the '45' setting the row f bars nearer the platter will appear stationary t exactly 45 rev/min.

If the appropriate row of bars appears to move clockwise, move the fine speed control towards the minus sign (−) until the bars appear to stop. If it appears to move counterclockwise, move the control towards the plus sign (+) until the bars appear to stop. The stroboscopic method of measurement is extremely precise.

The degree of control (approximately 3% above and below nominal speed) also enables a user with the faculty of 'absolute pitch' to set record speed to his complete satisfaction, since a total variation of almost a semi-tone is provided.

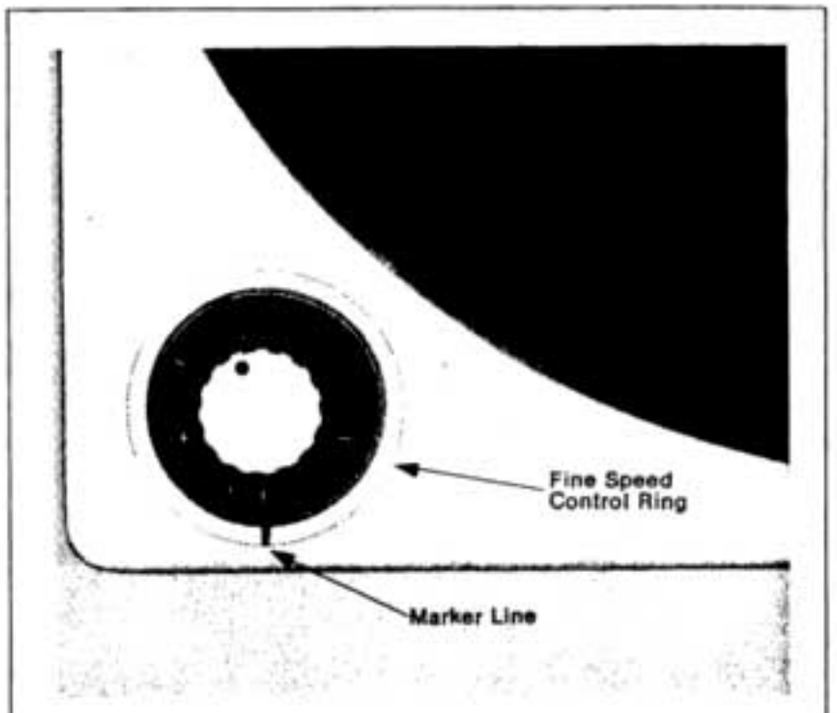


Diagram 17

IUCTIONS FOR USE

ıy a single record manually

the short, single record spindle into the ıtre of the platter and press it down into ɔe.

ce a record on the platter, using the ıptor provided if the record has a large ıtre hole.

: the record speed selector to 33⅓ or 45 '/min as required by the record to be yed, and the cartridge tilting lever to M.

ve the manual operating control tab fully ON.

) Lower the tonearm onto the record by hand lifting it at the front of the arm
– or –
) Move the cueing control tab to LIFT, then place the tonearm over any desired point on the record and return the control tab towards PLAY to lower the tonearm gently.

After playing the record the tonearm will return to its rest and the unit will switch off.

To play a single record automatically

1 Fit the short, single record spindle and place the record on the platter, using the adaptor provided if the record has a large centre hole.

2 Set the record speed and size selector for the record to be played. For example, 33 12 for a 33⅓ rev/min 12in record.

3 Set the cartridge tilting lever to M.

4 Move the automatic operating control fully to START and hold it there for a second or two before releasing it. After playing the record the tonearm will return to its rest and the unit will switch off.

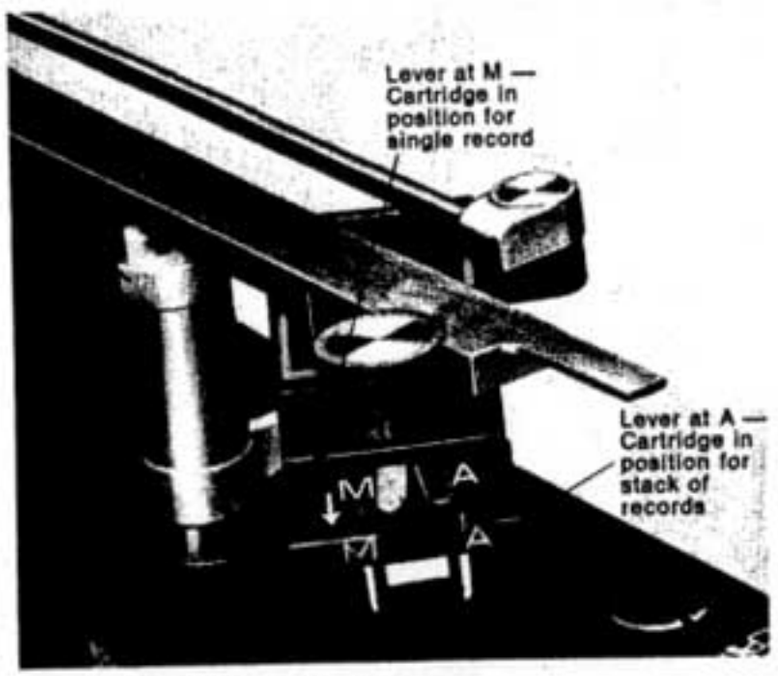


Diagram 18 Cartridge Tilting Lever

lay a stack of records automatically

the long automatic record spindle into e centre of the platter and turn the spindle ıtil it can be pressed down to be held in ace.

) **12in records** – load up to seven records on to the step of the spindle with the edge of the stack resting on the record platform. Pull the record steady upwards then inwards and release it to return to the top of the records to stabilise them.
ɔ) **7in records with small centre holes.** These can be played similarly after fitting an extension to the record platform. This is available from your dealer as an optional extra (Garrard Part No. 75189).
c) **7in records with large centre holes.** Place the LRS100 large record spindle (available from your dealer as an optional extra) over the automatic record spindle and load a stack of up to seven 7in records level onto its step.

3 Set the record speed and size selector for the records to be played. For example, set 33 12 for 33⅓ rev/min 12in records.

4 Set the cartridge tilting lever to A.

5 Move the automatic operating control tab fully to START and hold it there for a second or two before releasing it. When the records have all been played the tonearm will return to its rest and the unit will switch off.

6 To unload the records – lift them clear of the record spindle, even if they are to be replayed immediately. When using the LRS100 spindle lift the records with the fingers of both hands while pressing down on the top of the spindle with the thumbs.

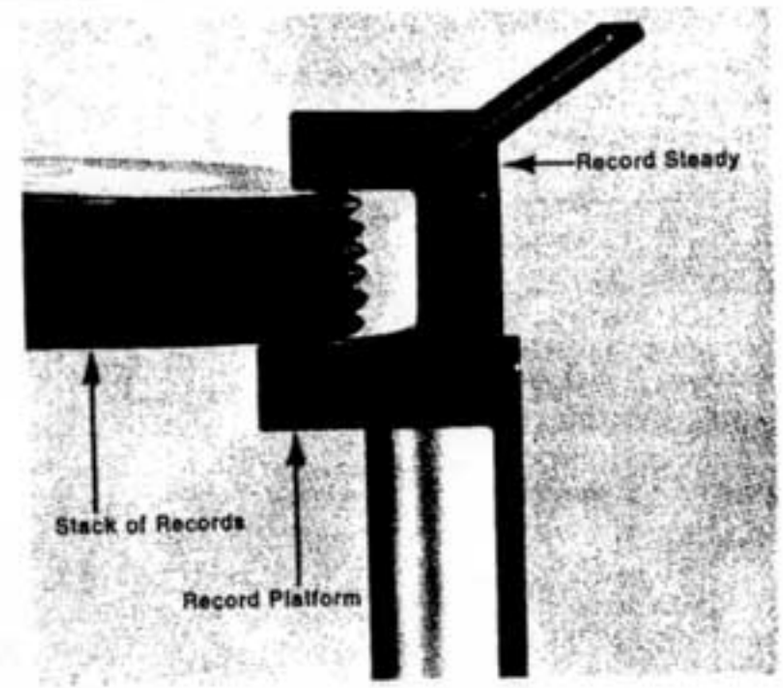


Diagram 19 12in Records on Platform

ADDITIONAL USES OF THE CONTROLS

Cue and Pause

The tonearm can be raised while a record is playing by using the cue control tab to LIFT, and lowered again by moving it back to PLAY.

This feature is particularly useful for repeating or passing over any passage of music, and to interrupt play (pause) for a short time without switching off.

Repeat

A single record being played automatically, or the last record of a stack, can be replayed by moving the automatic control tab to START before the tonearm lifts at the end of the record.

Reject

Any record of a stack (except the last), can be rejected by moving the automatic control tab to START. To reject a single record or the last of a stack move the tab to STOP.

Stop

While playing a single record, or the last record of a stack, moving the automatic control tab to STOP will return the tonearm to its rest and switch off.

While playing a stack of records this will cause the next record to be lowered before switching off.

To lower the next record and play it, move the control tab to START.

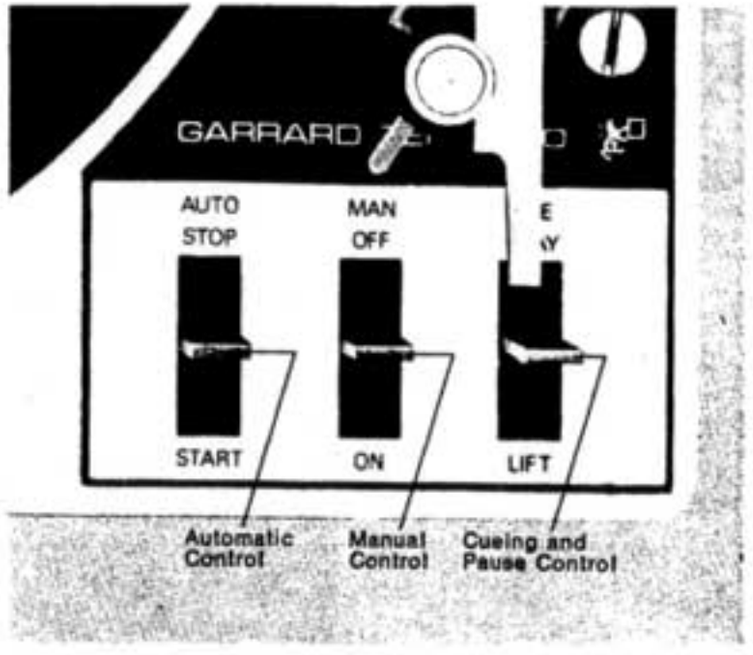


Diagram 20 Controls

BRICATION

e bearings of the intermediate wheel, motor d platter are of oil-retaining material and ely require lubrication. However, when the ed is apparent, remove the platter and apply light oil, of the type used on sewing achines, to the points mentioned below.

REMOVE THE PLATTER

ll out the record spindle, carefully lever up e inside edge of the rubber mat and prise out e plastic centre disc with a small screw-iver. With the same tool, pull off the wire taining clip (noting its position for re-sembly) and lift off the platter by applying ual pressure on opposite sides.

ution: Do not switch on when the platter has en removed and the speed control is set at rev/min.

hen refitting the platter, turn it clockwise for e revolution as soon as it is on the spindle order to ease the rubber intermediate wheel ck into its proper place.

INTERMEDIATE WHEEL BEARING

Remove the spring clip, plastic washer, intermediate wheel and fibre washer to clean the spindle and bearing before applying a thin smear of oil to their running surfaces and reassembling in reverse order. Make sure that the wheel is pulled freely against the motor pulley when the manual operating control is moved to ON and that it is fully released again when the control is moved to OFF.

Oil must not come into contact with the rubber surface of the wheel.

MOTOR BEARING

Run a drop or two of oil down a long sewing needle (or similar object) onto the motor spindle below the pulley so that it will flow into the top bearing of the motor. This bearing is out of sight below the motor mounting plate. Oil must not come into contact with the motor pulley.

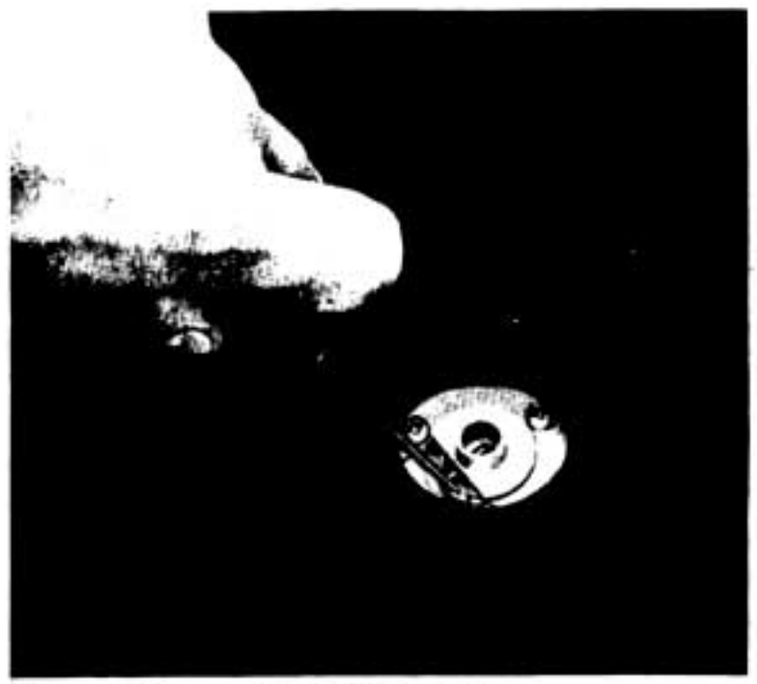


Diagram 21 Removing Platter Retaining Clip

ATTER BEARING

pply a thin smear of oil to the inside surface the platter bearing. Oil must not come into ntact with the driving rim.

ATTER SPINDLE BEARINGS

pply a thin smear of oil to the spindle and a op or two of oil to the ball race.

EANING

rtridge Stylus

ep the cartridge clean by periodically moving its carrier (see page 6) and blowing y accumulated dust off the stylus tip or by ntly brushing it away with a very soft brush.

Platter Mat

Clean this with a soft brush when necessary.

Platter Drive Mechanism

After a long period of use it may be found worthwhile to wipe the driving surfaces of the motor pulley, intermediate wheel and platter rim with a clean lint-free cloth. The stroboscopic markings can be wiped clean at the same time.

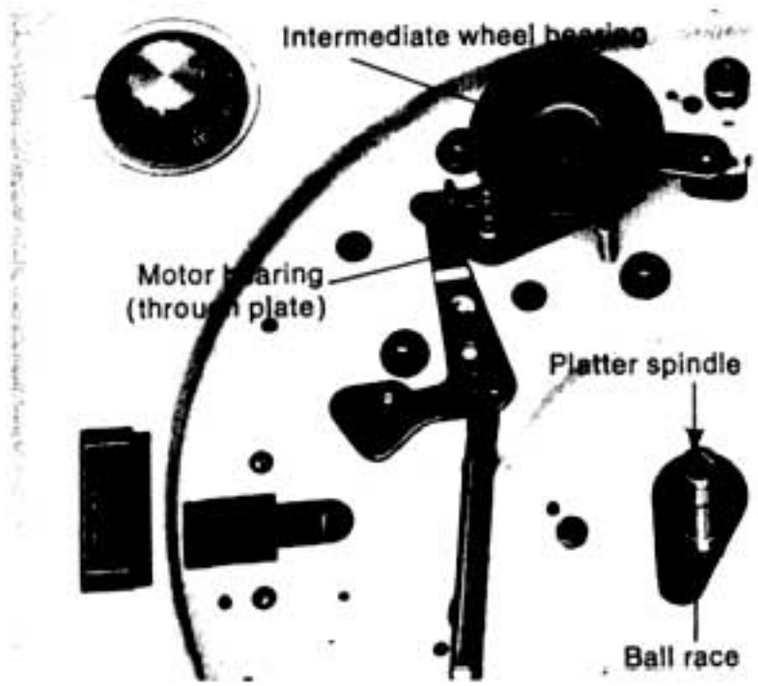


Diagram 22 Lubrication Points

Symptom	Probable cause	Remedy
Unit fails to start	No power supply to motor.	Check that power supply is in order. Check lead connections. If necessary, clean switch blades and connections. Make certain that the plug in motor leads are secure.
Speed consistently fast or slow after fine speed control is set.	Incorrect motor pulley.	Pulley for 60 Hertz power supply is plain brass. A 50 Hertz pulley has a groove in its base.
Speed variation (Wow or Flutter)	Warped record when playing a stack. Grease or oil on driving surfaces. Drive mechanism requires lubrication.	Play singly or stick a small square of adhesive tape on record label to improve drive. Wipe with a clean lint-free cloth. Lubricate in accordance with instructions (page 12).
No sound.	Incorrect or defective cabling. Defective pickup cartridge.	Check cabling to instructions on pages 5 and 6. Replace cartridge.
Low humming sound.	Ground lead disconnected.	Check cabling.
Distorted sound.	Worn, damaged or incorrect stylus. Tonearm tracking incorrectly due to retainer binding on top of correcting arm bearing. Cartridge out of position.	Replace stylus. Check stylus force. Ease retainer upwards to provide clearence of approximately 0.005in. (the thickness of this page). See diagram 23. Check its position with setting gauge (page 6).
Tonearm lowers in incorrect position.	Pickup stylus out of position. Lowering mechanism out of adjustment.	Reset or replace stylus. Adjust lowering position in accordance with instructions (page 14).
Tonearm lifts too high or not high enough	Tonearm lifting height out of adjustment.	Adjust height in accordance with instructions (page 14).
Tonearm will not lower onto record at any time.	Stylus force too low.	Adjust settings of counterbalance weight and pickup stylus force in accordance with instructions (page 7).
Tonearm will not lower for automatic use after manual play.	Cue control is at 'LIFT'	Move control back to 'PLAY'.
Tonearm will not rise from its rest.	Tonearm height restrictor out of adjustment. Arm locked to its rest.	Adjust according to instructions (page 14). Move locking lever to 'FREE'.

JUSTMENTS

adjustments are set during manufacture, cept stylus force, and should only need to reset in exceptional circumstances.

tting checks will be simplified if the power pply is switched off, the automatic operating ntrol moved fully to START and the platter tated clockwise by hand so that the tonearm oves slowly and can be stopped in a con- nient position for measurement.

TONEARM LOWERING POSITION

A minor adjustment may be necessary to make certain that the stylus tip lands inside the raised rim of the groove guard to be found on many records. While the tonearm is on its rest, use a small screwdriver to turn the adjusting screw A clockwise to move the lowering position inward and counterclockwise to move it outward.

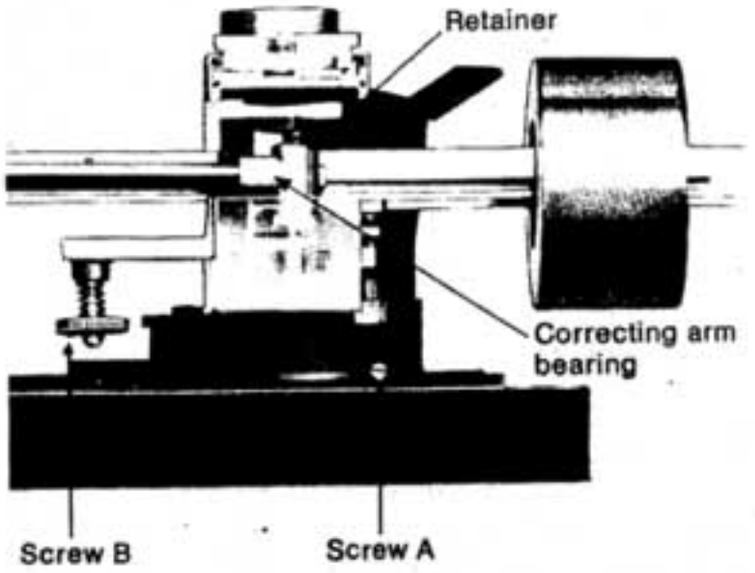


Diagram 23 Tonearm Adjusting Screws (part of surround removed for clarity)

ONEARM LIFTING HEIGHT

hen the tonearm returns to its rest after rising the end of a record, the top of the finger lift ould be 1⅛in (46mm) above the top face of ne record on the platter.

urn the adjusting screw B (diagram 23) clock- ise to increase and counterclockwise to educe lifting height.

TONEARM LIFTING HEIGHT RESTRICTION

The restrictor should prevent the tonearm from rising more than $\frac{1}{16}$in (1.5mm) higher than the setting referred to in the previous paragraph.

Use a small screwdriver to turn the adjusting screw C (diagram 24) clockwise to increase and counterclockwise to restrict movement.

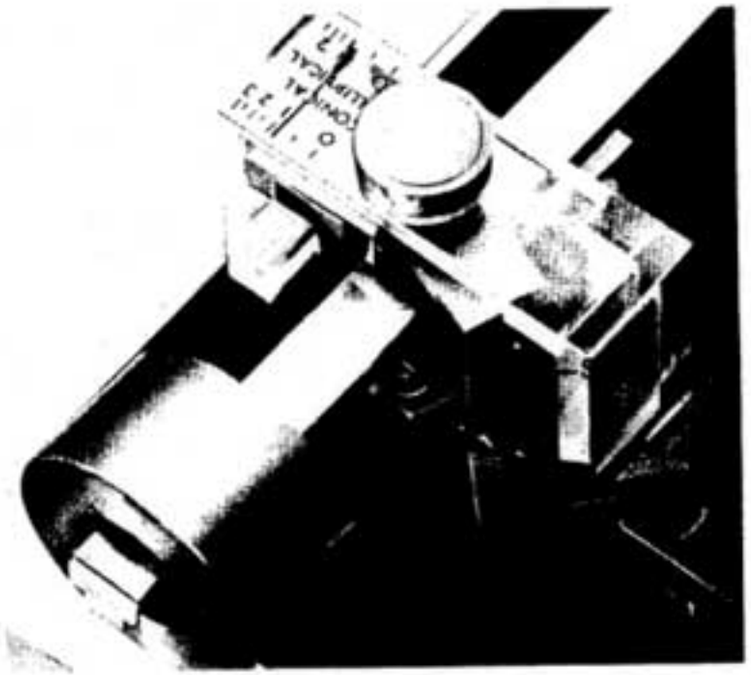


Diagram 24 Tonearm Height Restrictor

When ordering spare parts, for positive identification of your unit please quote all the information printed on the paper label underneath the unit plate or on the outside of the packing carton, also the part number if listed and the colour, or voltage and power supply frequency where appropriate.

Please address enquiries for spares and service to your dealer. In case of difficulty send your enquiry to
Garrard Sales Corporation, Westbury, New York 11590.
or, in territories other than U.S.A.
Garrard,
Sales Service Department,
Plessey Consumer Electronics Division,
Kembrey Street,
Swindon,
Wiltshire, England.
Telephone: Swindon 6211.

SELECTED SPARE PARTS LIST

Description of Part	Part Number
Automatic Record Spindle	72340
Single Record Spindle	75196
Large Centre Hole Record Adaptor ...	72698
Tonearm Counterbalance Weight ...	75138
Slide-in Cartridge Carrier, Type C.3 ...	75149
Kit of parts to fix Pickup Cartridge	59048/091
Setting Gauge for Cartridge	75291
Platter Retaining Clip	43857
Platter complete with Mat ... ... (state power supply frequency)	75190
Stroboscope Ring for Platter (60Hz) ...	75191
Stroboscope Ring for Platter (50Hz) ...	75445
Intermediate Wheel	58220
Damping Pad for mounting spring ...	71084
Synchronous Motor (state voltage)	60810
Motor Pulley (60Hz) with Extractor	60902
Motor Pulley (50Hz) with Extractor	60903
Neon Lamp	75327
Transit Screw (2 per set)	44350
Clip for transit screw (2 per set) ...	43855

FITTING A NEW MOTOR PULLEY

The motor pulley fits closely on the motor spindle to maintain perfectly true running. If the pulley cannot be lifted off without undue difficulty after both fixing screws have been slackened, insert a 4 B.A. screw in the top of the pulley to act as an extractor and turn it with a screwdriver, while holding the pulley stationary, until it is driven off the spindle. A suitable extractor is provided with the new pulley.
The new pulley should be fitted using moderate pressure to make certain that it is pressed onto the motor spindle as far as it will go. If difficulty is experienced due to the close fit, apply a gentle heat to the base of the pulley for a short time with a clean soldering iron, in order to expand the pulley sufficiently to facilitate fitting.

Note that, if a new pulley has to be fitted as a result of a change of power supply frequency then a stroboscopic platter ring for the new frequency must be fitted at the same time.

Take great care in handling the new stroboscopic ring so that it does not bend. As it is held in position by impact adhesive (exposed when protective backing removed) make sure that the new ring is aligned exactly over the old one before pressing it permanently into position.

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