

*Garrard*

**80 MK II**

AUTO  
TURNTABLE

INSTRUCTIONS

# Garrard

## AUTO TRANSCRIPTION TURNTABLE LAB. 80 Mk II

### contents

---

|         |                          |
|---------|--------------------------|
| page 1  | Introduction             |
| page 3  | Specifications           |
| page 4  | Installation             |
| page 5  | Wiring                   |
| page 7  | Fitting pickup cartridge |
| page 8  | Installation adjustments |
| page 9  | Operating instructions   |
| page 11 | Maintenance              |
| page 12 | Service adjustments      |
| page 16 | Service and spares       |

### introduction

---

The Lab. 80 Mk. II is an auto turntable which combines transcription class performance with the facility for playing records automatically if desired. Its development represents an advance in auto turntable design which is welcome to the more discerning user. Such are the number of innovations introduced on this unit that instead of listing its features in this foreword, we have described the most important ones and their function, at appropriate points in this booklet. Suffice for us to say that the handsome styling and high standard of engineering have resulted in a model which is a worthy successor to the long line of famous Garrard record playing units.



THE GARRARD LAB. 80 Mk. II AUTO TRANSCRIPTION TURNTABLE



# specification

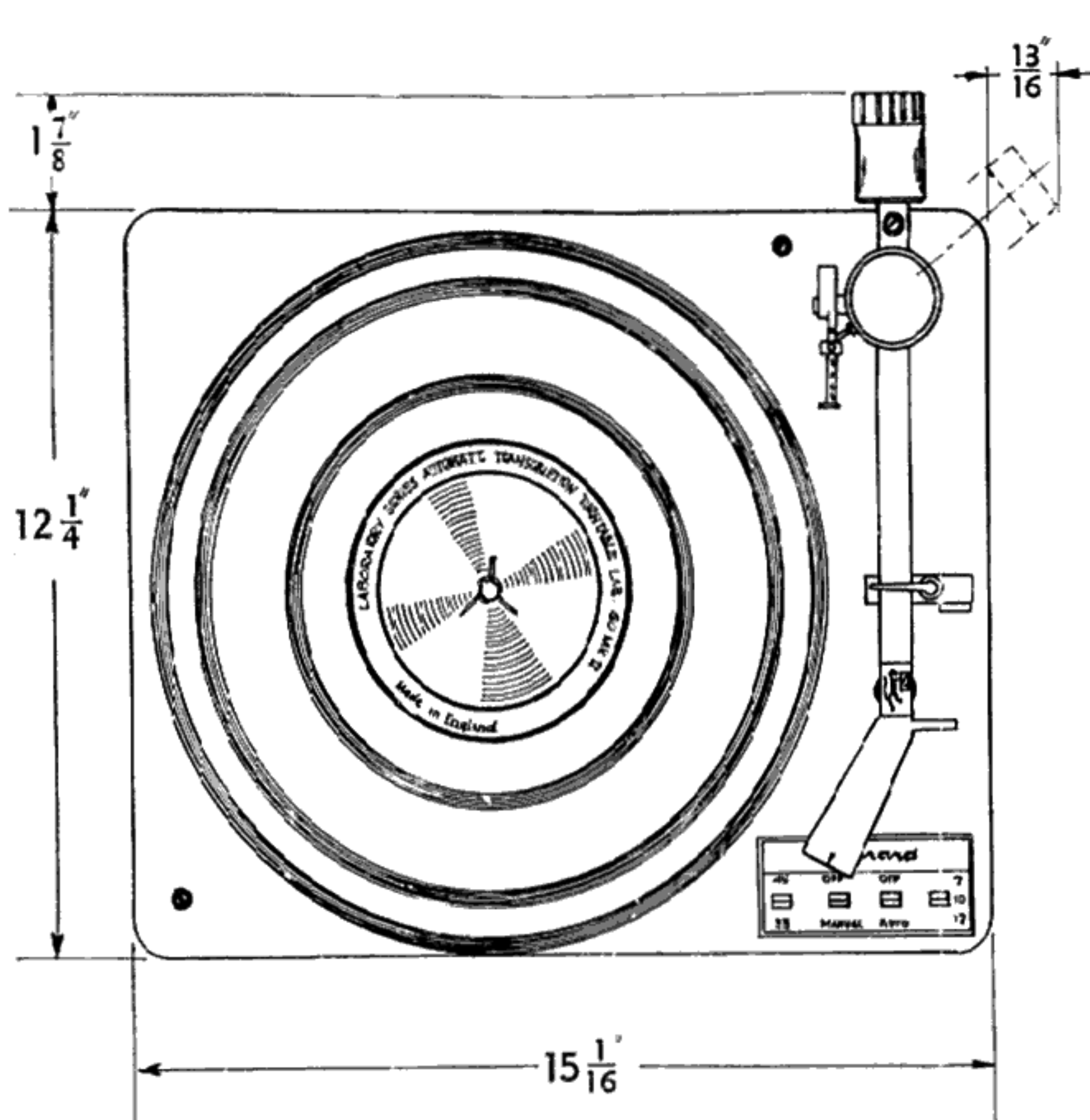


Diagram 1 Overall Dimensions

The Lab. 80 Mk. II will play 33 $\frac{1}{2}$  and 45 r.p.m. records singly, or up to 8 records of the same speed and size automatically. Speeds are 33 $\frac{1}{2}$  and 45 r.p.m., and record sizes are 7", 10" and 12". Two record spindles are supplied, a short one for single record manual play and a long one (called the Tripoise Spindle) for auto play. An adaptor is also supplied for playing large hole 45 r.p.m. records manually and to play these records automatically a large record spindle (type L.R.S.9) is available as an optional extra.

# installation

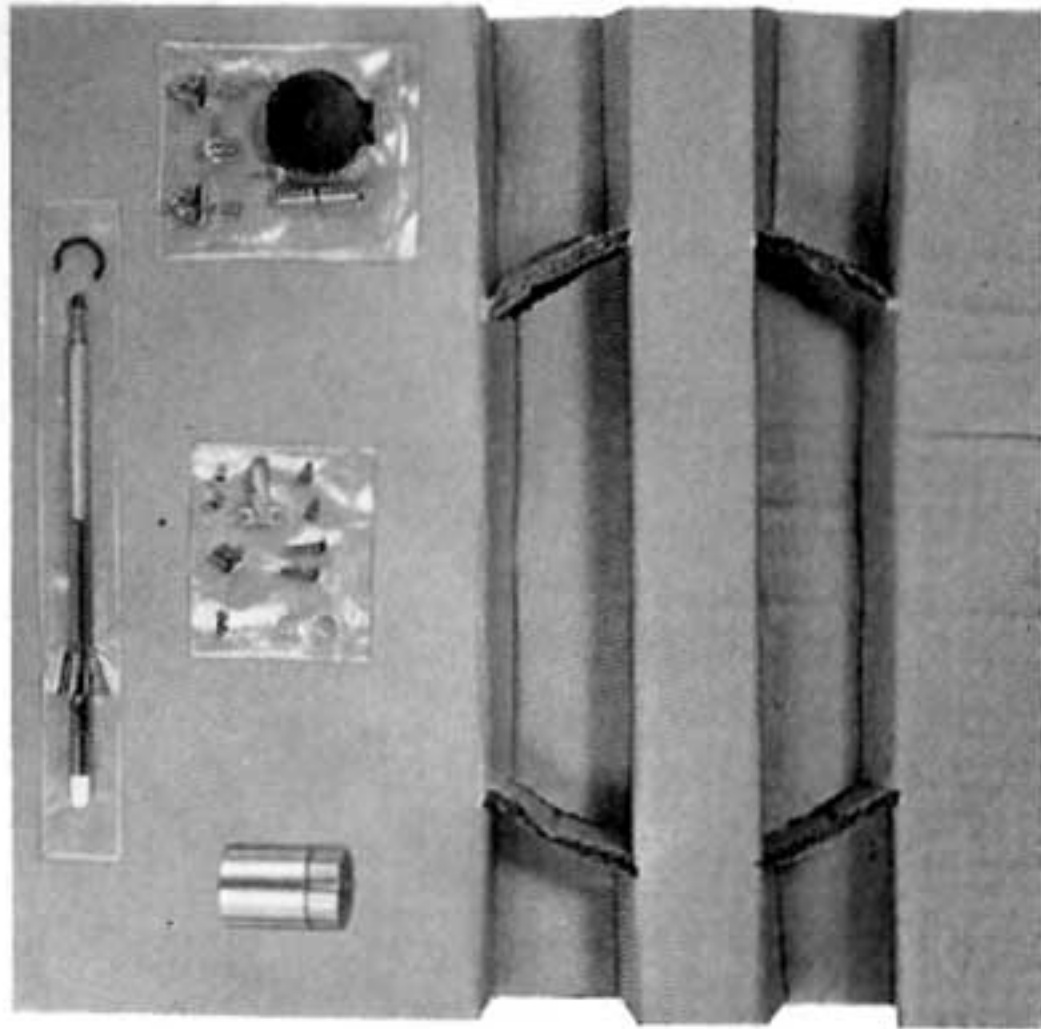


Diagram 2 Typical Accessory Tray Contents

The instructions on pages 4 to 8 may not apply if your unit is already fitted into a cabinet.

## Fitting

- 1 Drill and cut Motor Board to template supplied. Do not moisten template, as it may distort. Recommended board thickness is  $\frac{1}{8}$ " to  $\frac{1}{2}$ ". If thicker board is used, recess transit screw holes underneath  $1\frac{1}{8}$ " dia. to reduce thickness to  $\frac{1}{2}$ ".
- 2 Attach Power Supply, earth and audio leads.
- 3 Check that transit screws are screwed right down. Turn clips vertical and place unit on board with screws passing through appropriate holes. Verify that foam pads are in the mounting springs and that springs engage recesses in board, then press down into position.
- 4 When the unit is in place, turn transit screws horizontal.
- 5 Fit turntable on its spindle, checking that both are clean.
- 6 Fit spring clip on turntable spindle.
- 7 Fit turntable mat, locating it in the small well in the centre of the turntable.
- 8 Initially fit the manual record spindle and check that turntable rotates freely without engaging the mechanism. Fit Tripoise spindle later if desired.
- 9 If desired, attach record spindle holder kit to cabinet.
- 10 Assemble pickup arm counterbalance weight, engage bias compensator by moving pickup arm to the right and lifting the long arm of the compensator just above the horizontal, afterwards returning the pickup arm to its rest position. Then set counterbalance bias compensator and stylus pressure as instructed on page 8.

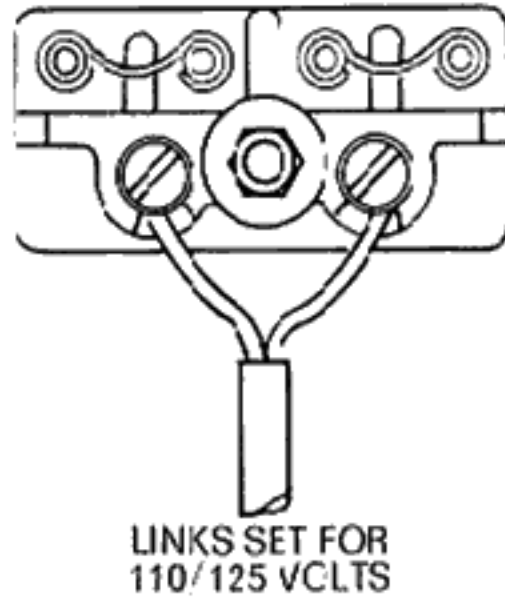
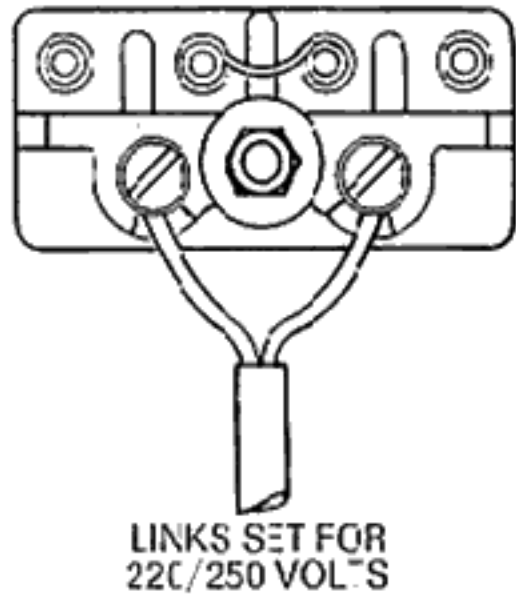


Diagram 3

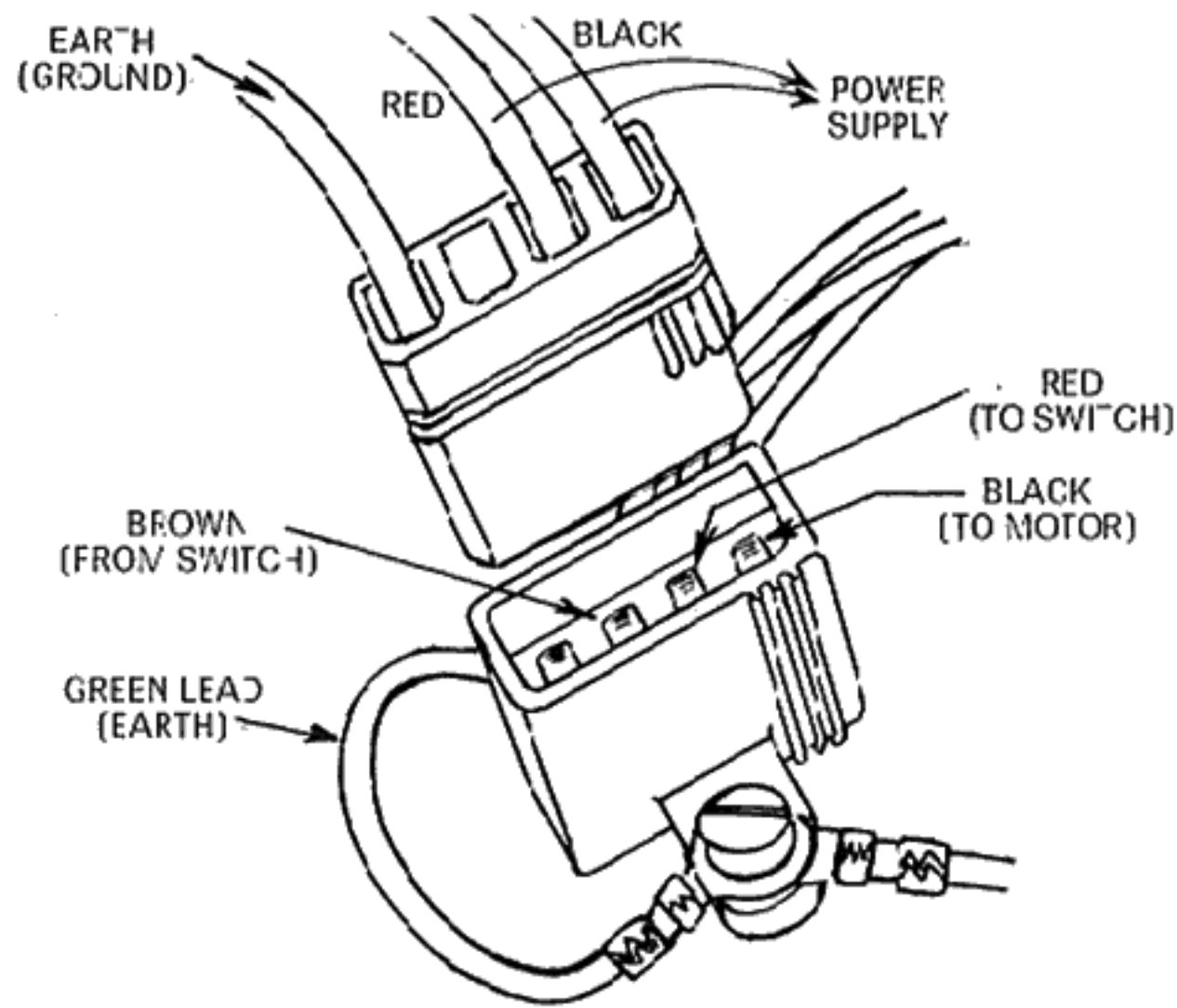


Diagram 4

The Lab. 80 Mk. II can be supplied as a single voltage range model for 100/130 volts A.C. or as a dual voltage range model for 100/130 and 200/250 volts A.C. If the latter, the required voltage range is selected by the position of the two wire links in the combined voltage changeover and power supply block (see diagram 3 or cover of block). The unit can be used with either 50 or 60 cycle supply, depending on the size of the motor pulley fitted. These interchangeable pulleys are colour finished for identification, nickel for 50 and brass for 60 cycle power supply.

### Power Supply Leads (Line Cords)

If a combined voltage changeover and power supply block is fitted adjacent to the motor, attach a lead to its terminals as in diagram 3. If a line cord socket is fitted, attach a line cord with a suitable plug (diagram 4).

If a line cord is already fitted, make appropriate connections to the power supply.

### Earth (Ground) Lead

Attach a lead between a good earthing point and the earth tag adjacent to the motor, or where the motor earth lead is connected to the unit plate.

When a line cord socket is fitted, the unit can be earthed from the appropriate (green lead) terminal in the socket (diagram 4).

### Amplifier (Pickup) Leads

Connect pickup leads from the amplifier to the connections on the muting switch as shown in diagram 5. See 'Service Adjustments' (page 14) for information on removing the muting switch shield plate. Should the unit be connected to an amplifier whose wiring is

# wiring continued

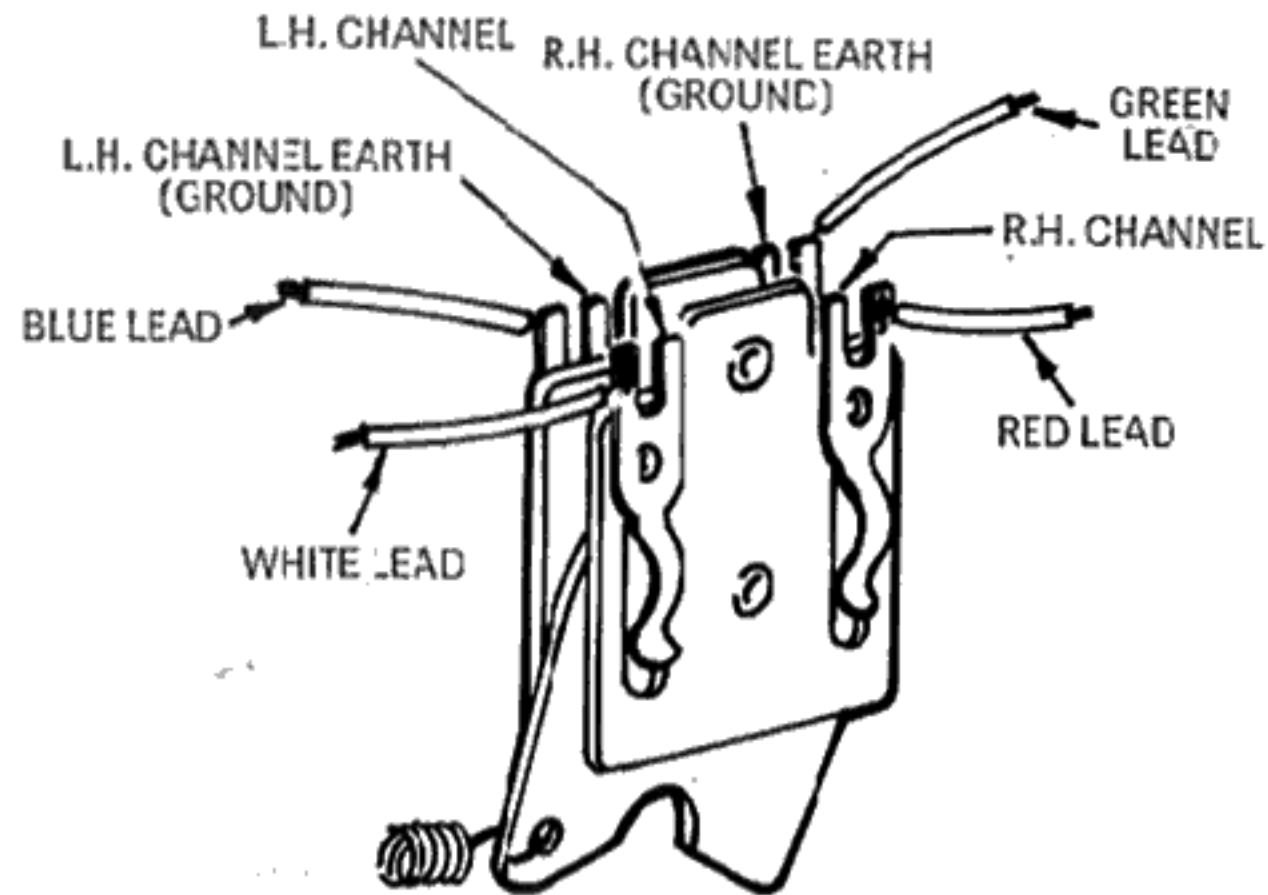


Diagram 5 Muting Switch

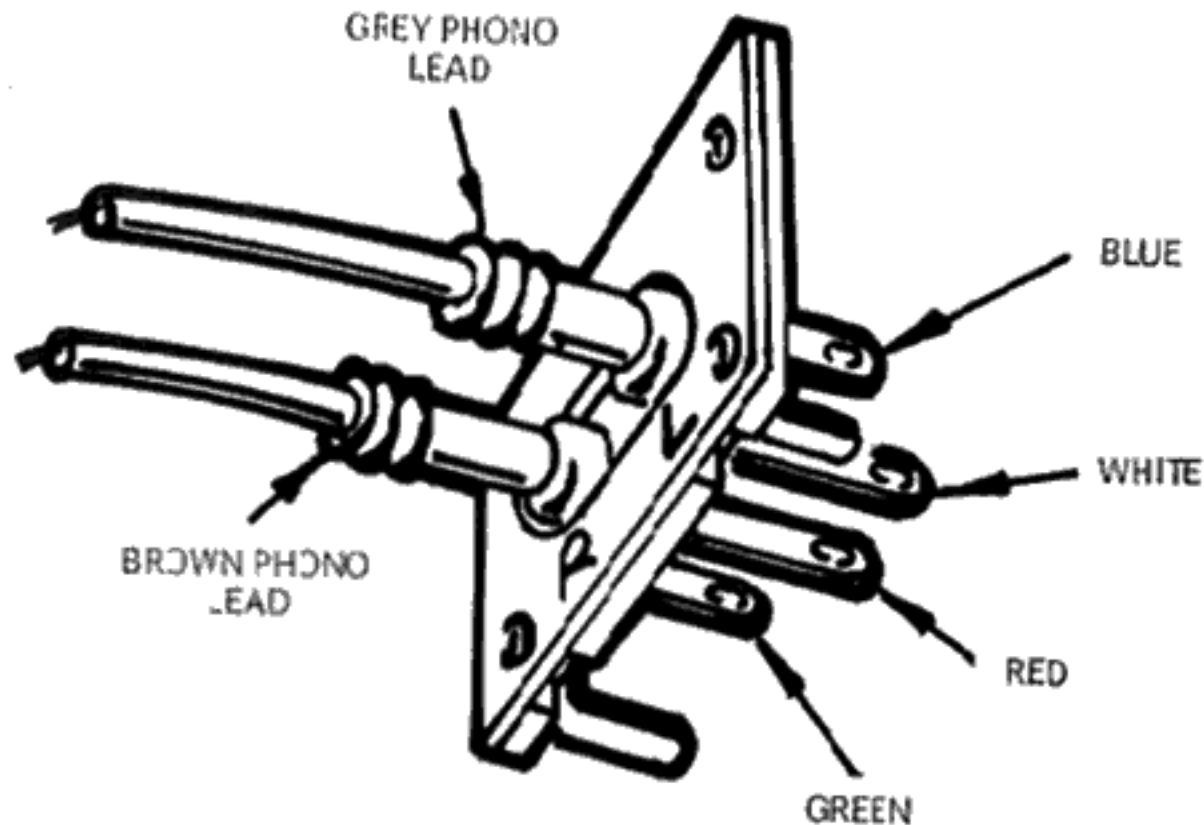


Diagram 6 Phono Lead connections

not isolated from the power supply, it is essential that isolating components be incorporated in its pickup circuit. If in doubt, consult your dealer.

When using a stereophonic cartridge with a monophonic amplifier, parallel the two channels

If a phono socket and phono leads are already fitted, the brown lead carries the right hand channel and the grey lead carries the left hand channel. When a monophonic cartridge is fitted, use only the right hand channel (diagram 6).

**Note:** Make sure all leads have adequate freedom so that they do not restrict the movement of the unit on its springs.



# fitting pickup cartridge

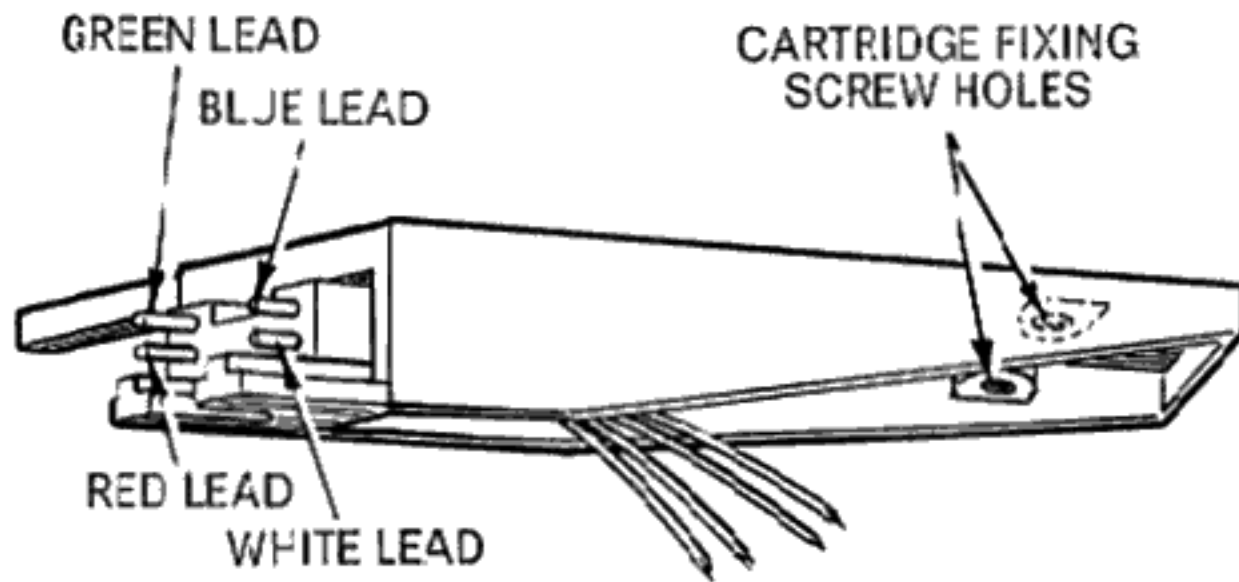


Diagram 7 M8 Pickup Shell

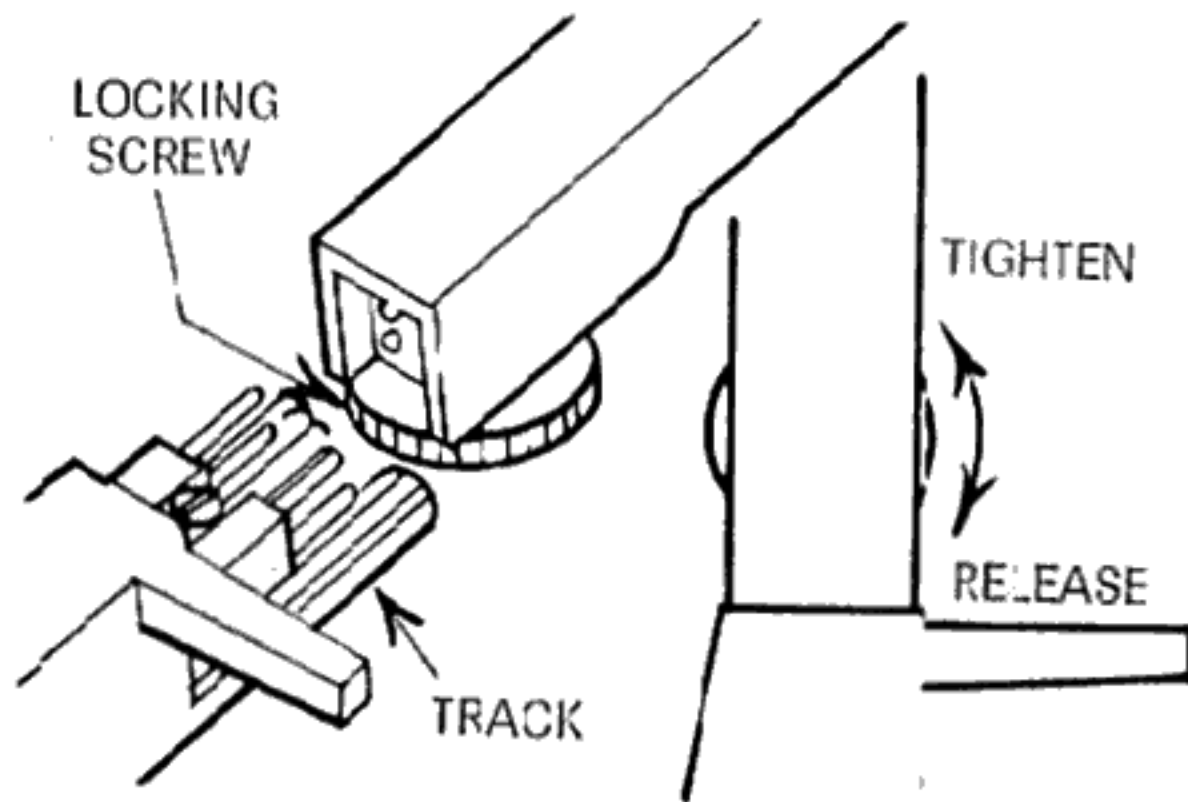


Diagram 8 Clamping Pickup Shell

A plug-in pickup shell designated M8 is used on Lab. 80 Mk. II. This is normally supplied without a pickup cartridge. The pickup shell kit (part number 71208) comprises the pickup shell, and accessory kit (part number 59048) allowing a wide range of cartridges to be fitted. The accessory kit consists of alternative pairs of screws, washers, spacers and a weight. The cartridge should be secured centrally to the pickup shell using screws of the appropriate length. Fit the washers under the screw heads if the holes in the cartridge harness are larger than the screw heads. Use the spacers between cartridge and shell if extra depth is necessary. Use the weight as ballast if a lightweight cartridge is fitted of actual weight less than 5 grammes.

Connect the colour coded pickup leads in the pickup shell to the connecting tags on the cartridge (diagram 7): if these connections are sockets, a special connector should be used. On no account must leads be soldered to the tags on the pickup cartridge. The colour coding of Lab. 80 Mk. II pickup leads is as follows:—

|       |   |                           |
|-------|---|---------------------------|
| Red   | — | Right Hand Channel        |
| Green | — | Right Hand Channel Ground |
| White | — | Left Hand Channel         |
| Blue  | — | Left Hand Channel Ground  |

On certain units a black pickup lead is used to earth the pickup arm. As the M8 is a metal shell, remove any cartridge 'ground strap'. For cartridges having three connections, use the green as the common or join the green and blue leads together to use as common. Insulate and tuck away any leads not required. When fitting the pickup head, make sure the tracks on the head line up with the arm, and clamp the head firmly in position by means of the large locking screw. See diagram 8.



# installation adjustments

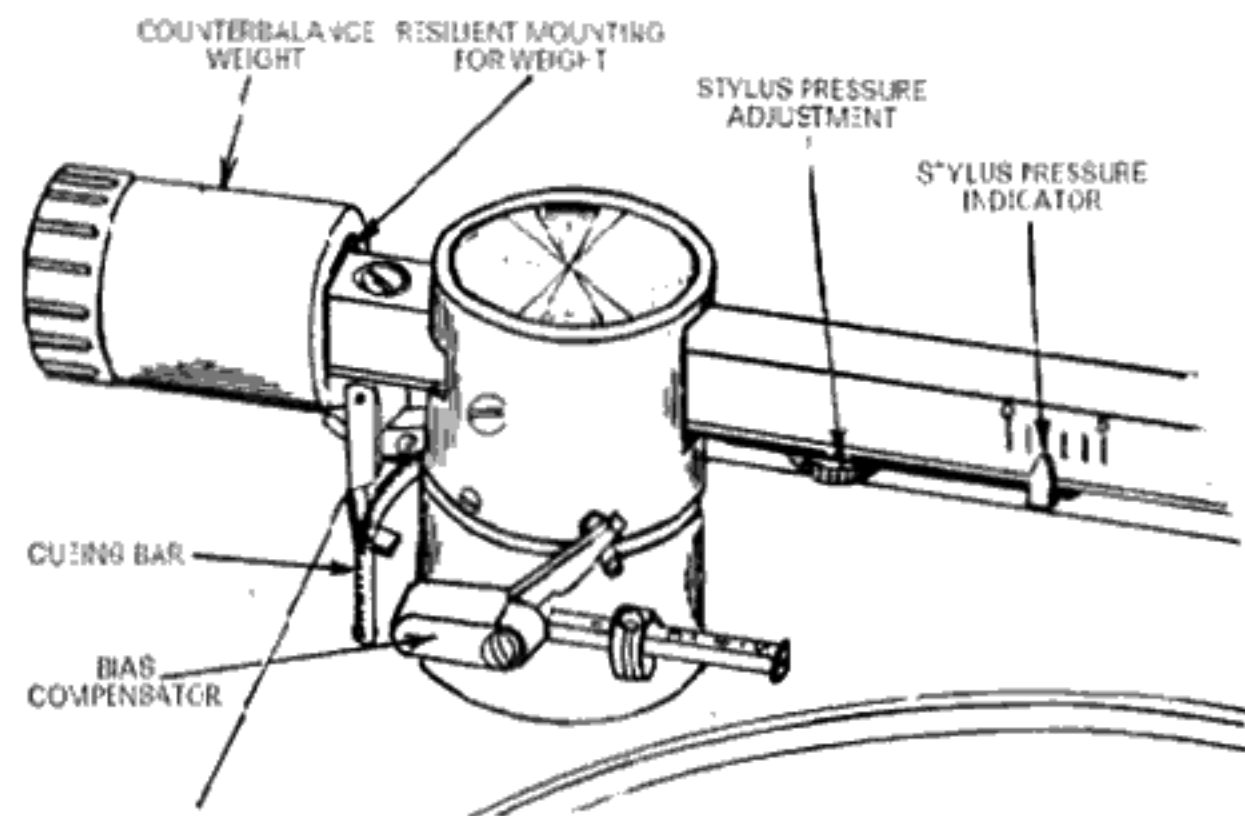


Diagram 9 Pickup Stylus Pressure Adjustment

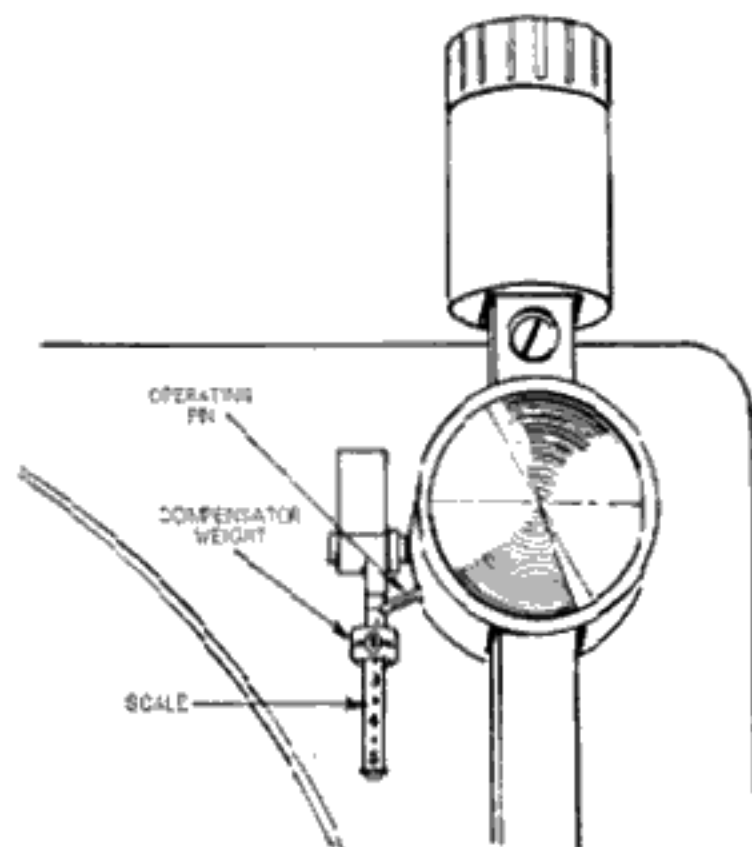


Diagram 10 Bias Compensator

## Pickup Stylus Pressure

Check that the stylus pressure adjustment screw is turned fully clockwise (looking down on arm) so that the stylus pressure indicator is on its zero mark. See diagram 9. Fit the counterbalance weight to the rear of the pickup arm, with its slot underneath, as in diagram 9, then set the pickup arm in its playing position by releasing it from its rest and squeezing the cueing control if the arm is not free. Adjust the counterbalance weight by screwing its knurled end along the arm in the direction which balances the pickup horizontally. With the pickup arm in balance, apply the stylus pressure required for the cartridge fitted by turning the stylus pressure adjustment screw counterclockwise until the indicator reads the desired pressure. The indications on the arm cover a range of 0 to 5 grammes and each click of the adjustment screw as it is turned represents an adjustment of approximately  $\frac{1}{4}$  gramme.

The combination of visual marking and audible clicks ensures a particularly positive yet sensitive form of stylus pressure adjustment.

## Bias Compensator

A movable weight is threaded on to the arm of the bias compensator which has numbers marked on it. The numbers represent bias compensation for 0 to 5 grammes stylus pressure. Position the weight at the number corresponding to the stylus pressure applied, then engage the bias compensator as in diagram 10.

This unique form of bias compensation is a simple but extremely effective way of compensating pickup arm side forces.

# operating instructions

## Manual Play

1 Use short record spindle, check speed control setting, remove stylus guard, if fitted, and release pickup arm safety catch.

2 Move manual control to 'Manual'. Position the pickup arm over the record, then squeeze cueing control to lower pickup (see diagram 11).

To raise pickup at any time, move manual control to 'Manual'—Turntable will continue to revolve; to lower pickup, squeeze cueing control tab.

The pickup arm will return to its rest and the unit will switch off after the record has played or if auto control is moved to 'Auto'.

## Cueing Feature

As stated under Manual Play, the pickup may be lifted at any time—on Manual or Auto Play. This gives facility for interrupting play at any time without switching off the mechanism.

The cueing feature is also useful for repeating any portion of a record, or for skipping any unwanted passage or passages. It is particularly useful when the unit is used as a Single Record Player, ensuring safe handling of the pickup.

## Auto Play

1 Fit Tripoise record spindle. This can only be fitted or withdrawn with unit in automatically switched-off position.

2 Check settings as for Manual Play, including record size selector.

3 Load records on spindle and switch on by moving auto control to 'Auto'. The pickup arm will return to its rest and the unit will switch off after the last record has played.

## Single Record Auto Play

A special feature of the Lab. 80 Mk. II Unit is that it is possible to play a single record automatically, using the short record spindle.

To do so the short Manual Spindle should be inserted, the correct record size selected and the record placed upon the turntable. By operating the 'Auto' control tab to 'Auto' the pickup will then automatically alight at the commencement of the record. After completion, it will return to the rest and the motor will then be switched off.

## Automatic Repeat (with Tripoise spindle)

Using the Tripoise spindle, a single record may be repeated indefinitely by placing the large centre hole adaptor, with hollow side uppermost on top of it when it is first loaded on the spindle. After switching on in the normal way using the 'Auto' tab, the record will continue to repeat until the adaptor is removed from the spindle. This should be done during the playing period and not during the changing cycle, and care must be taken not to use force.

## Manual Repeat (with either spindle)

The pickup may be returned to the commencement of either a single record or the last one of a stack for repeating it, by operating the 'Auto' tab at any time during play or at the conclusion of the record. The tab must be held

# operating instructions continued

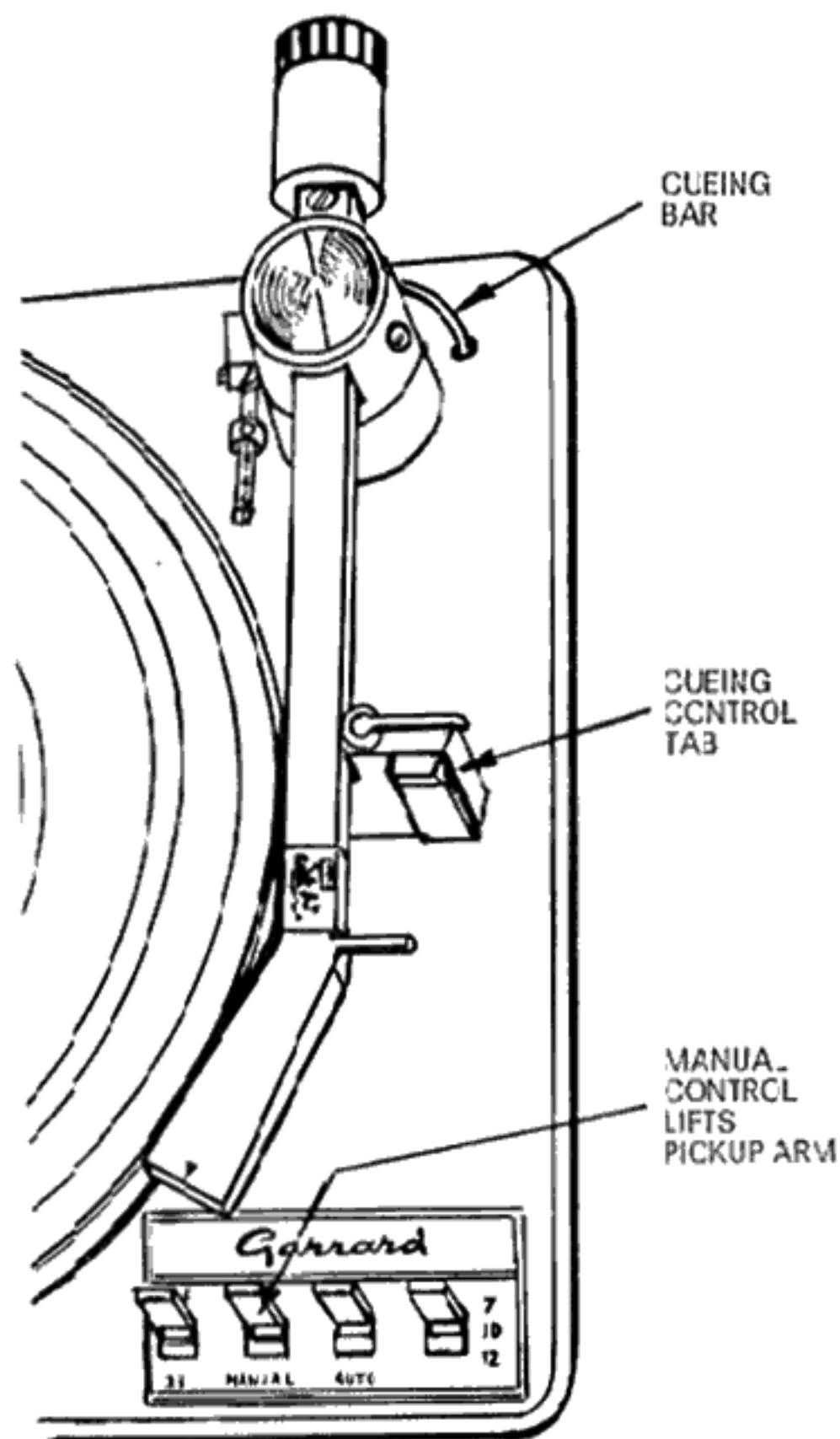


Diagram 11 Cueing Controls

down while the arm is lifting and moving outwards, and not released until it has started to move away from the pickup rest.

## To Stop

To temporarily stop, move manual control to 'Manual', this raises pickup; then move control to 'Off'.

## To Reject

Move auto control to 'Auto'.

## To Unload

- 1 For auto play, when the unit has automatically switched off, pull out the Tripoise spindle and remove the records from the turntable.
- 2 Replace the Tripoise spindle if the unit is to be used for auto play again.

## General Notes

To avoid the risk of damage to the mechanism or records, refrain from moving the pickup arm by hand or rotating the turntable counterclockwise, with the auto cycle engaged; note that the speed change mechanism is interlocked as a safety measure while playing.

Keep the stylus free from accumulated dust and replace it when worn. Do not leave records on the unit when not in use. Store and clean them as recommended by the record manufacturer.

The Lab. 80 Mk. II turntable mat is made from electrically conducting rubber. This neutralises the static electric charge of the record while on the turntable, making it less attractive to dust particles and easier to clean.



**Caution:** Always switch off power supply and protect pick-up stylus before making any adjustments.

## **To remove turntable**

Remove record spindle and turntable mat, then prise off the turntable retaining clip, using a small screwdriver. Now lift off the turntable by applying equal pressure on diametrically opposite sides. Should the turntable be difficult to remove, fit the short record spindle and, while lifting the turntable as above, have an assistant gently tap the top of the record spindle with a piece of wood such as a screwdriver handle.

## **To fit turntable**

Check that the turntable spindle and the centre hole of the turntable are clean, then carefully assemble turntable on to spindle, and rotate it clockwise to make sure that the mechanism is not engaged. Fit retaining clip, mat and record spindle.

## **Lubrication**

The bearings of the motor, turntable spindle and inter wheel are of the oil-retaining type, and rarely need lubricating. When the need for oil is apparent, hold the inter wheel away from the motor pulley and apply a few drops of fine grade oil to the top motor bearing. Also oil the bearings of the inter wheel (taking care not to get oil on to the rubber surface), the turntable spindle and, occasionally, the bottom motor bearing. If any pivots appear noticeably stiff, apply a little oil; also smear the cam surfaces with a light

grade of grease. Before replacing turntable, wipe any traces of oil from motor pulley, inter wheel and turntable rim (see diagram 15).

**Note:** Do not oil the cueing mechanism. If the need becomes apparent, special damping fluid and instructions for applying it are available.

## **To remove motor pulley**

To ensure true running, there is minimum clearance between pulley bore and motor shaft, but the pulley should easily pull off when its locking screws are loosened. Should it be found to be tight on the shaft, however, apply gentle heat to the base of the pulley for about 30 seconds, using a small, clean soldering iron, after which it should slide off easily. A similar expedient can be adopted when replacing a tight pulley, but care must always be taken to avoid damaging the inter wheel or motor wiring when using the soldering iron.

# service adjustments

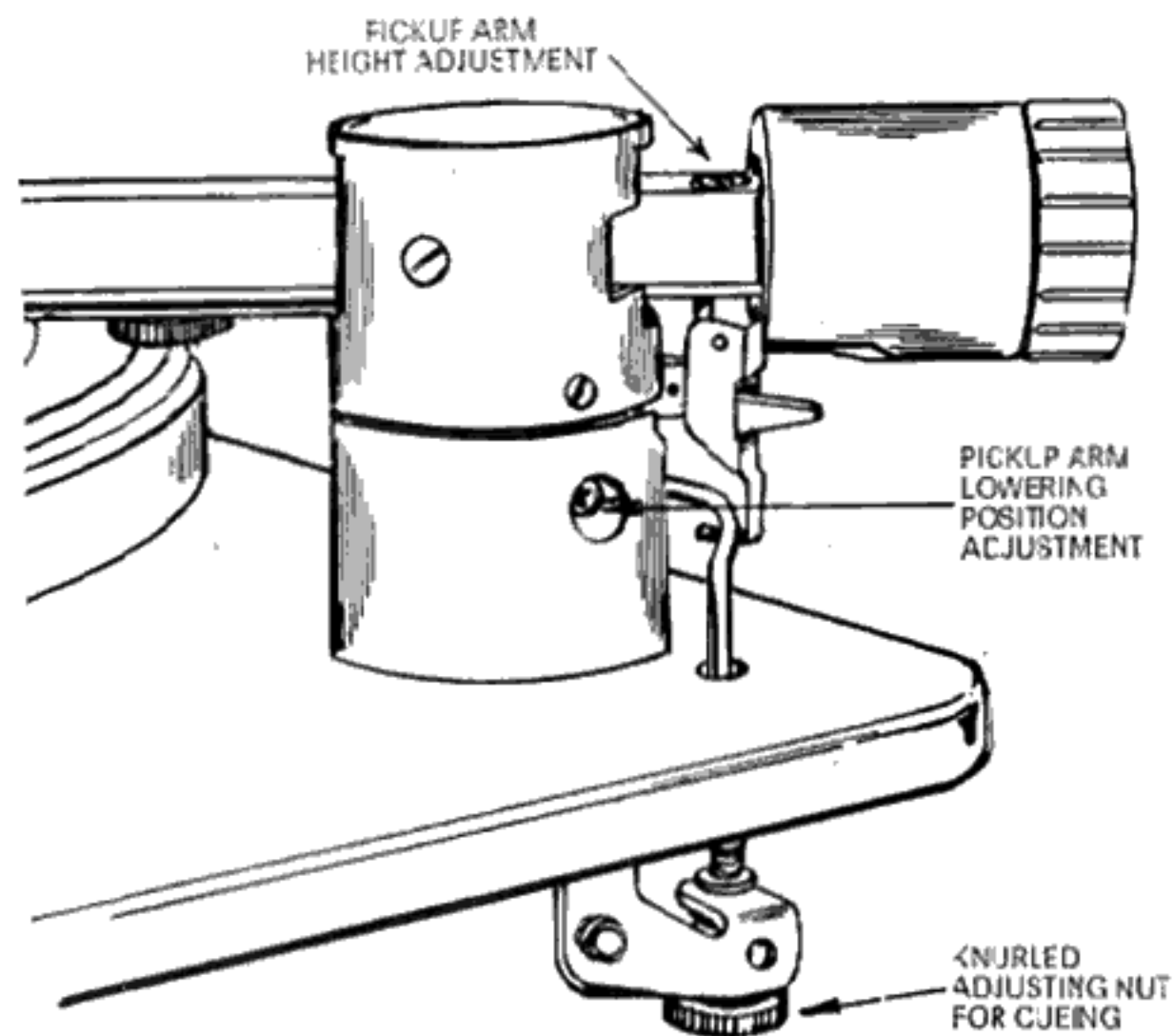


Diagram 12

**Caution:** Always switch off power supply and protect pickup stylus before making any adjustments.

If required, operate auto control and rotate the turntable clockwise by hand to actuate the mechanism.

## Speed

Lab. 80 Mk. II is designed to give the correct turntable speed within close tolerances. If the turntable does run excessively fast or slow, the motor pulley (diagram 15) may not be correct for the frequency of the power supply. Check motor pulley colour finish; nickel for 50 and brass for 60 cycles. Fit a replacement pulley if necessary. To reach the motor pulley, remove turntable as described on page 11 under 'Maintenance'. Should the speed vary during playing, examine the motor pulley, intermediate wheel and inside of turntable rim for traces of oil. Wipe them thoroughly with a clean cloth. Check that the motor pulley is in its correct position on the motor shaft with the intermediate wheel running in the centre of the appropriate pulley step and not rubbing on the side of the adjacent step. If necessary, loosen the pulley lock screws and move the pulley to its correct position, then equally tighten the three lock screws. See 'Maintenance', page 11, if pulley is tight.

## Motor

If the motor fails to start when the unit is switched on, check the power supply to see that current is reaching the motor; also, with the main supply disconnected, check the motor connections (including plug-in leads). Remove the turntable and screening plate (see diagram 15) to gain access to the motor switch. See that the

# service adjustments continued

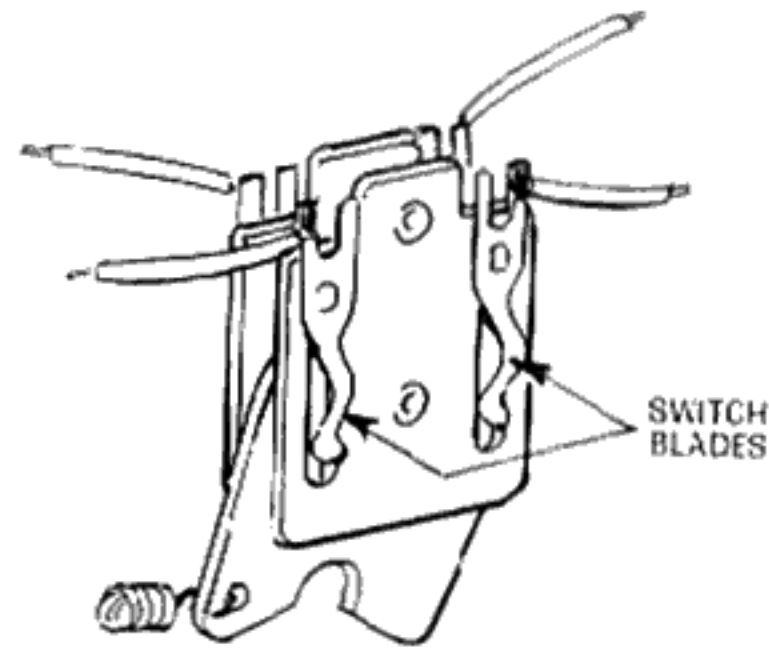


Diagram 13

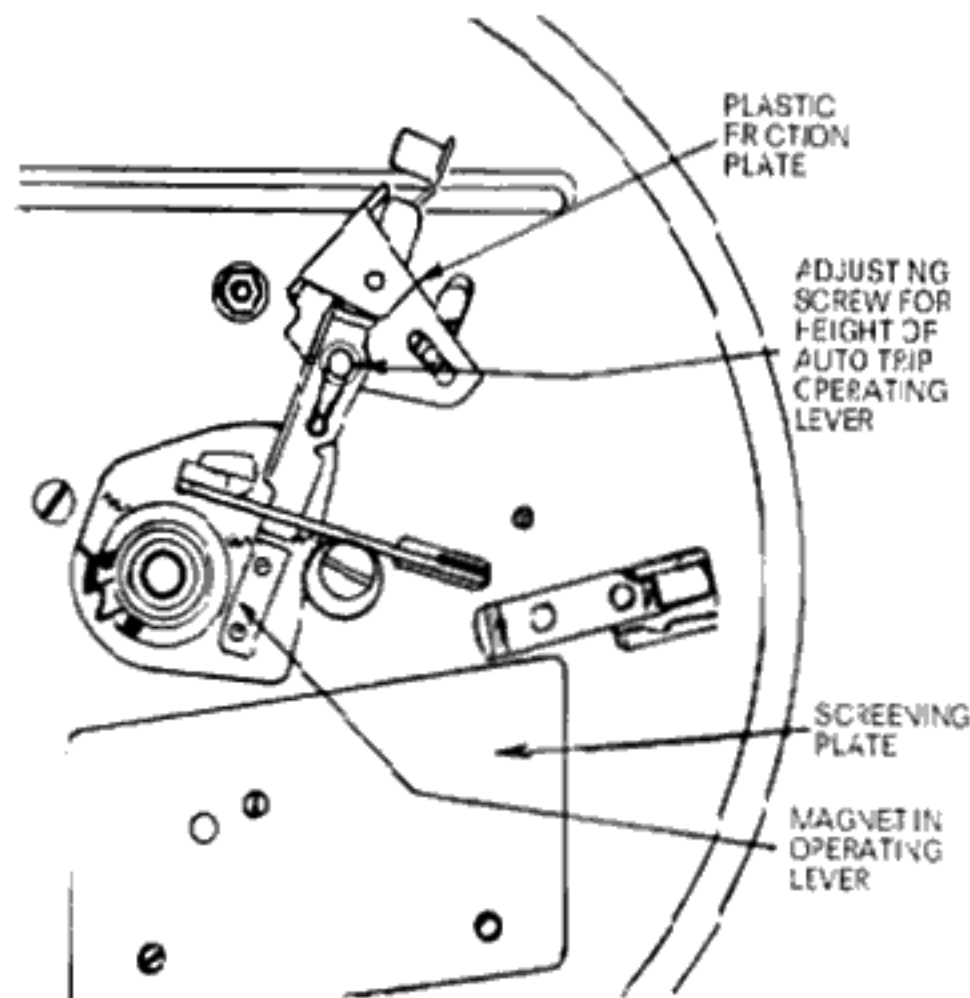


Diagram 14

switch blades are clean and make good contact. If a dual voltage range model, check the setting and secureness of the changeover links in the block and make sure the motor is suitable for the supply voltage. Electrical details are labelled on the side of the motor. Simple plug-in lead connectors are incorporated into the motor of this unit.

## Pickup Lowering Position

The pickup lowering position may require adjustment if a new pickup cartridge has been fitted or if the unit is supplied without one. Swing the pickup arm in to approximately its 7" position; this gives access to the lowering position adjustment screw through the hole in the side of the pickup base, see diagram 12. Turn this screw clockwise to move the lowering position in and counterclockwise to move it out. Alternatively, commence to play a 7" record automatically and stop the unit to adjust by the method described. If your records have a raised edge or chamfer (called a groove guard), make sure the pickup arm lands inside this chamfer, otherwise it may slide across the first few record grooves.

## Pickup Height Adjustment

The pickup height may require setting if a new pickup cartridge has been fitted. The adjusting screw is on the top face of the pickup arm just behind the pickup base. See diagram 12. Turn the screw clockwise to raise the pickup and counterclockwise to lower. The stylus point should be set  $\frac{3}{4}$ " above one record on the turntable as the pickup arm returns to its rest. If the adjusting screw is hidden by the counterbalance weight, the weight will need to be turned back before adjusting, then reset.



# service adjustments continued

## Cueing Device Adjustment

With the pickup arm raised by operating the manual control tab, the height between the turntable mat and the stylus point should normally be  $\frac{1}{2}$ ". Adjustment can be obtained by turning the knurled plastic nut on the cueing bar extension beneath the unit plate, see diagram 12.

**Note:** Do not lubricate the cueing mechanism as it uses special damping fluid.

## Pickup Tracking

If the pickup arm tracks incorrectly, check that the correct radius stylus is in use and is clean and not worn. See that the pickup leads allow the arm complete freedom of movement. Make sure that the stylus pressure is that recommended by the pickup cartridge manufacturer and that the bias compensator setting corresponds. Also check that the cueing bar is not rubbing the link at the rear of the pickup arm. Adjust the cueing if necessary.

## Pickup muting switch

This switch short circuits both channels of the pickup connections while the changing mechanism is in operation. If faulty, check that its switch blades function properly and that it is actuated correctly by the mechanism. The muting switch shield plate clips on the bridge plate supporting the muting switch and is further retained by a spring clip on a locating pin. Remove the shield plate to examine the muting switch, but take care not to damage the pickup leads attached to the shield plate. (Diagram 13.)

## Auto trip

A sensitive magnetic repulsion auto trip completely eliminates mechanical contact between striker and trip lever prior to tripping. The auto trip features a special plastic friction plate, making the load on the pickup arm infinitesimal and is completely disconnected from the arm after tripping. If the trip consistently fails, leaving the pickup running in the centre of a record, remove the turntable ('Maintenance', page 11), and adjust the trip lever height, up or down, by means of its adjusting screw (diagram 14), so that the striker will raise the trip lever when the pickup accelerates in the lead-out groove of the record. Also check that the plastic friction plate is clean and free from oil and dust.

## Service

If you require any further information or advice not covered by this booklet, please contact your dealer or, in the case of difficulty, our Service and Spares Department, or Garrard Agent.

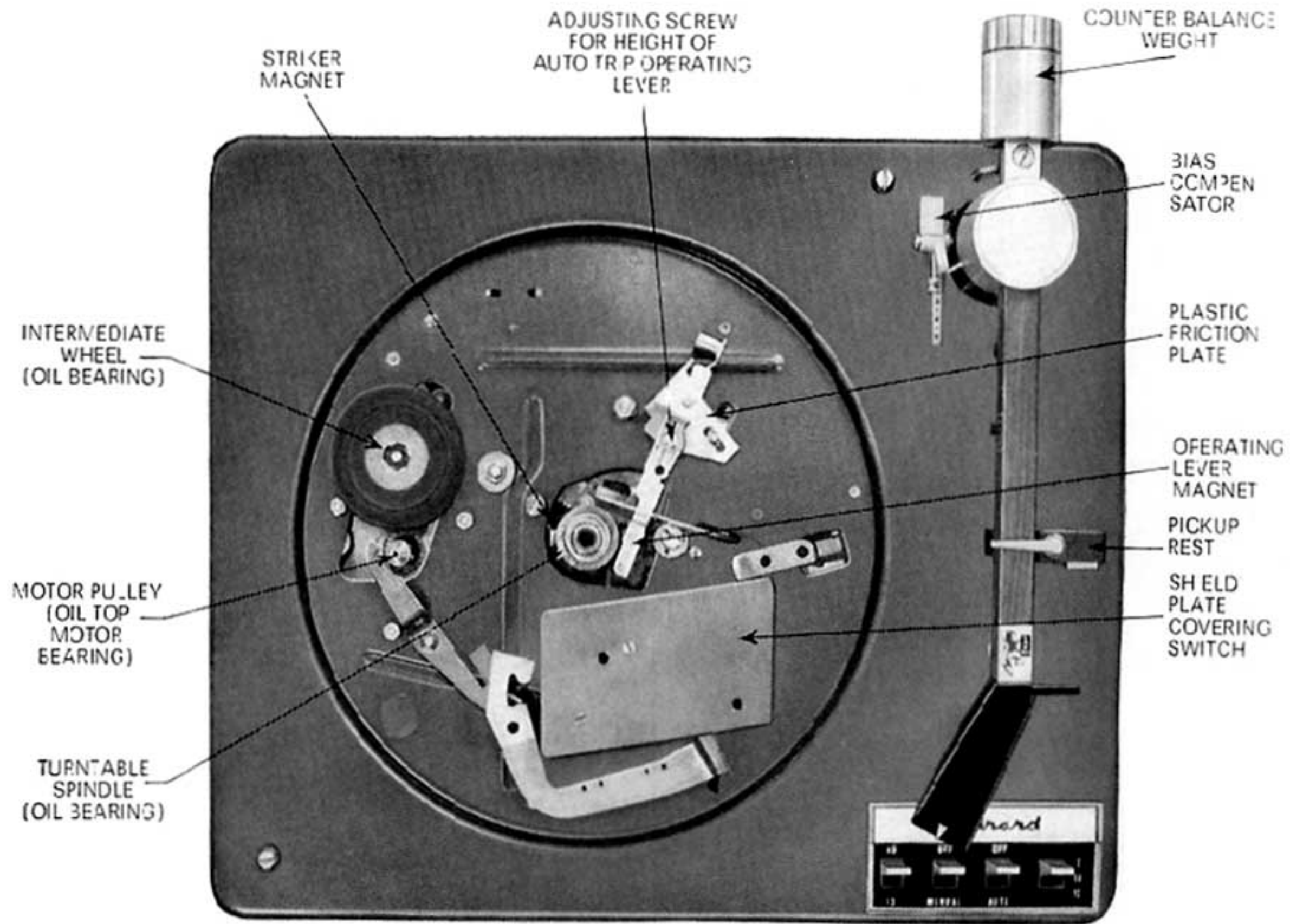


Diagram 15 Top view with turntable removed.

# service and spares

Service and Spares enquiries to:—

Garrard Engineering Limited, Service and Spares Department, Newcastle Street, Swindon, Wilts. Telephone No. Swindon 5381.

## spare parts list

When ordering spares, please quote Lab. 80 Mk. II, code (from inspection label), part number if listed and colour,

| Part number | Description                                     |
|-------------|---|
| 72071       | Tripoise Record Spindle                         |
| 70754       | Manual Record Spindle                           |
| 72698       | Large Centre Hole Manual Record Spindle Adaptor |
| 71140       | Large Centre Hole Record Spindle, L.R.S.9       |
| 72557       | Turntable Assembly                              |
| 72558       | Turntable Mat Assembly                          |
| 53176       | Turntable Clip                                  |
| 72641       | Pickup Arm (less head)                          |
| 44809       | Stylus Pressure Spring                          |
| 71208       | Garrard M8 Pickup Shell Kit (less cartridge)    |
| 71724       | Damping Fluid for Cueing Mechanism              |
| 72522       | Bias Compensator Lever Assembly                 |

Printed in England **EP** 6/66

In U.S.A.:—

Garrard Sales Corporation, Westbury, New York 11590.

voltage and frequency when applicable. Also reference number stamped on underside of unit plate.

| Part number | Description                                   |
|-------------|---|
| 70721       | Spacer for Bias Compensator                   |
| 70720       | Pivot Screws for Bias Compensator             |
| 70773       | Counterbalance Weight Assembly                |
| 53883       | Rubber Intermediate Wheel                     |
| 60097       | Motor Pulley Assembly 50 cycles               |
| 60096       | Motor Pulley Assembly 60 Cycles               |
| 58179       | Cover for Dual Voltage Changeover Block       |
| 41012       | Nut for 58179.                                |
| 72741       | Switch Unit                                   |
| 60410       | Low Voltage Range Motor                       |
| 60420       | Dual Voltage Range Motor                      |
| 60365       | Plug-in Motor Lead Assembly with Switch, etc. |
| 41977       | Transit Screw Clips (2)                       |