Garrard

LAB 80
SERVICE MANUAL

GARRARD ENGINEERING LIMITED

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General Information

The Garrard LAB.80 is an Automatic Transcription Turntable of the highest quality, providing true transcription performance together with the facility for playing records automatically if so desired.

Used automatically, up to eight records, 7″, 10″ or 12″ of the same size may be played at 33⅓ or 45 r.p.m. Two record spindles are supplied, a short one for manual play and a long one for automatic play. A record adaptor is also supplied for playing large hole 45 r.p.m. records manually and if automatic play of these records is required, a large record spindle type L.R.S.9 is available as an optional extra.

Many features of note are incorporated in this unit. A cueing device used for single record play, bias compensator to balance out side pressure on the wooden pickup arm, heavy, non-magnetic diecast turntable with antistatic turntable mat, record size indicator and pilot light, new motor suspension system and also a new type record spindle for automatic play which fully supports the records without the need for an overarm.

Before connecting the unit make sure that the power supply is as stamped on the motor bearing cover. If the pickup circuit of the unit is connected to an amplifier whose wiring is not isolated from the power supply, isolating components, either capacitors or transformer, should be incorporated in the pickup circuit otherwise the pickup circuit can become live.

Always disconnect the power supply and protect the pickup before servicing a unit.

Garrard models are made to play records complying with B.S.1928/1965 and I.E.C. Publication 98, also other similar standards.

If you have occasion to write concerning spare parts etc., always quote the code number stamped on the inspection label, otherwise a full description must be given.

Operating Instructions

Manual Play

1. Use short record spindle, check speed control setting, remove stylus guard, if fitted.

2. Release pickup arm safety catch, move manual control to "Manual". Position the pickup over record, squeeze cueing control to lower pickup.

   To raise pickup at any time, move manual control to "Manual"; to lower, squeeze cueing control.

Automatic Play

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 **This can only be fitted or withdrawn with unit in automatically switched off position.**

2. Check speed and record size selected. Load records, switch on by moving auto control to "Auto".
   Note that unit features a safety lock to prevent changing speed while playing.

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".

Note: Do not turn the turntable counterclockwise.

Record Care

Do not leave records on the unit when not in use; store them as recommended by the record manufacturers. Keep the pickup stylus free from dust and when necessary clean the turntable mat, using a record cleaning pad or brush. The mat, made from electrically conducting rubber, neutralises the static electric charge of a record while on the turntable, making it less attractive to dust and easier to clean.

Installation and Wiring

Cabinet Space

The Garrard LAB.80 unit plate measures 15″ side to side x 12¼″ back to front. The counterbalance weight, however, overhangs the back of the unit by a maximum of 2″ and the right hand side of the unit by a maximum of ⅞″, depending on the weight of the cartridge fitted.Therefore, cabinet space should allow for these conditions and also allow ¼″ clearance all round the unit for free movement. Cabinet space of 5½″ above and 3½″ below the top of the motor board is also required. In addition, if the cabinet is not open-topped when unloading records, an extra 4¼″ clearance above the motor board should be allowed for the removal of the long automatic record spindle.

Unpacking

When unpacking a unit as despatched from the factory, lift it from its carton with the fingers under the edge of the unit plate; never lift by means of the pickup arm. Remove the protective polythene bag, cardboard fitments and accessories, packing ties, elastic bands — also the plastic foam motor packing. The turntable (weight 6lb.) and its turntable mat are packed in the bottom of the carton. Assemble the turntable as described under "Maintenance", page 7, and retain it with the clip which is packed in a polythene bag with the long record spindle. Make sure the clip locates in the groove around the top of the turntable spindle. Fit the turntable mat, locating it in the groove around the top face of the turntable. Fit the long, automatic record spindle, making sure that the unit is in its automatically switched off position. Screw the counterbalance weight on to the rear extension of the pickup arm as in Diagram 7. Instructions for setting pickup arm stylus pressure and bias compensator are found under "Service Adjustments", page 9. Fit the pickup head to the arm, taking care not to force the connector pins. See Diagram 1.

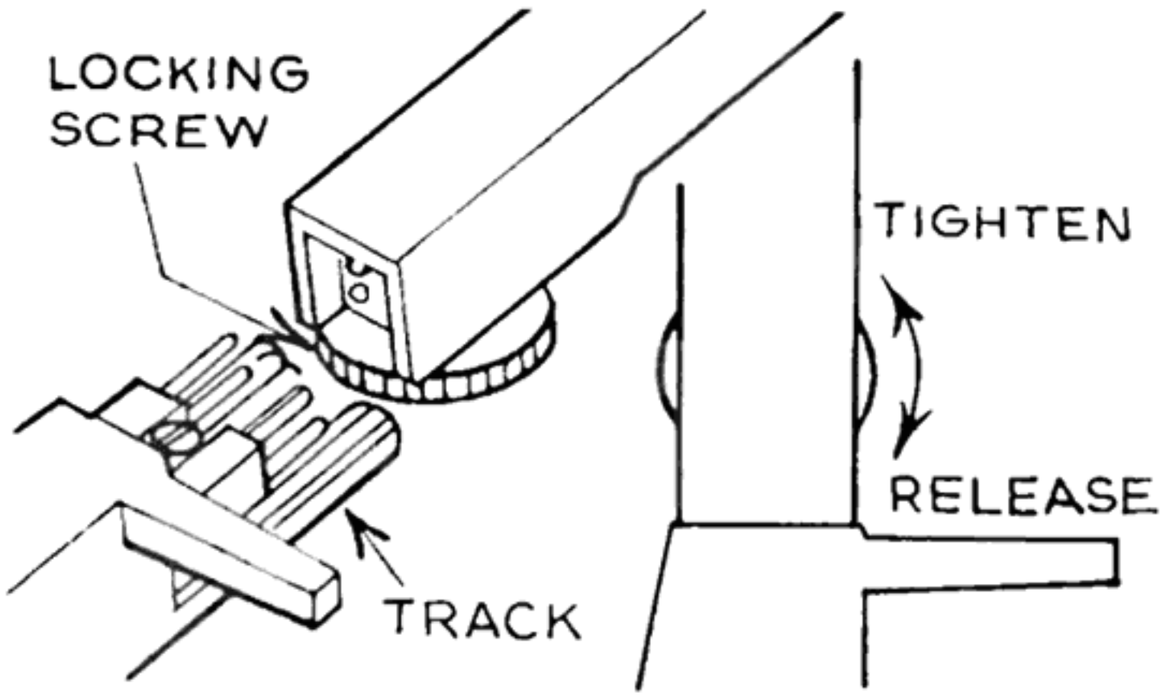


Diagram 1

Preparing Motor Board

If it is necessary to prepare a motor board, do so by drilling and cutting out the board to the paper template supplied with each unit. Do not moisten the template, but fix it to the board with adhesive tape. Recommended board thickness is between $\frac{3}{16}$" and $\frac{1}{2}$" Should a thicker board be used it may be necessary to recess the $\frac{31}{64}$" diameter transit screw holes to $1\frac{1}{8}$" diameter, from the underside, in order that the transit screw clips have clearance to turn.

Wiring

Before assembling the unit into the cabinet, connect a power supply lead to the motor. On certain units a connecting plug is provided to accept the appropriate power supply socket, but in the case of dual voltage range motors, a voltage changeover block is fitted and the power supply lead should be connected to this according to the instructions on the voltage changeover block cover and as shown in diagram 2. Also connect a lead from a good earthing point to the earthing tag on the motor.

Connect both clips one on top of the other. thus for 200/250 volts A.C.

Connect clips thus for 100/130 volts A.C.

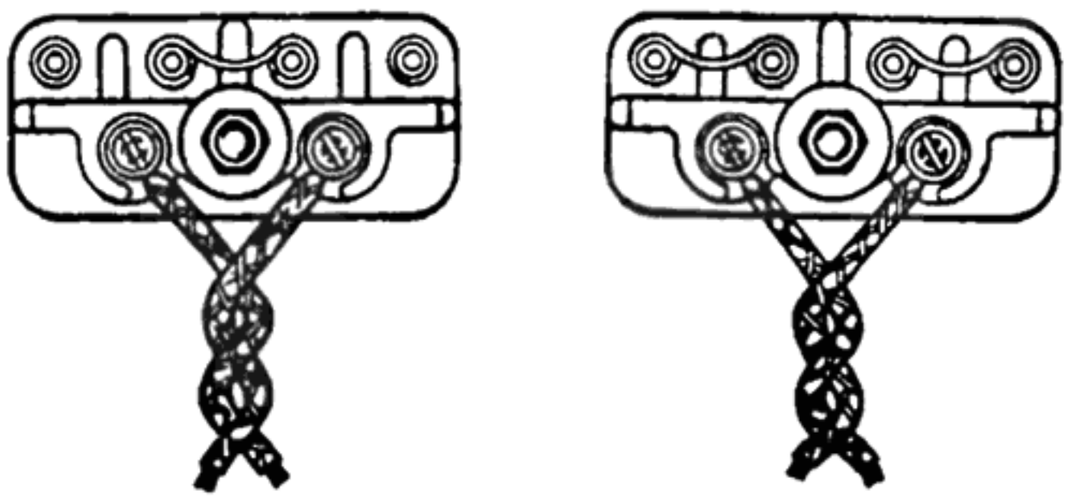


Diagram 2

Screened leads should be connected to the muting switch, suitable for connection to the amplifier. See Diagram 3. Certain units, however, have phono lead sockets fitted to them to which phono leads may be connected. See Diagram 4. Before connecting the unit to the amplifier, make sure that the pickup circuit of the radio set or amplifier, to which it is to be connected, is isolated from the power supply. If it is not then it is essential that isolating components, capacitors or transformer, are incorporated in the pickup circuit. The screening of the pickup lead must be connected to a true earth and not to the amplifier chassis, it should also be kept as short as possible to avoid hum.

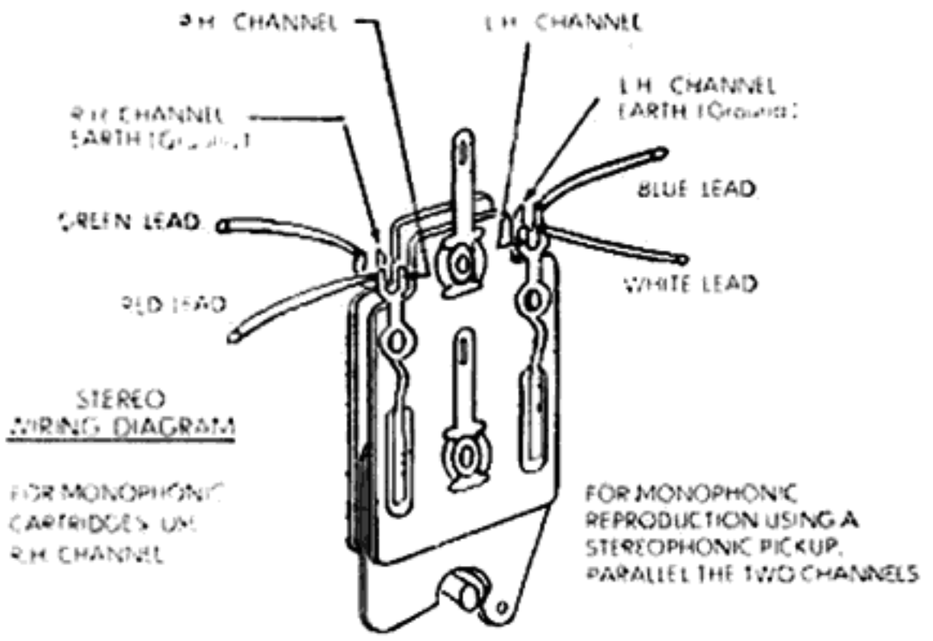


Diagram 3

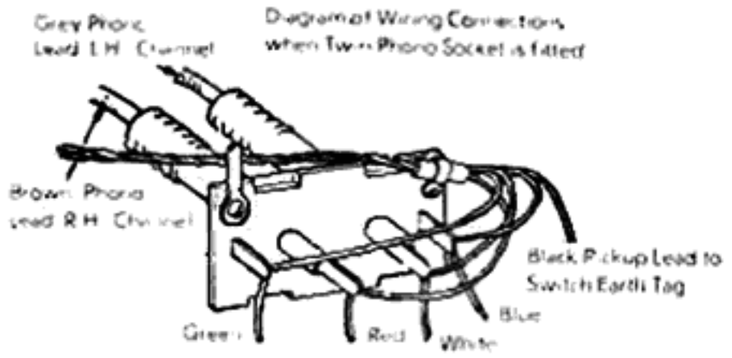


Diagram 4

Fitting Cartridge

A plug-in pickup shell designated M8 is used on the LAB.80. This may be supplied with or without a pickup cartridge. The pickup shell kit, Part No. 71208, comprises the pickup shell and accessory kit, Part No. 71216, allowing a wide range of cartridges to be fitted. The accessory kit comprises 4 alternative pairs of screws, two washers, two spacers and a weight. The cartridge should be secured centrally to the pickup shell, using screws of the appropriate length. The washers should be used under the screw heads if the holes in the cartridge bracket are larger than the screw heads. To obtain the correct cartridge position, use the spacers between the cartridge and the shell. Use the weight as ballast if a cartridge is fitted weighing less than 5 grammes.

Connect the colour coded pickup leads in the pickup shell to the connecting tags of the cartridge; if these connections are sockets, a special connector should be used. On no account must leads by soldered directly to the pickup cartridge.

The colour coding of the LAB.80 leads is as follows:—

Red — Right hand channel
Green — Right hand channel (Earthy)
White — Left hand channel
Blue — Left hand channel (Earthy)

Information on connections is usually supplied with the cartridge. For cartridges having three connections, use the green as the common or join the green and blue leads together to use as a common. Insulate and tuck away any leads not required. When refitting the pickup head, make sure the tracks on the head line up with the arm.

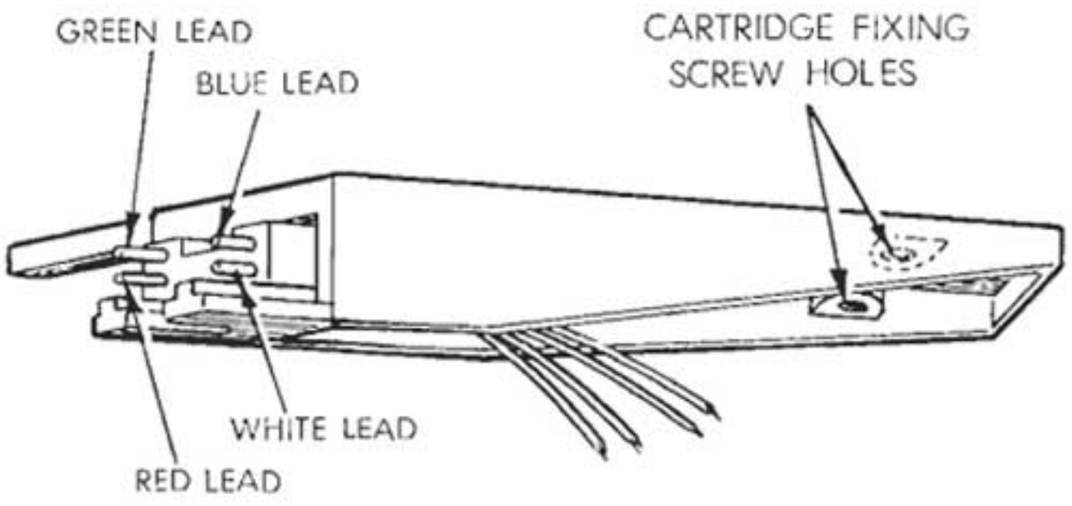


Diagram 5

Voltage and Frequency

The Garrard LAB.80 can be supplied either as a dual voltage model suitable for 100/130 and 200/250 volts A.C. or as a single voltage range model for 100/130 volts A.C. It may be used on 50 or 60 cycles, according to the size of the motor pulley fitted. The motor pulleys are colour finished for easy identification, nickel for 50 and brass for 60 cycles power supply. When the unit is ordered for use on either of these frequencies, the correct pulley will be fitted.

Note: On the dual voltage range model the neon indicator lamp is so connected that it receives its correct voltage with the unit connected to either high or low voltage supply.

Fitting in Cabinet

Most installation and wiring instructions can be carried out before assembly to the motor board; when ready, the unit should be placed on the motor board so that the plastic foam damped spring mountings locate in the appropriate recesses and the transit screws go through their respective holes. When the unit is in position, press it down and turn the spring locks on the ends of the two transit screws. These should be turned through 90° so that they lie parallel to the motor board as in Diagram 6.

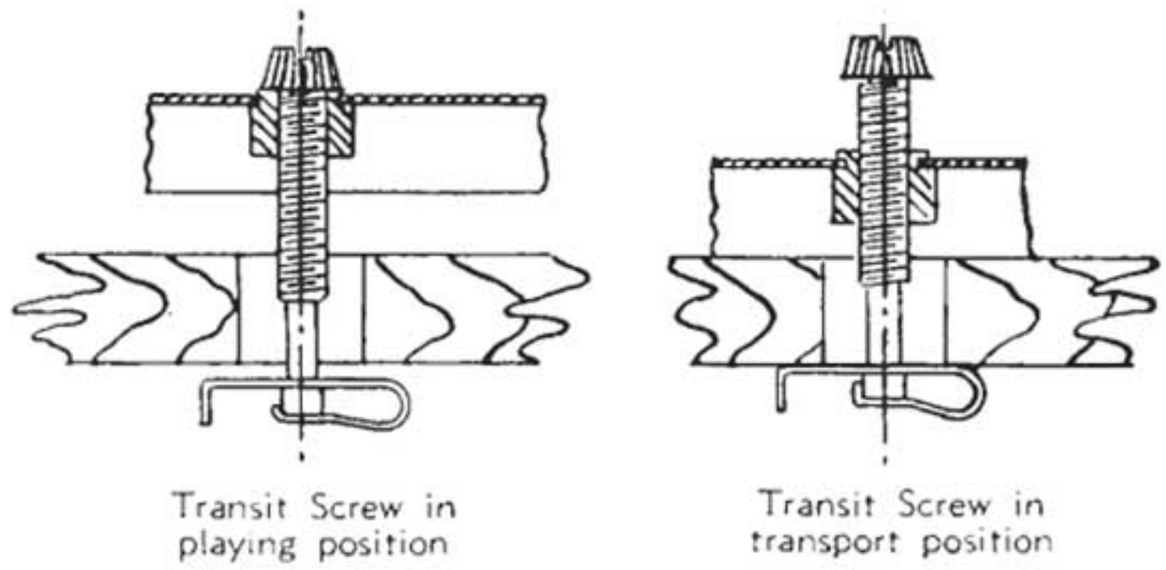


Diagram 6

Transit

In use, check that the two transit screws are screwed down clockwise and that the unit is floating freely on its suspension with the transit screw clips clear of the underside of the motor board. Before transit, screw the transit screws counterclockwise so that the unit is clamped to the motor board, as in Diagram 6.

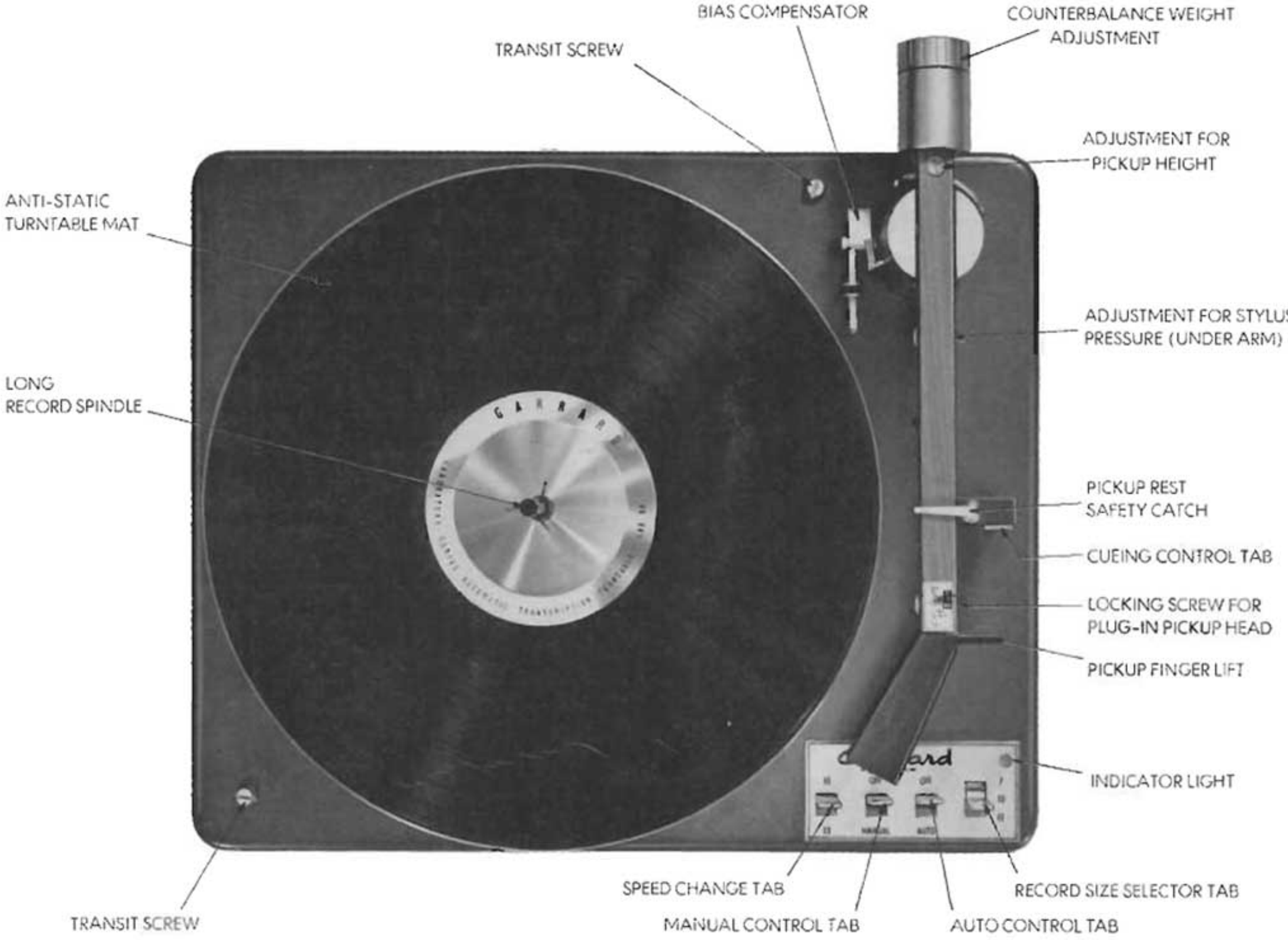


Diagram 7

Maintenance

Disconnect the power supply and protect the pickup before carrying out Maintenance.

The motor, intermediate wheel and turntable spindle bearings are of the oil retaining type and rarely need lubricating. When the need for oil is apparent, remove the turntable as instructed below, hold the rubber intermediate wheel so that it is not in contact with the motor pulley and sparingly lubricate the top motor bearing with a fine grade of machine oil. Also lubricate the intermediate wheel bearing, the bearing in the top of the turntable spindle and, occasionally, the bottom motor bearing. Remove any excess oil from the motor pulley, rubber intermediate wheel and inside the turntable rim by wiping these driving surfaces with a clean cloth. Diagrams 8 and 9 show further lubrication points and should a fuller lubrication service ever become necessary, the chart on page 8 gives the recommended lubricants.

Note: Do not lubricate the cueing mechanism.

To remove the turntable in order to gain access to the lubrication points, first take out the record spindle with the unit in its automatically switched off position, then lift off the turntable mat. Slide off the turntable retaining clip, using a small screwdriver. The turntable may now be removed by lifting it with the fingers applying equal pressure on diametrically opposite sides. Should the turntable be difficult to remove, place the short manual spindle in position and while lifting the turntable as described, have an assistant gently tap the top of the manual spindle with a piece of wood, such as the handle of a screwdriver, to free the turntable on its taper fit.

When assembling the turntable, examine its bore and the taper of the turntable spindle and clean these surfaces if dirt is present. Replace the turntable, making sure that the unit is in its automatically switched off position, so that the intermediate wheel and trip mechanism will not be damaged.

If, while the turntable is removed, the turntable spindle becomes accidentally engaged with the large cam, turn the turntable spindle clockwise by hand until the cam is disengaged at the end of its cycle.

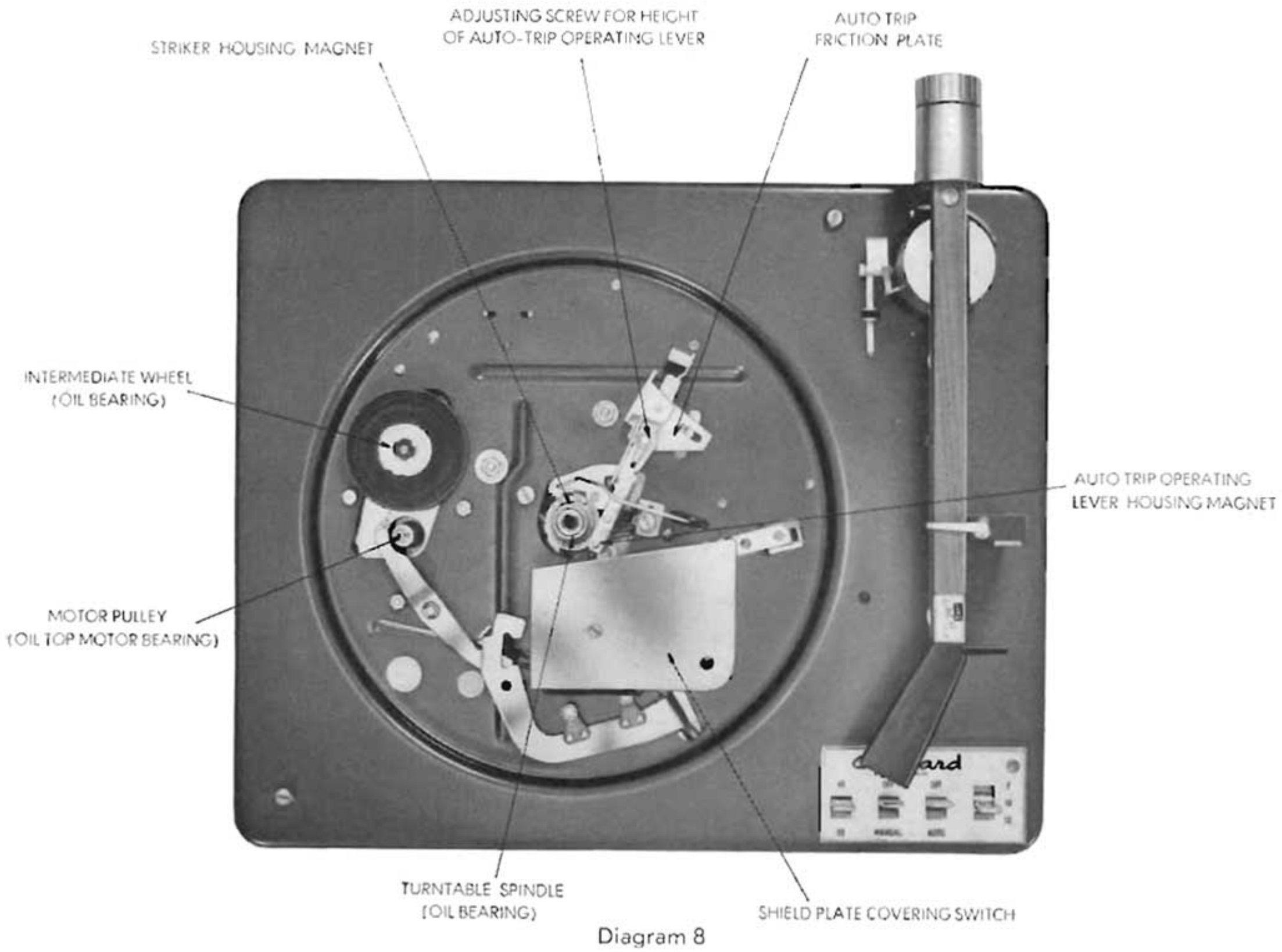


Diagram 8

Lubrication

Below is a lubrication chart for LAB.80. Lubricate pivot points such as pivot pins, spindles, rollers and spring anchors if stiffness of operation becomes noticeable. Use only fine oil, sparingly. Keep the motor pulley, rubber intermediate wheel and turntable driving surfaces free from oil and grease, also the cueing damping mechanism, the magnet housing and the friction plate of the auto trip mechanism.

Light Graphited Grease

1. Pickup lifting cam (ref. 82/27)	Working area and end of lifting spindle (not cueing bar)
2. Main cam (ref. 88)	Working surfaces
3. Release cam (ref. 56)	Cam track
4. Impulse lever (see diagram 14)	Working face
5. Cueing cam (see diagram 11)	Working face against cueing tab
6. Switch lever (with switch rollers)	All working faces including unit plate (not rollers)
7. Release lever (operated by release cam)	Side faces and pin in slot
8. Tension lever (mounted with release lever— ref 20b)	Sliding face and tension lever pin in slot
9. Slide (diagram 16)	Side slots
10. Tension arm (bar material)	Rollers bore and periphery
11. Switch off link (ref. 70)	Working faces with switch lever tail, manual links, auto link and unit plate
12. Pickup bracket platform assembly (ref. 3)	Platform bore and both bearings surfaces

Light Grease

1. Control tabs	Where linked with levers
2. Selector tab	Link pivot and pin operating indicator
3. Indicator (selector)	Sliding faces
4. Index pin and pivot collar on ball catch (diagram 12)	Working faces

Petroleum Jelly

1. Switch blades	Contact faces

Light Oil

1. Cam stud for main cam (ref. 32)
2. Cueing cam pivot (diagram 11)
3. Auto link — cam face against cueing cam pivot and side face against cueing cam
4. Manual link — slot
5. Turntable bearings
6. Motor bearings
7. Intermediate wheel bearings
8. Pickup pivots

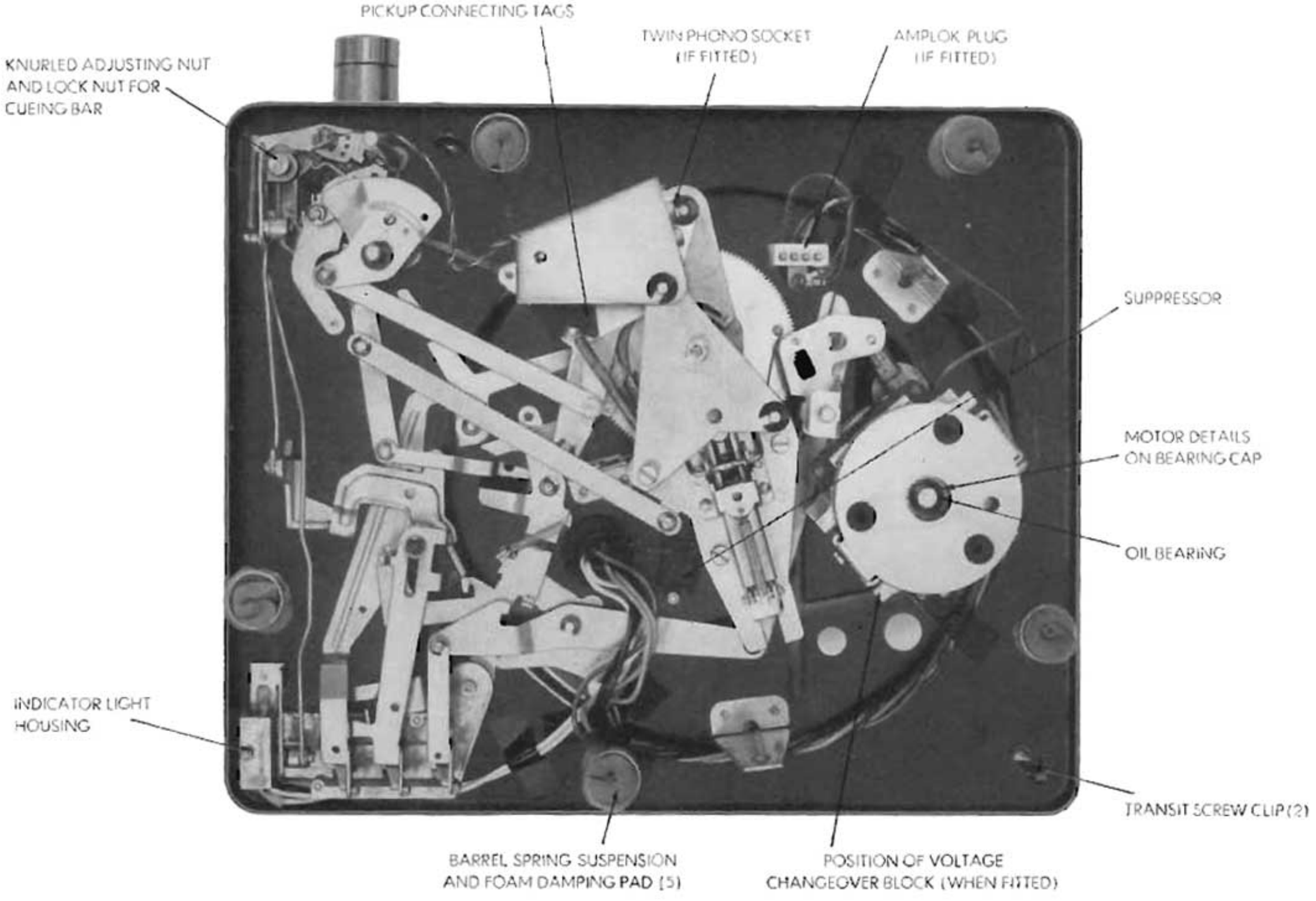


Diagram 9

Service Adjustments

Before commencing service adjustments disconnect the power supply and protect the pickup by fitting its safety guard.

Speed

The LAB.80 is designed to give the correct turntable speed within close tolerances. Should, however, the turntable run excessively fast or slow, the motor pulley may not be correct for the frequency of the power supply. These pulleys are colour finished for easy identification, nickel for 50 and brass for 60 cycles. Fit a replacement pulley if necessary. To gain access to the motor pulley, remove the turntable as described under "Maintenance", page 7.

Should the speed vary during playing, examine the motor pulley, rubber 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 and that all three screws are equally tight. See that the intermediate wheel runs in the centre of the appropriate pulley step and does not rub on the side of the adjacent step. If necessary, loosen the screws holding the pulley to the shaft and move the pulley to its correct position, then re-tighten the screws.

Motor

If the motor fails to start when the unit is switched on, check the power supply to see that the current is on. Then, with the power supply disconnected, check the motor connections. Remove the turntable and screening plate to gain access to the motor switch. See that the switch blades are clean and making good contact. If a dual voltage model, check the setting and secureness of the changeover links in the changeover block and make sure the motor is suitable for the voltage of the power supply. Motor details will be found stamped around the flange of the bottom bearing cover.

Stylus Pressure and Bias Compensator

To set the stylus pressure, looking down on the arm turn the stylus pressure adjustment screw fully clockwise so as to move the stylus pressure indicator to its zero mark (see Diagram 10). Set the pickup arm in its playing position by releasing it from its rest and squeeze the cueing release tab 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. This is achieved 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 long arm of the bias compensator carries a movable weight and the notches on this arm represent the position of the weight to correspond to the stylus pressure of the pickup. The notches represent approximately 2 to 5 grammes from the inner to outer. (Up to the first notch represents 1 to 2 grammes.) Slide the weight to the notch corresponding to the stylus pressure applied.

Pickup Dropping Position

The pickup dropping position may require adjustment if a new pickup cartridge has been fitted or an abnormal record is to be played. First protect the stylus, then swing the pickup arm in to approximately its 7″ dropping position. This gives access to the dropping position adjusting screw through the hole in the side of the pickup base. See Diagram 10. Turn this screw clockwise to move the dropping position inwards and counterclockwise to move it outwards. Alternatively, play a 7″ record automatically and stop the unit when the pickup lands on the record, then adjust by the method described. If your records have a raised rim acting as a groove guard, make sure the pickup lands inside this rim, otherwise due to the extreme freeness of the arm pivots, the pickup will accelerate down the slope and slide across the first few record grooves.

Pickup Height

The pickup height may require resetting if a new pickup cartridge has been fitted. The adjusting screw is found on the top face of the pickup arm just behind the pickup bracket. See Diagram 10. Turn the screw clockwise to raise the pickup and counterclockwise to lower it. The stylus point should be set $\frac{1}{4}$″ above one record on the turntable, as the pickup arm returns to its rest. If the pickup height-adjusting screw is hidden by the counterbalance weight, the weight will need to be screwed back before adjusting, then reset.

Cueing Device

The cueing device lifts the pickup arm by means of the cueing bar at the rear of the pickup base. With the pickup arm raised by operating the manual control tab, the height between the top of the unit plate and the top of the cueing bar should be $\frac{1}{2}$″. Adjustment can be obtained by loosening the thin lock nut and turning the knurled nut on the cueing bar extension beneath the unit plate. See Diagram 9.

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

Illuminated Indicator

The record size selector panel is illuminated from beneath the unit plate by a neon light, switched on by operating either "Manual" or "Auto" control tabs. If necessary, the lamp may be removed by loosening its clamping nut, beneath the unit plate, disconnecting its leads from the switch and sliding lamp and leads out of its casing, lamp end first.

Pickup Tracking

Should there be a tendency for the pickup to track incorrectly, check that the correct stylus is fitted and is clean and not worn. See that the pickup leads allow the arm complete freedom of movement. Make sure the stylus pressure is that recommended by the cartridge manufacturer and that the bias compensator is set to correspond to the stylus pressure. Also check that the cueing bar is not rubbing the link at the rear of the pickup arm. Adjust the bar if necessary.

Pickup Muting Switch

This switch short circuits both channels of the pickup connections while the changing mechanism is in action. If faulty, check that its switch blades function properly and that it is actuated correctly by the mechanism.

Auto Trip

A sensitive, magnetic repulsion auto trip completely eliminates mechanical contact between the striker and trip lever prior to tripping and features a special plastic friction plate, making the load on the arm virtually immeasurable. The auto trip mechanism is actuated by the accelerated movement of the pickup arm as it reaches the lead-out groove in the centre of the record and is completely disconnected from the pickup arm after tripping. It is set to commence operation when the stylus reaches a radius of $2\frac{7}{8}$" from the centre. Should the trip continually fail to operate, thus leaving the pickup running in the centre of a record, remove the turntable as described under "Maintenance" on page 7 and adjust the height of the auto trip operating lever as follows:— Turn the adjusting screw shown in Diagram 13 to raise or lower the operating lever, enabling it to be raised by the striker when the pickup movement accelerates. Also check that the face of plastic friction plate, Diagram 13, is clean and free from oil and dust.

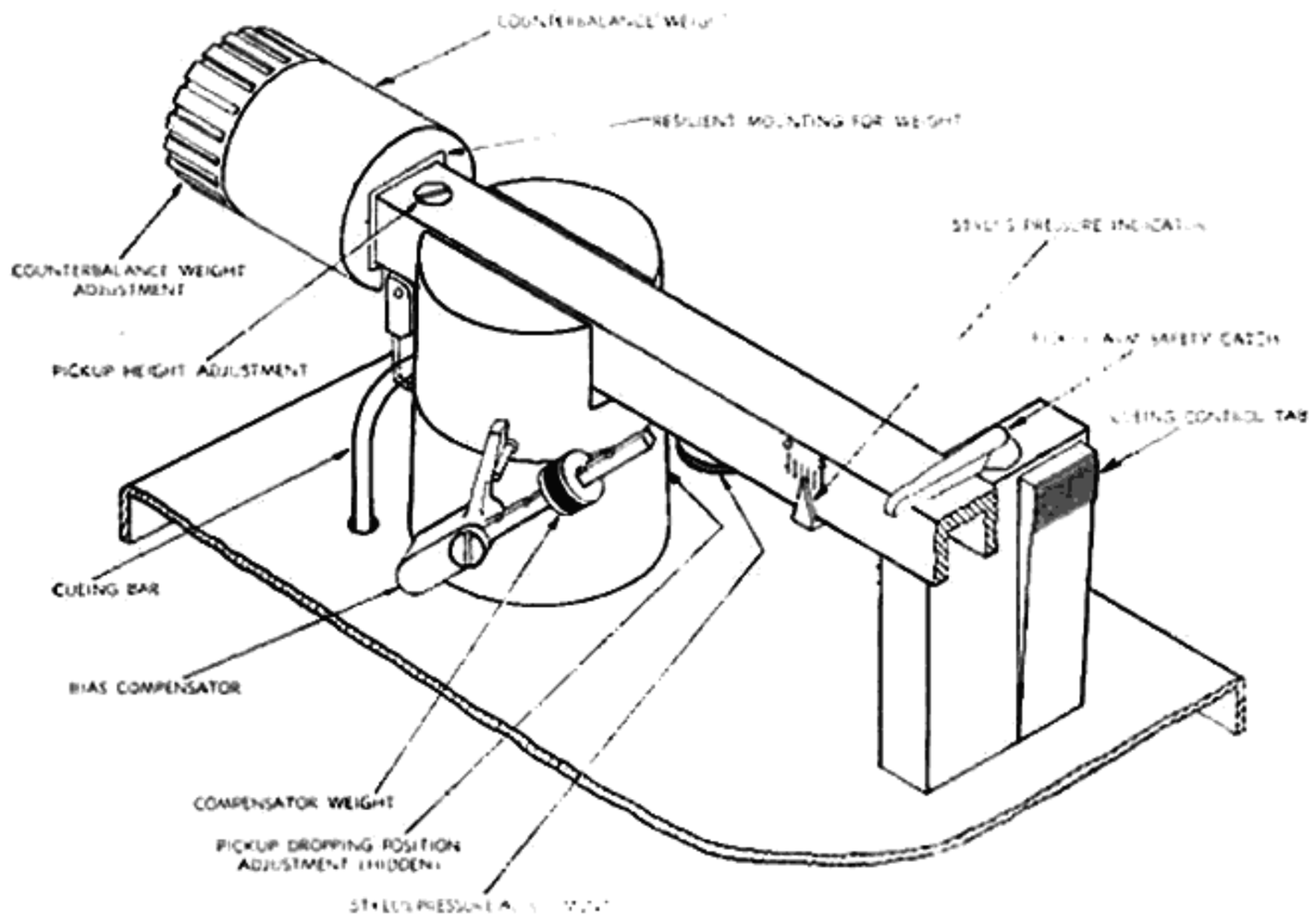


Diagram 10

FAULT CHART

FAULT	CAUSE	CORRECTION
Pickup does not follow a vertical path when released on to record by cueing control tab.	1. Bias compensator setting wrong.	Make sure this setting corresponds to the stylus pressure of the pickup.
	2. Loose cueing bar or sleeve.	If these items are loose in their housing, replace them.
	3. Pickup arm hook damaged.	Check that the hook on the rear of the pickup arm will swing freely and is not jammed or bent out of line at its pivot. Correct it if necessary. Note that the bend in the hook which contacts the underside of the bar when cueing, has a special form which should not be altered.
	4. Tight pickup leads.	See under 'Pickup repeats in record groove' Cause 4 (page 14).
	5. Pickup arm cross pivots loose.	Make sure the two cross pivots are screwed in to their stop positions. Check that the pickup arm is satisfactorily spring loaded in the pivots, by carefully exerting a slight side pressure on the arm where it lies in the pickup bracket channel. When pushed against the outer side of the pickup bracket channel, the arm should readily spring back to its normal position.
Pickup lowers too quickly on record when cueing.	1. Stylus pressure excessive.	Check stylus pressure. See 'Service Adjustments', page 9.
	2. Damping fluid needs recharging.	Garrard damping fluid (Part No. 71724) should be applied only to the cueing sleeve. Do not use any other form of lubricant. The best way to expose the cueing sleeve is as follows:— 1. Set the record selector tab to the 12″ position. 2. Take off the spring clip and washer which hold the lifting lever to the pickup base casting. See Diagram 11. 3. Partially push the lifting lever out of its location in the pickup base casting. 4. Swing the hook on the pickup arm clear of the cueing bar. 5. Operate the manual control tab. 6. Press the cueing bar down as far as it will go. Provided the lifting lever has been given enough clearance, when the cueing bar is depressed, the cueing sleeve will be exposed and a spot of damping fluid can be applied using a matchstick. When the cueing bar is raised again to set the cueing sleeve back in its housing, wipe off any excess damping fluid from around the pickup base casting.
	3. Cueing lifting spring too strong.	Replace the lifting spring on the cueing bar assembly, shown in Diagram 11.
Pickup lowers too slowly on record when cueing.	1. Lifting spring weak.	Check that the lifting spring on the cueing bar extension is in compression when the cueing control tab is pressed. See Diagram 11.
	2. Excessive damping fluid.	Clean off excessive damping fluid from around the cueing sleeve. Make sure lifting spring and cueing bar are free of excess damping fluid. See Diagram 11.

FAULT	CAUSE	CORRECTION
Pickup lands on record and jumps first few grooves.	1. Stylus pressure too light.	Check stylus pressure. See 'Service Adjustments', page 9.
	2. Worn or wrong size stylus.	Check that the stylus is correct for the type of record being played. Examine the stylus under a magnifying glass and replace if chipped or worn.
	3. Bias compensator set incorrectly.	Set the bias compensator to suit the pickup stylus pressure.
	4. Pickup leads not free.	See under 'Pickup repeats in record groove', Cause 4 (page 14).
	5. Groove guard on record.	Some records are made with a raised rim around the edge of the record to guard the record surface. If the stylus drops on the top edge of this rim, it may jump across the first few record grooves. Therefore set the pickup dropping position (see 'Service Adjustments', page 9) so that the stylus lands inside the raised rim.
Pickup does not lower on to record.	1. Stylus pressure too light.	Check stylus pressure. See 'Service Adjustments', page 9.
	2. Lifting spindle sticking (the pickup arm pivots about the lifting spindle).	Check that the lifting spindle follows the lifting cam; make sure its compression spring is efficient. Lubricate the lifting spindle beneath the unit if necessary and grease the lifting cam. See Lubrication Chart, page 8.
	3. Lifting spindle return spring not central.	Make sure that the compression spring on the lifting spindle is not causing it to jam:— Centralise the spring around the spindle if necessary and check that when pushed up with a finger, the lifting spindle returns under spring pressure.
	4. Pickup arm cross pivot not free.	Move the pickup arm to check its vertical movement for freeness. If stiff, take out the two screws of the cross pivot and examine the cone bearings. Also examine the ball races in the arm, one of which is spring loaded; take care not to strain the pickup leads and stylus pressure spring. Clean and re-oil the bearings if necessary.
	5. Cueing not adjusted correctly.	First, if playing records manually, check that the cueing control tab has been pressed. Then see 'Cueing Device' under 'Service Adjustments', page 9. Make sure the hook at the rear of the pickup arm does not touch the cueing bar when playing. Check the linkage of the cueing mechanism, shown in Diagram 11.
Pickup begins to lower, then swings in.	1. Lubrication.	Grease the face of the lifting cam which raises the pickup arm lifting spindle and oil the roller pin on the lifting cam. Also grease the edge of the pickup lever which the roller contacts to move the pickup arm outwards. Make sure the lifting spindle moves up and down freely and is free of damping fluid.
	2. Excessive play in pickup arm horizontal movement pivot.	The end play in this vertically mounted pivot should not exceed .005". If excessive, loosen the screw clamping the pickup lever to the pickup spindle and reposition the pickup lever to cut down end play but leave the pickup arm perfectly free. Take care not to lose any of the 15 $\frac{1}{16}$" dia. ball bearings from their seating when making this adjustment.

FAULT	CAUSE	CORRECTION
Pickup will not remain on its rest.	1. Pickup leads tight or guide clip fouling.	See under 'Pickup repeats in record groove', Cause 4 (page 14). Check that the pickup lead guide clip is not rubbing the pickup base casting. Bend it clear if necessary.
Pickup does not track.	1. Levers not clearing.	Make sure that the roller on the end of the pickup lever is not fouling the switch off lever above it. Bend clear if necessary. Also check that the plastic cap at the bottom of the lifting spindle clears the lifting cam when a record is playing. If it does not, check that the appropriate lifting spindle retaining clip is in position and that the lifting cam is not damaged.
	2. Stylus pressure too light.	Check stylus pressure. See 'Service Adjustments', page 9.
	3. Bias compensator setting wrong.	Make sure this setting corresponds to the pickup stylus pressure.
	4. Pickup arm horizontal movement pivot tight.	Adjust as described in 'Pickup begins to lower, then swings in', Cause 2, page 12, but this time increase end play slightly.
	5. Pickup leads tight.	See under 'Pickup repeats in record groove', Cause 4 (page 14).
	6. Cueing not adjusted correctly.	See under 'Pickup does not lower on to record', Cause 5 (page 12). Check the linkage of the cueing mechanism, shown in Diagram 11.

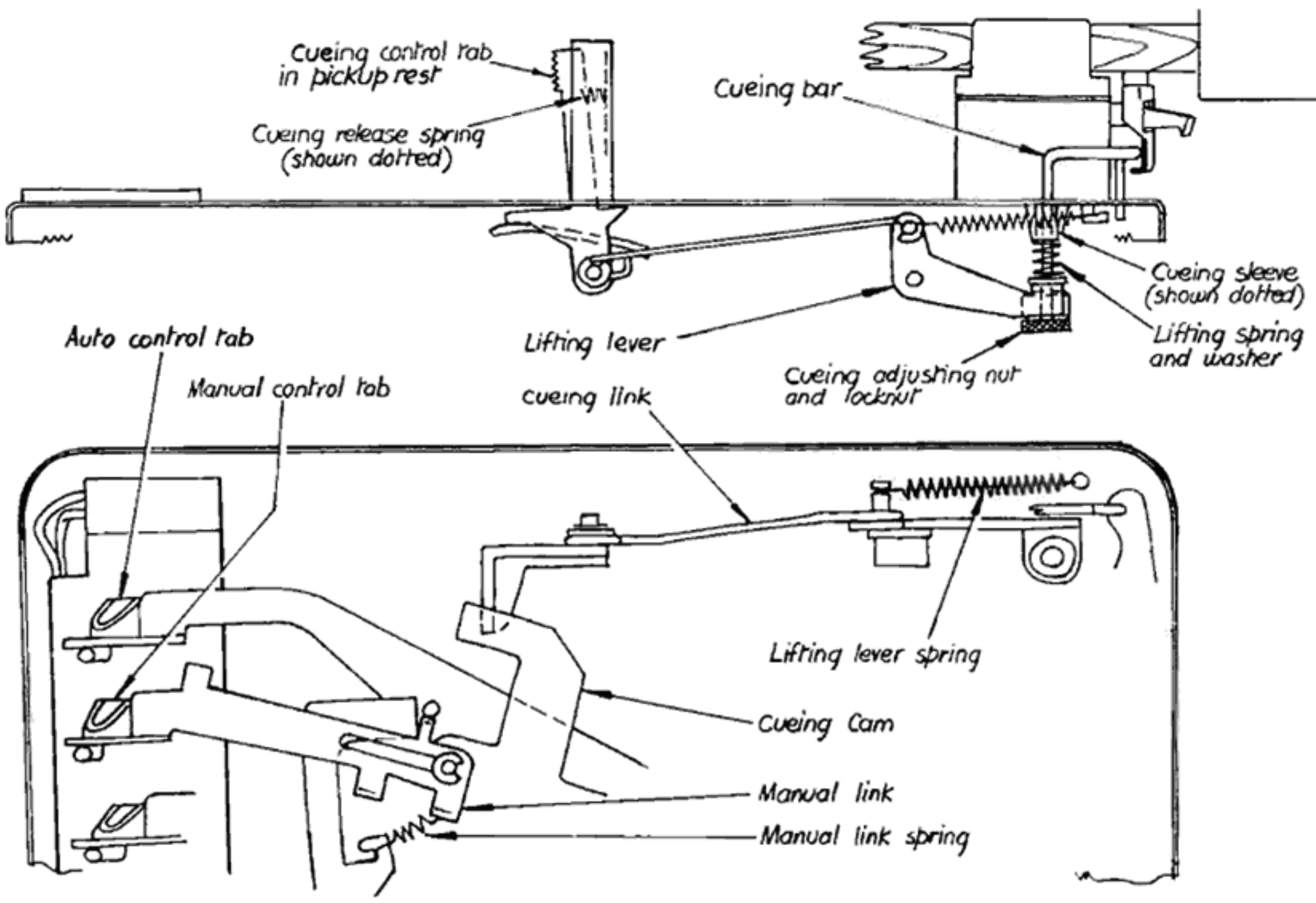


Diagram 11. Cueing mechanism

FAULT	CAUSE	CORRECTION
Pickup repeats in record groove when nearing centre of record.	1. Worn stylus.	Check stylus for wear, replace if worn. If when examined microscopically, the stylus is worn, chipped or broken off, replace it.
	2. Stylus pressure too light.	Check stylus pressure (see 'Service Adjustments', page 9), and if necessary set to that recommended by the pickup cartridge manufacturer.
	3. Bias compensator setting incorrect.	Check that the bias compensator setting corresponds to the stylus pressure applied.
	4. Pickup leads strained tight or not in the guide clip.	Make sure that the leads from the pickup arm are not strained or rubbing any mechanism as the pickup arm moves. As a simple check use the hole in the side of the pickup base, which gives access to the pickup dropping position adjusting screw, to see that the pickup leads are not drawn tight. Also check that the pickup leads are held in their guide clip beneath the unit plate. Adjust their position if necessary, making sure that the pickup leads from guide clip to muting switch are slack but not touching the mechanism.
	5. Operating lever incorrectly set.	See Cause 3 under 'Pickup remains in centre of record' (page 15).
	6. Levers not free.	Check the freeness of the auto trip levers and pickup arm by moving the arm slowly inwards by hand as if playing a record. Should any stiffness be felt, carefully check all associated levers for freeness and see that their movement is not obstructed by leads.
	7. Pickup arm touches cabinet.	Make sure that the pickup arm counterbalance weight clears the side of the cabinet in all positions of the arm, allowing free movement of the unit on its suspension springs.
Switches off without playing a record.	1. Eccentric screw in switch-off link out of adjustment.	See under 'Fails to switch off when last record has played'. Cause 3 (page 16).
Rejects record instead of playing.	1. Tight 'Auto' control tab or associated lever.	Make sure that the 'Auto' control tab moves freely and that its associated levers are not tight or have disconnected springs.
Pickup consistently lands too far in or out.	1. Dropping position requires adjustment.	If the pickup lands within $\frac{1}{4}$" of its correct position, adjust its dropping position as described under 'Service Adjustments', page 9).
	2. Selector link bent out of position.	See under 'Pickup lands for wrong diameter of record'.
Pickup stays on rest instead of selecting record.	1. Spring disconnected.	Make sure that the spring from the inter selector lever to the pickup base casting is in place. See Diagram 12.
Pickup lands for wrong diameter of record.	1. Selector link bent out of position.	The long selector link rod may be bent out of position. To check, select the 12" record position with the control tab and compare the position of the selector lever and inter selector lever with Diagram 12. If necessary bend the selector link so that the selector lever is positioned correctly. Make sure that the selector link clears adjacent mechanism.

FAULT	CAUSE	CORRECTION
Erratic selection of records.	1. Damaged spring.	Make sure that the spring from the inter selector lever to the pickup base casting is not damaged or overstretched.
	2. Lubrication.	Lubricate with light machine oil the pivots of levers associated with the selector mechanism.

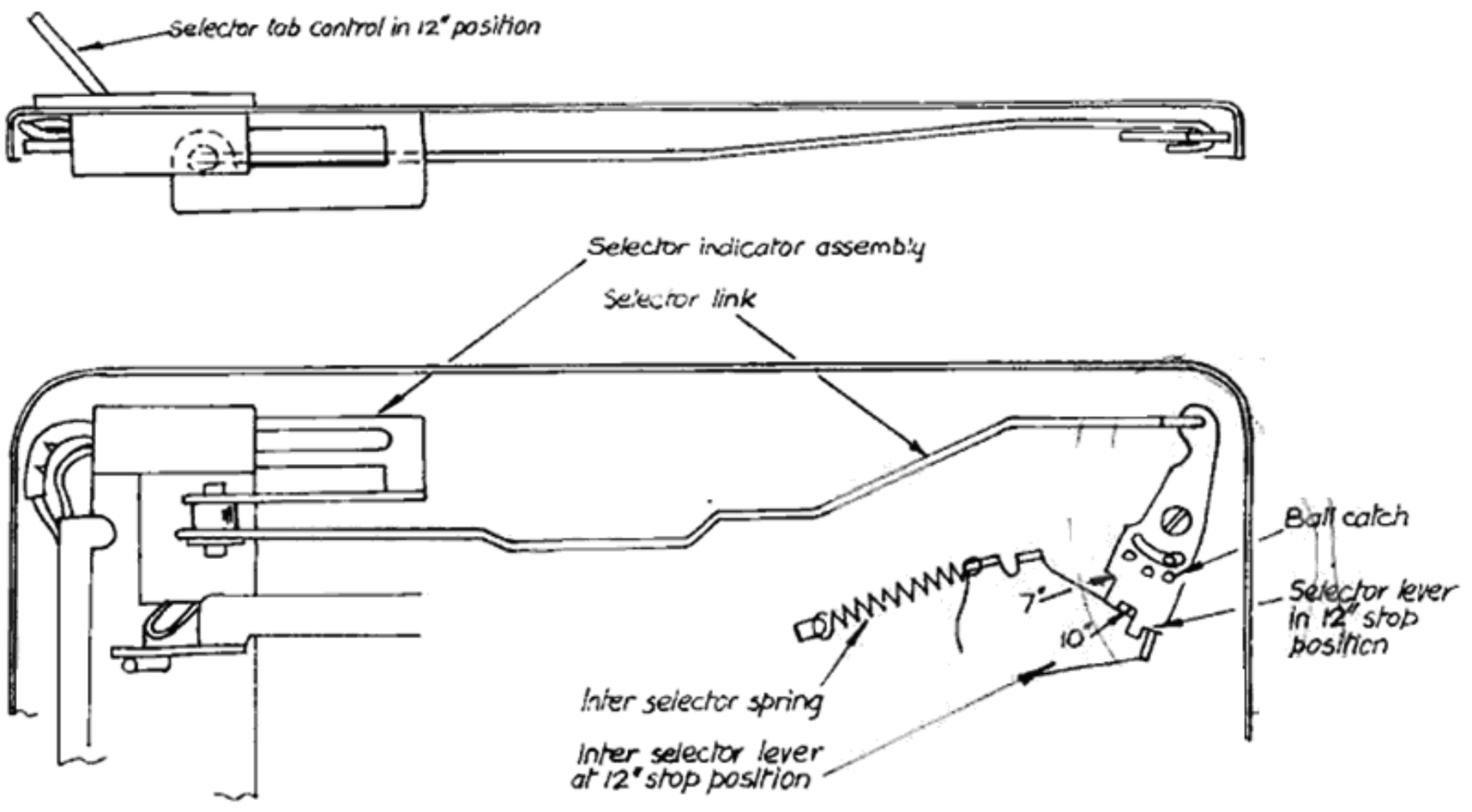


Diagram 12. Selector mechanism

Pickup remains in centre of record.	1. No lead out groove on record.	Check that the record has a lead out groove. If not 'reject' the record when it has played, using the 'Auto' tab control.
	2. Pitch of record lead out groove less than $\frac{3}{32}$".	The auto trip is designed to operate on records made to B.S.1928:1965 and I.E.C. Publication 98 and similar standards. If a non standard record is played, the pickup may not be accelerated enough to operate the trip. Therefore 'reject' the record when it has played, using the 'Auto' tab control.
	3. Operating lever height incorrect.	Remove the turntable (see 'Maintenance', page 7) and check that when the operating lever pivots towards the turntable centre, the underside of its magnet holder engages the striker on the turntable spindle about $\frac{1}{3}$ of the way up the cam face of the striker. This setting should leave a slight gap between the top of the operating lever and the underside of the stop lever when the stop lever is in the position which prevents the large gear from meshing with the turntable spindle. To adjust the operating lever height turn its adjusting screw clockwise to raise and counterclockwise to lower. See Diagram 13.
	4. Operating lever not free.	Make sure that the operating lever pivots freely and will lift sufficiently to trip the stop lever, see Diagram 13. Check that the friction plate is clean of oil and grease and is not scratched on its working face.

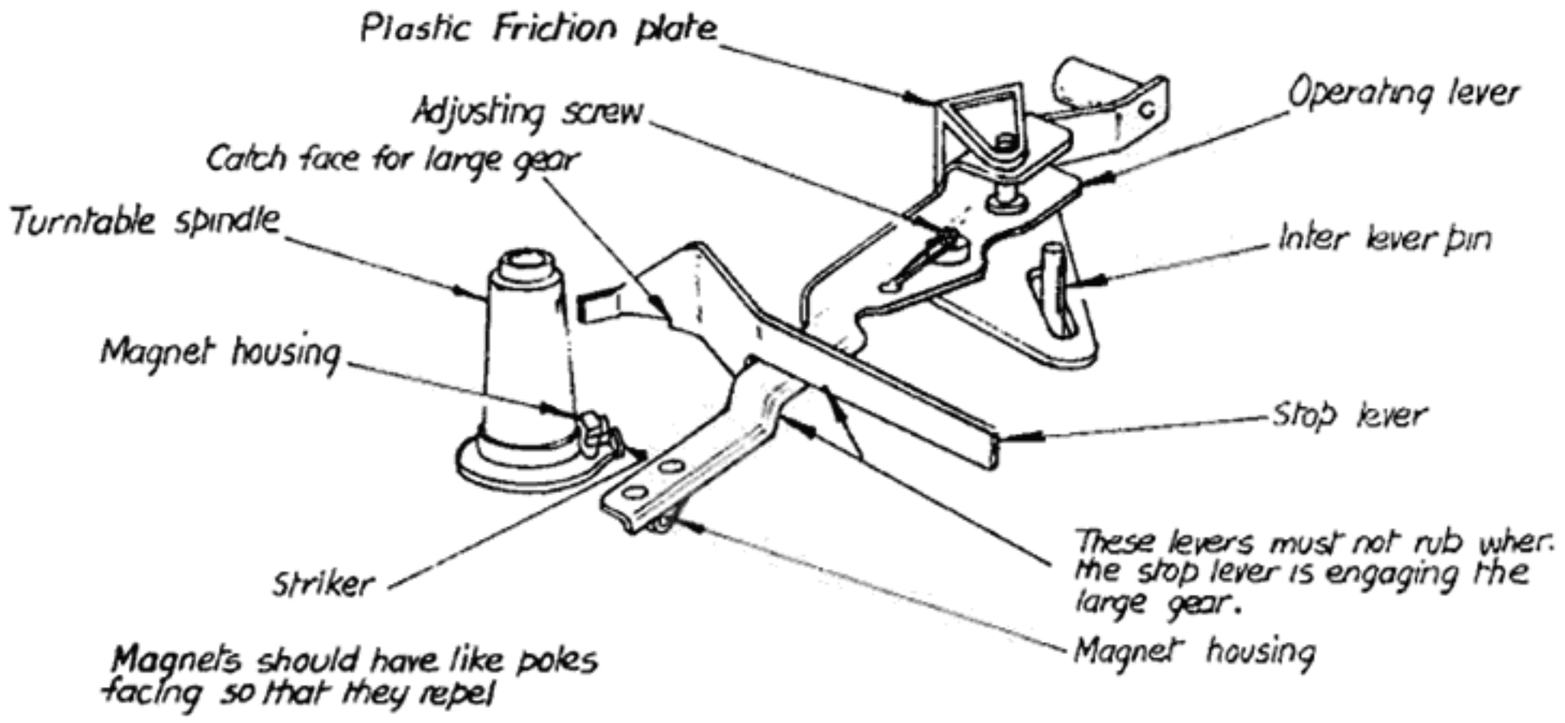


Diagram 13. Auto trip mechanism

FAULT	CAUSE	CORRECTION
Fails to switch off when last record has played.	1. Lubrication required.	Lubricate the bearing faces of all pins and levers associated with the movement of the switch, using light machine oil.
	2. Levers out of position.	Take unit through 'Auto' cycle, revolving turntable by hand. Watch the linkage from the record spindle mechanism to the switch lever and free any jammed levers. With no record on the record spindle the switch off mechanism should position the stop link so that the impulse lever strikes it at the appropriate point in the cycle. Make sure the tail of the stop link is square. See Diagram 14.
	3. Eccentric screw in switch-off link out of adjustment.	When on a switch off cycle, the switch-off lever is positioned as a stop for the inter selector lever, preventing the pickup arm from swinging in, also the stop link is positioned to activate the switch off. If the eccentric screw in the switch-off link is set wrong, the switch-off lever and stop link will be positioned incorrectly. Therefore adjust the eccentric screw shown in Diagram 14.
	4. Excessive friction on switch-off lever.	If the friction on the switch-off lever is greater than the spring force in the record spindle mechanism, the switch-off lever and stop link may not be pushed to their switch-off positions after the last record has played. If this is the case, turn the brass adjusting screw in the switch-off lever clockwise viewed from underneath the unit, to reduce friction. See Diagram 14.

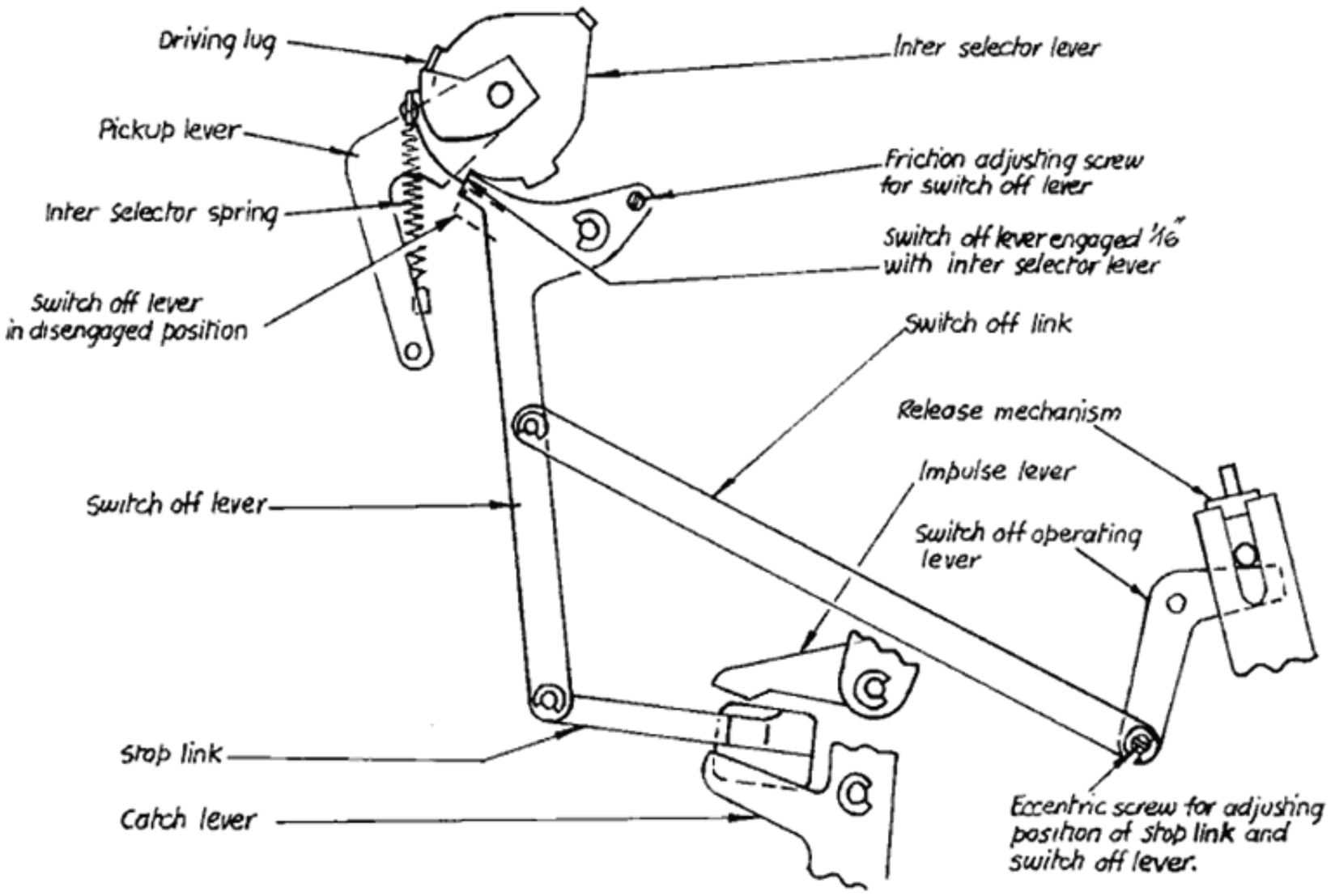


Diagram 14. Switch off mechanism

FAULT	CAUSE	CORRECTION
Records do not drop.	1. Non standard records.	Records conforming to B.S.1928:1965 and I.E.C. Publication 98 and similar standards, should play satisfactorily on these units. Records with oversize centre holes or over .090" thick around the centre hole may fail to drop. Remove label flash from new records, if obstructing hole.
	2. Automatic record spindle not positioned correctly.	Make sure the record spindle is seated down firmly in its location, especially if there are records already on the turntable when it is fitted.
	3. Damaged record spindle.	Make sure the three latches are not bent and are free in the spindle. Check that the brass extension at the bottom of the spindle is not bent and jamming the mechanism. If badly bent, replace the record spindle. Also check that the bottom of the record spindle stem has not closed on the pin and slot. See Diagram 15.
	4. Adjusting nut set wrong.	A black plastic cap normally covers the brass adjusting nut. If the nut is loose, reset it to the dimension shown in Diagram 15 and tighten its lock nut. Do not alter the adjusting nut if it is not loose.
	5. Faulty automatic record spindle.	Grip the record spindle stem in one hand and pull down the inner support with the other hand. The latches should fold into the record spindle stem and come out to their full extent when released. If they do not and other faults have been eliminated, replace the record spindle.

FAULT	CAUSE	CORRECTION
Two or more records drop together.	1. Non standard records.	Records conforming to B.S.1928:1965 and I.E.C. Publication 98 and similar standards, should play satisfactorily on these units. If records less than .053″ thick around centre holes are played, then two may drop together.
	2. Adjusting nut set incorrectly.	If the adjusting nut is loose, its setting may be incorrect causing a faulty action of the pawl. See under 'Records do not drop', Cause 4 (page 17). Do not alter the adjusting nut if it is not loose.
	3. Faulty automatic record spindle.	Grip the record spindle stem in one hand and pull down the brass adjusting nut with the other hand. The pawl should swing out and down as shown in Diagram 15, and return into the record spindle stem when released. In play, the pawl should hold the record stack when the bottom record is released. If the pawl action is faulty, replace the record spindle.

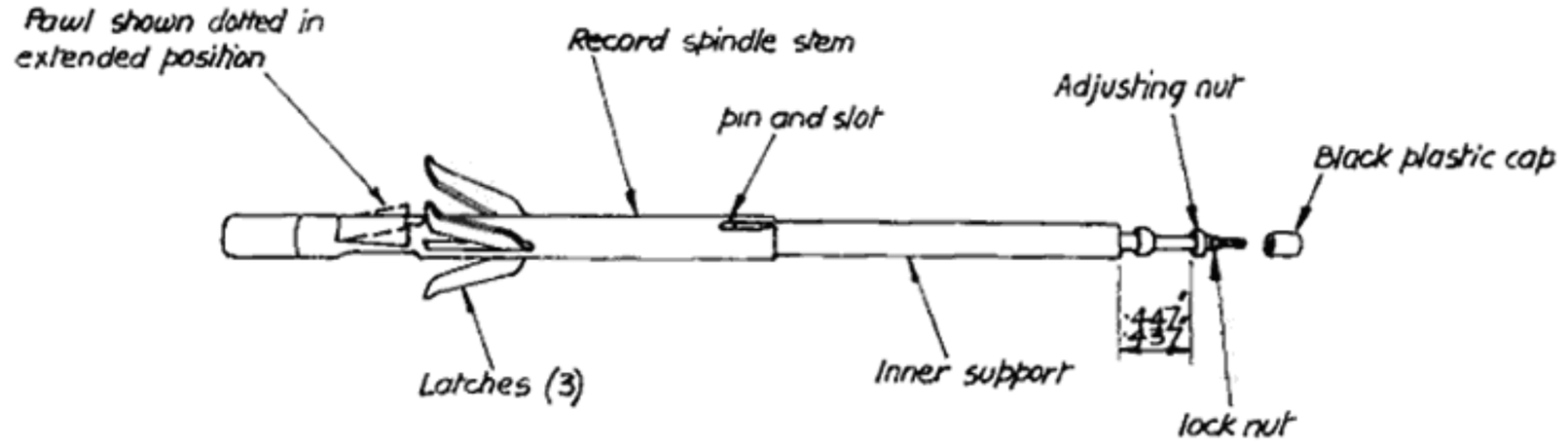


Diagram 15. Automatic record spindle

Record spindle will not locate correctly or cannot be removed from its location.	1. Release mechanism stiff or spring disconnected.	Lubricate the release mechanism so that it slides freely. Make sure the tension spring from the bottom of the release mechanism to the plastic slide attached to the release lever, is in place and acts positively. See Diagram 16. Do not attempt to remove the record spindle during a record change cycle or with the unit stopped during such a cycle.

FAULT	CAUSE	CORRECTION
Turntable runs excessively fast or slow (see also 'Motor runs slow', page 22).	1. Incorrect size motor pulley.	Remove turntable (see 'Maintenance', page 7) and check the motor pulley colour finish. It should be nickel plated for 50 cycle and brass for 60 cycle power supply. Replace it if incorrect. Quote model type and frequency of power supply when ordering a spare pulley.
	2. Voltage range of motor set incorrectly.	If a dual voltage range model, disconnect the power supply and check that the connections inside the voltage changeover block are as shown on the block cover, corresponding to the voltage of the power supply. Check that the links are tight and making good contact. If a single voltage range model, make sure that the voltage supply corresponds to the details stamped around the flange of the bottom bearing cover of the motor.
Speed slightly fast or slow.	1. Pulley size.	If the turntable fails to run within reasonable limits even after following the preceding instructions, time the speed of the turntable with a watch while playing a record. Remove the turntable (see 'Maintenance', page 7) and slide the pulley from the rotor spindle after loosening its three locking screws. Send this pulley, stating model type and turntable speed, to our Technical Service Department and your pulley will be replaced by one to give the correct speed.
Speed varies erratically.	1. Oil on driving surfaces.	Remove turntable and clean driving surfaces (see 'Maintenance', page 7).
	2. Loose motor pulley.	The three small screws holding the motor pulley to the rotor shaft should be equally tight. Check that the motor pulley is in its correct position as described below before tightening the screws with equal pressure.
	3. Motor pulley out of position.	The motor pulley should be pushed down normally to its stop position on the rotor shaft so that when in contact with the rubber intermediate wheel, there is a small gap between the lower face of the rubber intermediate wheel and the face of the pulley step beneath it, whether playing at 33 or 45 r.p.m. The three pulley screws should be tightened with equal pressure if the pulley needs to be repositioned.
	4. Rotor shaft tight.	If the rotor shaft of the motor is tight in its bearings it will not spin freely when spun with the fingers. This may be caused by the use of too heavy a lubricating oil, or the motor bearings may be out of alignment. See Causes 1 and 2 under 'Motor runs slow' (page 22).
	5. Tight bearings in rubber intermediate wheel.	When spun with the fingers, the rubber intermediate wheel should spin freely. If not, remove it, clean its spindle, lubricate it with light machine oil and reassemble.
	6. Warped records slipping.	Warped records may slip if placed one on top of another. This may be overcome by sticking a small strip of adhesive tape on the offending record labels.

FAULT	CAUSE	CORRECTION
Speed varies consistently (Wow and Flutter).	1. Dirt on inside of turntable rim.	Remove turntable (see 'Maintenance', page 7) and clean inside of turntable rim with a clean cloth.
	2. Tight turntable spindle.	Revolve the turntable clockwise by hand without engaging the record change mechanism, it should run freely. If rough and sticky, take off the turntable and carefully remove the wire spring clip from the turntable spindle to slide the tapered turntable spindle sleeve from the turntable fixed spindle. Clean the turntable spindle bearings and fixed spindle and re-oil them before replacing. Take care not to lose any of the thrust ball bearings at the base of the fixed spindle during cleaning. **Note:** The best way to remove the wire spring clip is to push one side of the spring clip against the fixed spindle, whilst hooking the other side of the spring clip from its groove location, using a small screwdriver.
	3. Turntable thrust bearings tight or dirty.	If the turntable is still sticky after examining the turntable spindle bearings it may be that the thrust bearings are dirty. To thoroughly clean the thrust bearings, the turntable spindle and release mechanism assembly should be removed from the unit. See Diagram 16. First, unfasten the muting switch shield plate, then unfasten and remove the triangular support plate which is held by one circlip, one screw, spring washer and spacer, and one nut and washer. Now unhook the spring from the muting switch peg to the release mechanism and disconnect the long switch-off link attached to the release mechanism by a circlip. Remove the switch cover and unscrew three screws in the top of the unit plate to withdraw the turntable spindle and release mechanism as one unit. This unit should be cleaned and re-oiled, or dismantled as described under Cause 2 to examine the thrust bearings. See Diagram 16.
	4. Flats on rubber intermediate wheel.	Slight indentations may be removed by running the unit continuously for a few hours. If this does not suffice, fit a new rubber intermediate wheel. Avoid flats by allowing the unit to switch off automatically, if the power point is used as a switch, the mechanism may remain in engagement, forming a flat on the rubber intermediate wheel.
	5. Loose motor pulley.	See 'Speed varies erratically', Cause 2 (page 19).
	6. Bent shaft or unbalanced rotor.	Should the rotor shaft, with pulley removed, be more than .0005" out of truth or the motor vibrates badly, the rotor and shaft assembly should be replaced. The rotor and shaft are integral and no attempt should be made to separate them.

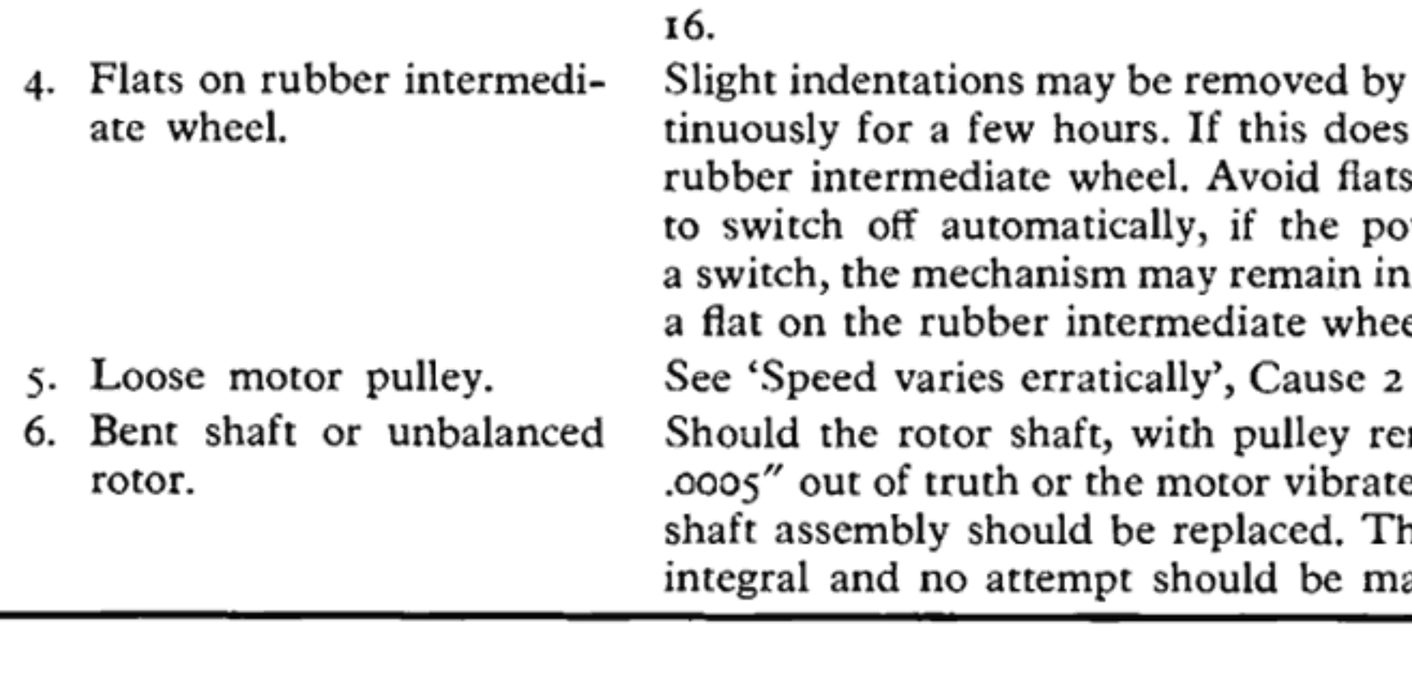
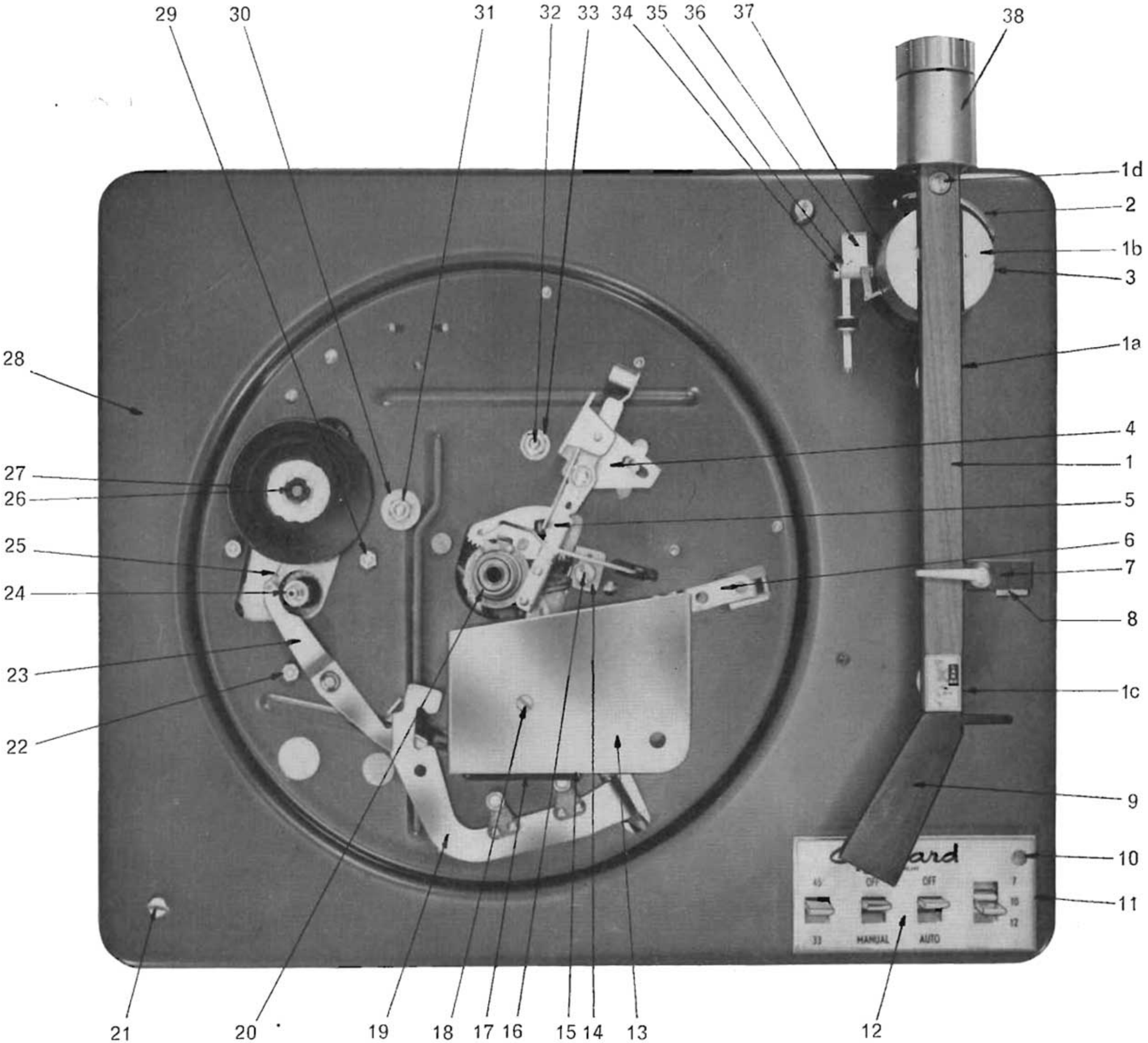


Diagram 16. Turntable spindle and release mechanism

FAULT	CAUSE	CORRECTION
Turntable does not revolve when motor is running.	1. Oil on driving surfaces.	Remove turntable and clean driving surfaces (see 'Maintenance', page 7).
	2. Intermediate wheel bracket not free.	Check that the rubber intermediate wheel swings freely on its support bracket, engaging firmly with the motor pulley when switching on and retracting freely when switching off. Examine and lubricate the pivots of this pressed steel support bracket, also the pivot of the cast bracket holding the intermediate wheel; use light machine oil. Check that the motor leads are not touching the intermediate wheel support bracket.
	3. Intermediate wheel spring not functioning.	Check that the spring from the intermediate wheel bracket is connected to the tension lever above the unit plate. With the turntable removed, switch to 'Manual' and see that the spring goes into tension. If it does not, it has been overstretched and should be replaced.
Speed change control tight to operate.	1. Linkage damaged.	Check the linkage from the speed change control tab to the intermediate wheel support bracket and make sure the levers pivot freely. **Note:** The speed change levers are interlocked and cannot be operated whilst the unit is playing.
	2. Lubrication required.	Lubricate with light machine oil the linkage pivots, and grease the speed change cam and the spindle of the intermediate wheel support bracket.
Mechanical noise.	1. Lack of lubrication.	Lubricate all bearings, cam faces and pivot pins as described under 'Maintenance', page 7.
	2. Flats or dirt on rubber intermediate wheel.	See under 'Speed varies consistently — Wow and Flutter', Cause 4 (page 20). If the rubber intermediate wheel is dirty, clean it with a cloth or in bad cases carefully scrape the driving surface with a penknife, without damaging the rubber. Also clean inside the turntable rim.
	3. Loose lever.	Eliminate buzz or chattering noise by checking each lever in turn, damping it with a finger. A spot of light oil on pivots and points of contact should remedy the trouble when the offending lever is found.
Rumble.	1. Lack of lubrication.	Lubricate the bearings as described under 'Maintenance'. It may be that the turntable thrust bearings need cleaning. If so, follow 'Speed varies consistently — Wow and Flutter', Cause 3 (page 20).
	2. Motor mountings.	Make sure the rubber ball mountings cradling the motor are located properly. After years of use these mountings may lose some of their resilience and cause rumble, if so, replace them.
	3. Faulty suspensions.	Check that the spring mountings suspend the complete unit free of the cabinet surround and that the damping pads are in place. See that the motor is free in its suspensions and not affected by the attachment of a heavy power supply cable.
	4. Rubber intermediate wheel perished or dirty.	Should the rubber intermediate wheel have hardened, showing cracks on its surface, replace it. If the wheel is dirty, clean it with a cloth or carefully scrape the driving surface with a penknife to remove impregnated dirt.

FAULT	CAUSE	CORRECTION
	5. Motor pulley height incorrect.	See 'Speed varies erratically', Cause 3 (page 19).
	6. Out of true motor pulley or bent rotor shaft.	Check that the three pulley fixing screws are equally tightened. Should the truth of the rotor shaft be suspected, a new rotor assembly should be fitted.
	7. Excessive tension on rubber intermediate wheel spring.	Stretch this spring slightly to reduce tension. Fit a new spring however, if the wheel is not held in engagement.
	8. Incorrect pickup match with amplifier.	Make sure that the pickup matching circuit is to manufacturer's recommendations.
Motor will not start.	1. No power supply.	Check that the current is reaching the motor by applying a test lamp or voltmeter to the terminals inside the switch.
	2. Loose connections.	Disconnect power supply and examine all connections to make sure of good electrical contact. If a dual voltage model, check that the voltage changeover links are tight on their studs. Scrape any tarnish causing bad contact from the studs. See the links are set to the correct voltage as shown on the changeover block cover.
	3. Bad switch contact.	Disconnect power supply and with switch cover removed, check that the leads are securely soldered, contacts are clean and make with rollers on switching on. Clean contact blades and rollers and adjust if necessary by bending the blades.
	4. Open circuit coils.	Check coils for continuity. Total resistance for low voltage range should be 136 ohms approximately at 21°C, and for dual range should be 410 ohms approximately, per coil at 21°C. If continuity check is not satisfactory, disconnect power supply and motor leads, noting their connections, particularly for a dual voltage model. Remove turntable to gain access to motor fixing nuts, and withdraw motor. Dismantle the motor and tap out the two pins locating the pole piece on which the coil is assembled; remove faulty coil and replace it with a spare. On low voltage range models, the coils are linked together and if either is faulty, a new pair should be fitted.
Motor runs slow.	1. Motor lubrication.	With the power supply switched off the rotor shaft should spin freely by hand. If not a too thick or congealed oil may have been used. Dismantle the motor and clean bearings and rotor shaft. Lubricate with thin machine oil and reassemble.
	2. Motor bearings out of line.	If rotor shaft will not spin freely although properly lubricated, tap the body of the motor with a piece of wood, such as a screwdriver handle, to shock the self aligning bearings into line and free the rotor shaft. Should a faulty bearing or ineffective retaining spring be found, replace cover assembly containing the bearing.
	3. Coils incorrectly polarity.	The polarity of the poles on which the coils are assembled should be the same. If the motor runs slowly, check polarity and if necessary change over the leads to one coil.

FAULT	CAUSE	CORRECTION
	4. Coils open circuit.	The two coils are connected in parallel to run on low voltage on the dual voltage model. If one coil becomes open circuit the motor will still run, but slowly. Check coil for continuity as stated under 'Motor will not start', Cause 4, page 22. On single voltage range models, the coils are connected in series.
	5. Motor frequency wrong.	Check motor pulley colour finish. It should be nickel plated for 50 cycle and brass for 60 cycle power supply. Change the pulley if necessary. A motor running at a power frequency lower than the correct motor frequency will run slow and a motor runnning at a power frequency higher than the correct motor frequency will run fast.
Motor runs hot.	1. Normal running conditions.	Providing the motor current does not exceed the following figures at the voltage stated, the temperature of the motor should not rise above its designed running temperature. 115 Volts, 60 c.p.s. 0.17 amp. 115 Volts, 50 c.p.s. 0.18 amp. 240 Volts, 50 c.p.s. 0.09 amp. Although Garrard motors are designed to run under unventilated conditions, as much ventilation as possible is beneficial.
	2. Short circuit in coils.	Check the windings for short circuit with an ohmmeter; the correct resistances are given under 'Motor will not start', Cause 4 (page 22).
	3. Incorrect voltage.	Check that voltage specification on the motor end cover corresponds to voltage of power supply. If supply voltage is incorrect the coils may burn out or the motor run slow. If a voltage changeover block is fitted, check that its links are set correctly.
	4. Insulation leakage to earth.	Test insulation between windings and frame with a 500 volt insulation test meter; it should not be less than 2 megohms. It is recommended that the motor be earthed from its earthing tag to a good earthing point.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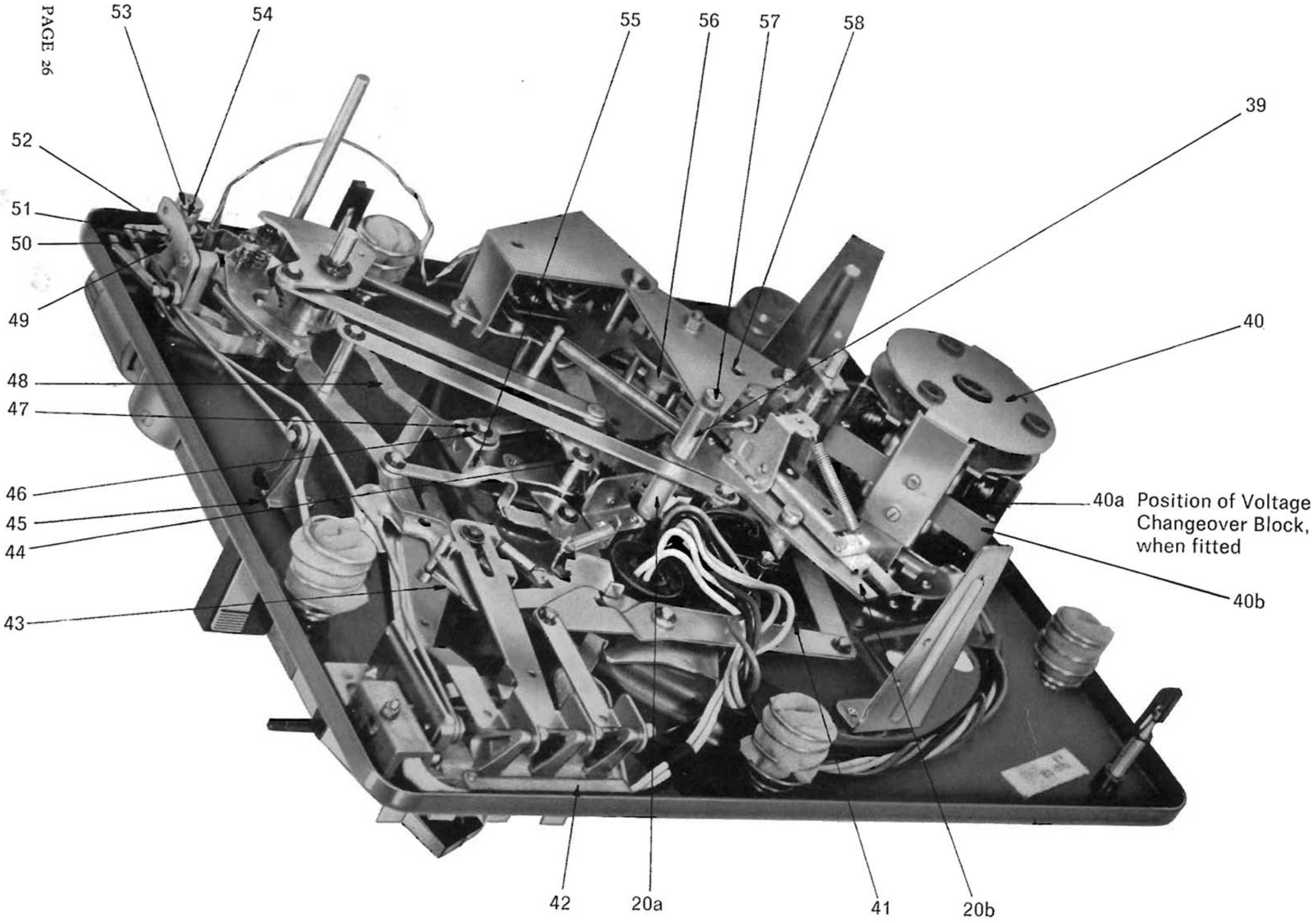
LAB 80 SPARE PARTS LIST: STANDARD

Ref.	Part No.	Description
1	70724/01	Pickup Arm Assembly
	70697/01	Pivot Screw Assembly (2)
	71025/01	Wooden Arm Trim
	44198/01	Pickup Head Locking Screw
	70832/01	Pickup Arm Lion Escutcheon
1A	70829/01	Pickup Arm Unit (Casting, Bearing and Stylus Pr. Adj.)
	70705	Stylus Pressure Adjustment Lever
	70807	Gear
	70810/01	Stylus Pressure Adjusting Knob
	71030	Spring Ratchet
	70811	Ratchet
	43839	Circlip
	71116	Cover (.010" Presspahn)
1B	70752/01	Pickup Bracket Assembly
1C	70702/01	Connector Assembly (In Arm)
	70875/02	Pickup Lead
	57961	Rubber Sleeve (5)
	70132	Plastic Sleeve
	70806	Rubber Grommet
	42922	Tag for Earth Lead
	44211	Screw Fixing Connector (2)
1D	70831/01	Pickup Height Adjusting Nut Assembly
	52002/04	Tubing — Plastic
	40343/02	Pickup Height Adjusting Screw
	41883	Spring for Adjusting Screw
2	70723/01	Cueing Bar
3	70751	Pickup Bracket Platform Assembly (Hidden Casting)
4	71619	Friction Plate
5	71013	Operating Lever Unit
	44221	Friction Screw
	41735	Locking Spring
6	54662	Stop Link
7	70774/01	Pickup Rest Assembly (see also ref. 51)
	71022/01	Insert, Plastic
	71021/01	Clip Unit
	40831	Washer (3)
	44796	Spring
	41772	Circlip
	43838	Spring Steel Nut for fixing Screw
	70778	Back Cover
	44159/02	Self Tapping Screw (2)
8	70785/01	Cueing Control Tab Assembly

Ref.	Part No.	Description
9	70739/01	Pickup Shell (Less Cartridge)
	44211/01	Screw for Connector
	52002/01	Tubing (4)
	50501	Tag (4)
10	71109	Window (Selector Indicator)
11	70819/01	Control Panel
12	70820/01	Control Data Plate
13	71400	Shielding Plate — Switch
14	71118	Operating Lever Stop Assembly
	71119	Sponge Rubber Pad
15	70766	Switch Cover
16	40183	2BA Screw (3)
17	70765	Switch Body
18	40146	Screw
19	70768	Switch Lever Assembly
20	71495	Turntable Spindle and Release Mechanism
	40183	2BA Screw (2)
	42520	2BA Spring Washer (2)
20A	70605	Turntable Spindle Housing Assembly
	70606	Housing Casting and Fixed Spindle
	70607	Turntable Spindle Assembly with Magnet
	40713	Thrust Washer (Large Hole)
	40804	Thrust Washer (Small Hole)
	51224	Cage for Ball Race
	43201	Ball (5)
	58174	Cushion Ring
	41746	Spring Clip Retaining Turntable Spindle
20B	71445	Release Lever Plate Assembly
	71435	Release Lever Plate Unit
	71441	Release Lever Assembly (Channelled)
	71436	Tension Lever Assembly (with Rollers)
	44774	Spring for Tension Lever (2)
	71431	Pin for Springs
	71424	Plastic Slide
	44847	Spring from Plastic Slide
21	44120/04	Transit Screw (2)
22	42501	6BA Spring Washer (6) — Fixing Motor and P.U. Base)
23	71422	Intermediate Wheel Tension Lever Assembly
	71421	Rubber Pad
24	60097 —	Pulley Assembly 50 Cycle
	44052	Grub Screw (3)
25	44820	Intermediate Wheel Spring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40a Position of Voltage Changeover Block, when fitted
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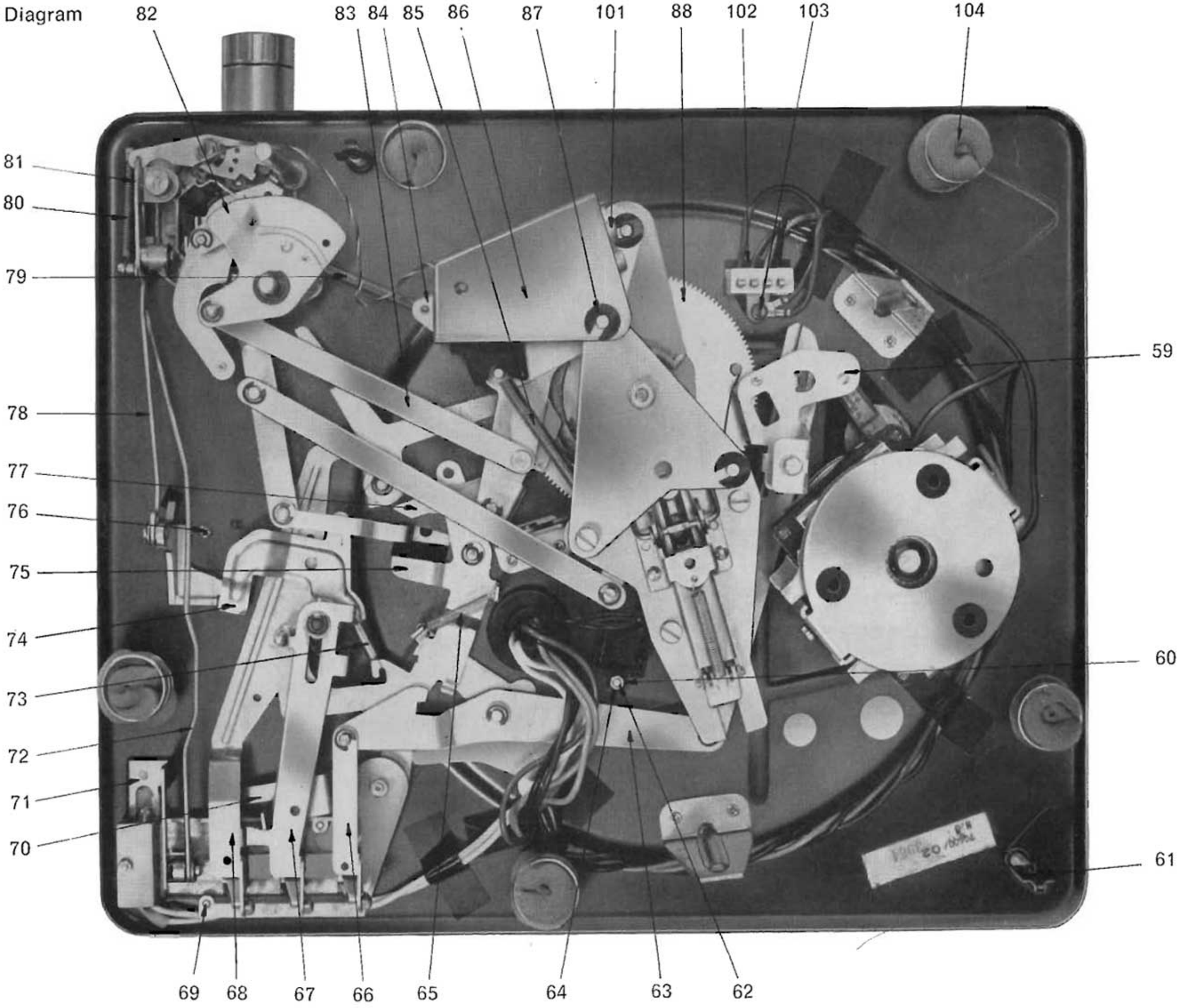
Ref.	Part No.	Description
26	40774	Washer, Presspahn (2)
27	53883	Intermediate Wheel Unit
28	70601/01	Unit Plate Assembly
	44752	Barrel Springs (5)
	71421	Sponge Rubber Pad (2)
29	41012	4BA Nut Securing Motor (3)
30	40512	Large Washer
31	41006	Nut (3) for Cam Stud and Speed Change Stud
32	70648	Cam Stud
33	40695	Washer (2) for Cam Stud
34	70720/01	Pivot Screw (Bias Compensator)
35	70721	Spacer for Bias Compensator
36	70753/01	Bias Compensator Lever Assembly
	70722/01	Bias Compensator Lever
	70780/01	Weight
	43205	Ball
	70781/01	Rubber Tube
	43809/02	Retaining Clip
37	70711/01	Pickup Base Cover
38	70773/01	Counterbalance Weight Assembly
	70801	Rubber Sleeve
39	71005	Spacer
40	60087/02	Dual Range Motor (not illustrated)
	60089	Upper Mounting Bracket Assembly (Cradle)
	43135/01	Grommets (6)
	60092	Lower Mounting Bracket (Cradle)
	40350/01	6BA Screw (4) in Motor Cradle
	42526	6BA Spring Washer (4)
	43134	Rubber Grommet, Large in U Plate
	41686	Switch Contact Springs (4)
	53571	Suppressor Unit
	58652/31	Lead — Black (2)
	58652/43	Lead — Red (2)
	70730/02	Neon Lamp
	40443/01	Stud Through Changeover Block
	42501	Spring Washer for Stud
	41062	Nut for Stud (3)
	60062	Voltage Changeover Block Bracket
	51333	Cover Plate (Beneath Block)
	54926	Connector Links
	58179	Changeover Block Cover

Ref.	Part No.	Description
40A	54981/03	Voltage Changeover Block Assembly (not shown)
	59075	Changeover Block Moulding
	55923	Connector Bush (4)
	43051	Tag (2)
	41078	Terminal Nut (2)
	44054	Screw (2)
	40854	Washer (4)
40B	60088/02	Stator and Rotor Assembly
	60125	Rotor Sub Assembly
	57978/01	Top Motor Cover Assembly and Screen
	57977/01	Bottom Motor Cover Assembly and Screen
	43209	Thrust Ball
	60123	Mounting Plate Assembly (Upper)
	60094	Mounting Plate (Bottom)
	60095	Stud Through Pack
	42501	4BA Spring Washer (2)
	41012	4BA Nut (2)
	58533	Distance Piece (4)
	41123	Nut Stop, Long (2)
	58944	Spacer for Rotor
	53110/13	Earthing Lead
	58653/55	Stator Assembly with Coils
	58654/41	Coil Assembly (Short Lead)
	58655/34	Coil Assembly (Long Lead)
	50648	Dowels in Stator Assembly (4)
41	40130	6BA Screw — Short
42	70671/01	Control Plate Assembly
	70731	Clip Unit Securing Lamp
	41008	6BA Nut
	42526	6BA Spring Washer
	70677	Pin for Selector Control Tab
	43837	Spring Clip
43	44804	Spring, Auto Link
44	40537	Washer (13) Various
45	70791	Pivot (For Cueing Control Tab)
46	41723	Spring Clip (19) Various
47	40828	Washer
48	70650	Inter Lever Assembly
49	43839	Small Spring Clip Retaining Cueing Sleeve
50	70821	Sleeve on Cueing Bar
51	44807	Spring (2) — Cueing Bar and Control Tab

See Separate Diagram



Ref.	Part No.	Description
52	40940	Brass Washer (Bottom of Cueing Bar)
53	71506	Locknut, Knurled
54	71028	Nut, Cueing Adjustment
55	71010	Plastic Bush (2)
56	70715	Release Cam Casting
57	40232	Long Screw in Support Plate
58	71003	Support Plate
59	70823	Speed Change Mechanism Assembly
	70803	Speed Change Lever Assembly (Cam)
	70825	Speed Change Spindle Unit
	70805	Support Lever Unit Less Roller
	71108	Roller
	41841	Lifting Spring
	40867	Lifting Spring Washer
	43813	Spring Clip (Speed Change Spindle)
	40773	Washer — Support Bracket Casting
	41723	Spring Clip — Support Bracket Casting
	70814	Support Bracket Unit
60	44075	6BA Screw — Long
61	41977	Transit Screw Clip (2)
62	41008	6BA Nut (2)
63	70816	Interspeed Lever Assembly
64	42526	6BA Spring Washer (2)
65	41503	Spring, Catch Lever
66	70757	Speed Change Link
67	70756	Manual Link
68	70764	Auto Link Assembly
69	44099	Screw (2) Retaining Control Plate
70	70686	Switch Off Link
71	70729	Selector Indicator Assembly
72	70716	Selector Link
73	44801	Spring, Manual Link
74	70782	Cueing Cam Assembly
75	70737	Catch Lever
76	44034	Self Tapping Screw (P.U. Rest)
77	70682	Impulse Lever Assembly
78	70761	Cueing Link
79	41534	Spring, Pickup Cam
80	44806	Spring, Cueing Lifting Lever
81	70769	Lifting Lever Assembly
82	70652	Pickup Base Assembly (Diagram separate)
82/1	70653	Pickup Base Unit (Casting and Pins less Thrust Race)
82/2	44848	Spring (Inter Selector Lever)
82/3	44808	Spring (Selector Lever Index)
82/4	70659	Index Pin (Selector Lever)
82/5	70657	Selector Lever
82/6	70658	Pivot Collar (Selector Lever)
82/7	44154	Self Tapping Screw (Selector Lever)
82/8	40503	Washer (3), Switch off Lever Pivot
82/9	41844	Friction Spring, Switch Off Lever Pivot
82/10	70667	Switch off Lever Assembly
	44084	Adjusting Screw
82/11	40536	Washer (2) each side of 82/12
82/12	41788	Circlip (2), Switch off Lever Pivot
82/13	40843	Washer (2) Above and Below Ball Bearings
82/14	43204	Ball (15)
82/15	40852	Large Washer, Presspahn
82/16	70660	Pickup Spindle Unit
82/17	70644	Pickup Lever Assembly
	52417	Rubber Sleeve
82/18	71821	Lead Guide
82/19	44041/01	Screw
82/20	41006	Nut
82/21	54685	Lifting Pin
82/22	43803	Circlip Retaining Lifting Pin (3)
82/23	70668	Lifting Spindle Unit
82/24	41833	Spring (Lifting Spindle)
82/25	41796	Return Spring (Lifting Pin)
82/26	40831	Small Washer (2), Lifting Pin
82/27	71629	Pickup Cam Assembly
	54714	Roller
	41723	Spring Clip
83	70637	Cam Lever and Link Assembly
84	70679	Bridge and Muting Switch Assembly
85	44798	Spring, Impulse Lever
86	71352	Cover Assembly (Shielding Muting Switch)
87	43821	Spring Clip (4) Various
88	71643	Cam Assembly

Hidden Items – Not Labelled

89	42548	Spring Washer (Pickup Bracket — 1b)
90	43852	Spring Clip (Retaining P.U. Bracket and Spindle)
91	40454/02	Screw (3) Retaining Pickup Bracket Assembly
92	44258	6BA Special Screw (Adjusting P.U. Arm Dropping Position)
93	41850	Overload Spring (Pickup Arm Dropping Position Adjustment)
94	40906	Locking Washer (Pickup Dropping Position Adjustment)
95	44803	Stylus Pressure Spring
96	40182	Screw Fixing Pickup Base (3) (see ref. 22)

Items Not Shown

97	53176	Spring Clip, Retaining Turntable
98	70740	Automatic Record Spindle
99	70838/01	Turntable Assembly
100	71007/01	Turntable Mat Assembly
	70725/01	Turntable Mat
	70736/01	Centre Disc
	71029/01	Trim Ring
also	71724	Garrard Damping Fluid

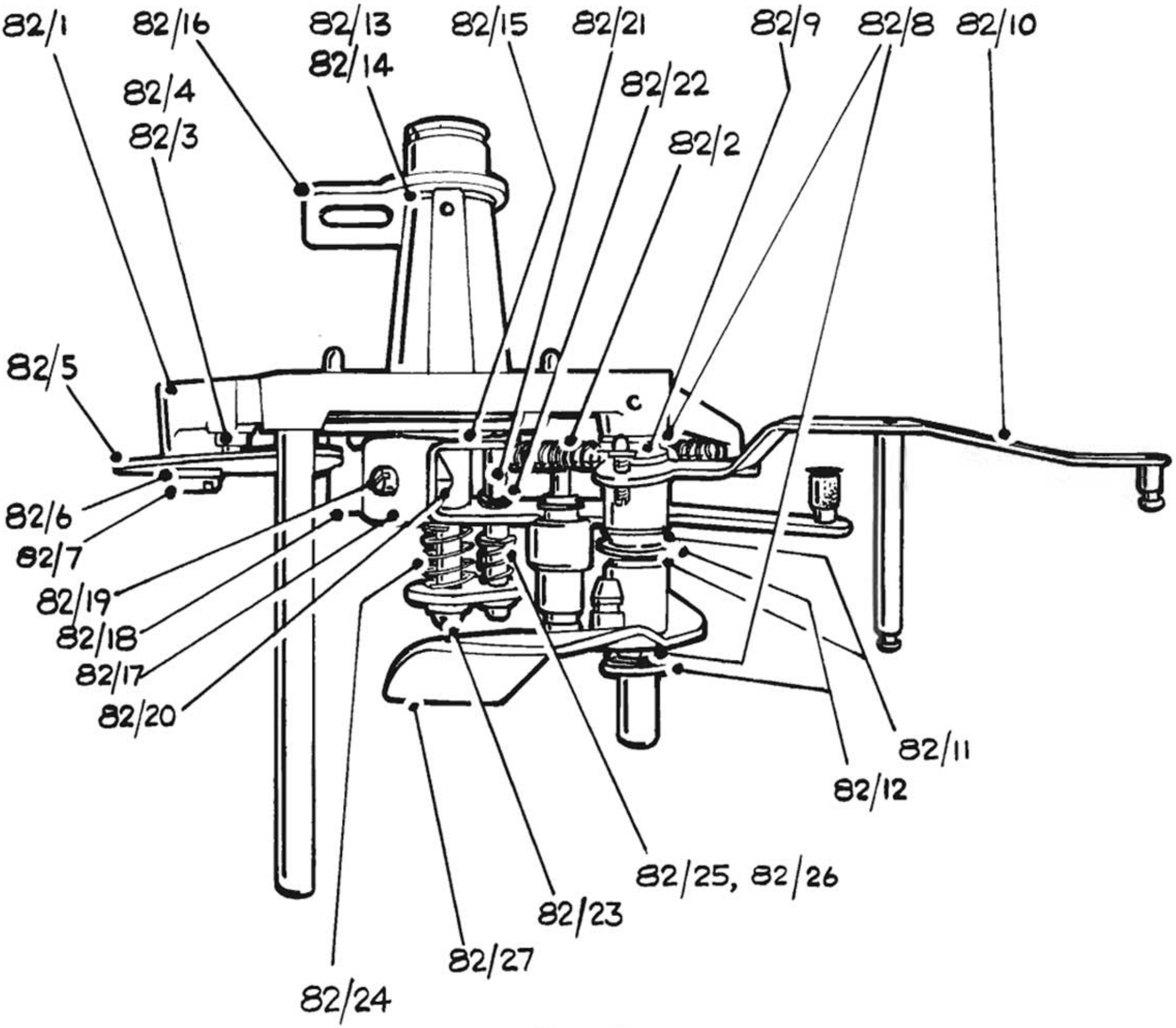


Diagram 20

Diagram 21

LARGE-HOLE RECORD SPINDLE, L.R.S.9

LAB 80 SPARE PARTS LIST: VARIATIONS FROM STANDARD LIST

Ref.	Part No.	Description
9	71208/01	Pickup Shell Kit
9A	70739/01	Pickup Shell (Less Cartridge) (Not labelled)
	44211/01	Screw for Connector
	52002/01	Tubing (4)
	50501	Tag (4)
9B	71216	Pickup Shell Accessory Kit (Not shown)
	40295/01	Screw (2) $\frac{3}{32}$" Long
	40345/01	Screw (2) $\frac{1}{16}$" Long
	44185/01	Screw (2) $\frac{1}{8}$" Long
	40519	Washer (2)
	57264	Spacer (2)
	71224	Weight
	44215/01	Screw (2) $\frac{1}{32}$" Long
24 —	60096	Pulley Assembly 60 Cycle
	44052	Grub Screw (3)
40	60087/01	Low Range Motor (Illustrated)
	60089	Upper Mounting Bracket Assembly (Cradle)
	43135/01	Grommets (6)
	60092	Lower Mounting Bracket (Cradle)
	40350/01	6BA Screw in Motor Cradle (4)
	42526	6BA Spring Washer (4)
	43134	Large Rubber Grommet in Unit Plate
	41686	Switch Contact Springs (4)
	45028	Rubber Sleeve (2)
	53571	Suppressor Unit
	70730/01	Neon Lamp and Leads
	59001	Connecting Plug in Unit Plate
	53110/09	Green Earth lead to Plug
	52677/87	Brown Lead (Switch to Plug)
	52677/109	Red Lead (Switch to Plug)
	52677/89	Black Lead (Switch to Plug)
40B	60088/01	Stator and Rotor Assembly
	60125	Rotor Sub Assembly
	57978/01	Top Motor Cover Assembly and Screen
	57977/12	Bottom Motor Cover Assembly and Screen
	43209	Thrust Ball
	60123	Mounting Plate Assembly (Upper)
	60094	Mounting Plate (Bottom)
	60095	Stud Through Pack (2)
	42501	4BA Spring Washer (2)
	41012	4BA Nut (2)
	58533	Distance Piece (4)
	53110/13	Earthing Lead
	41123	Nut Stop, Long (2)
	58944	Spacer for Rotor
	58653/42	Stator Assembly with Coils
	60039/11	Paired Coil Assembly
	43366	Tension Pin (4) in Stator
84	71496	Bridge Assembly with Muting Switch and Phono Socket
	44126	Screw Fixing Phono Socket
101	71107	Twin Phono Socket Assembly
102	59310	Plug Insulation Plate
103	44154	Screw Fixing Plug
104	71084	Plastic Foam Damping Pad

Not Shown

105	71399	Line Cord, Earth Lead and Strain Relief Assembly
106	59028	Phono Lead, Grey
107	59029	Phono Lead, Brown
108	40105/01	Screw for Strain Relief (2)
109	42526	Spring Washer, Strain Relief (2)
110	41051	Nut, Strain Relief (2)
111	59602/07	45 r.p.m. Adaptor and Manual Spindle Kit
	41702	Spring Clip
	40450/01	Screw
	41703	Spring Clip
	40245/01	Screw
	50391/01	45 r.p.m. Adaptor
	70754	Manual Spindle

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GARRARD SALES

June 8, 1965

TO: All Representatives and Service Stations

FROM: Frank Hoffman

You may have encountered some difficulty with the Lab 80, whereby when one presses the auto tab, the unit does not engage. We had found that allowances were not made for a shift in transit, which of course has been corrected in subsequent production.

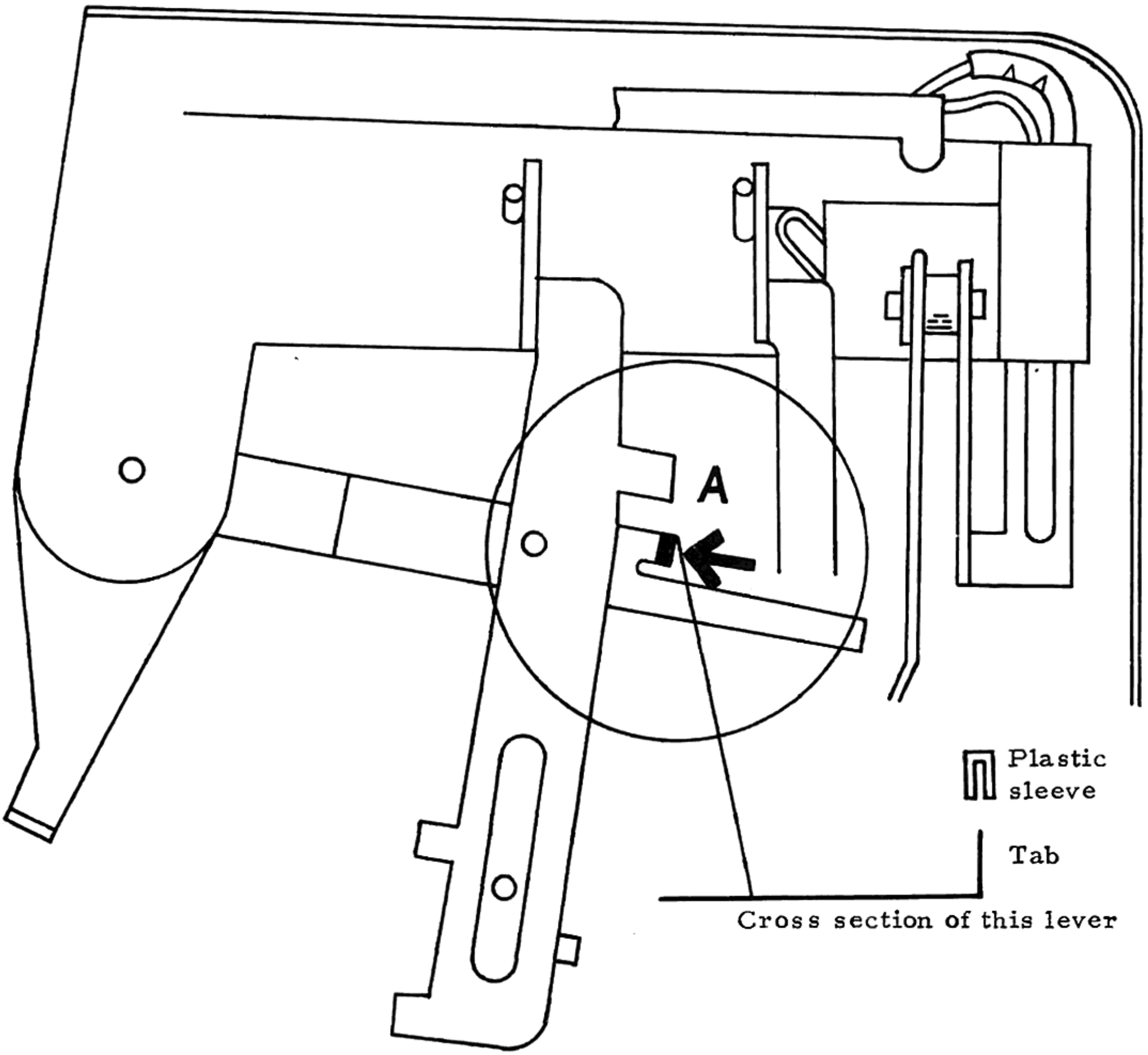
However, if you encounter units with this problem, we have a simple correction. Please see the enclosed diagram and instruction sheet and the small plastic sleeve also enclosed. This is quite easily inserted over the lever shown and immediately corrects the difficulty.

Additional quantities of this little plastic sleeve are available, if needed.

Frank Hoffman

FSH/lf
Enc.

UNDERSIDE VIEW OF CONTROL PANEL



If the unit does not turn on when the automatic tab is impulsed, press on the enclosed plastic sleeve over the tab indicated by the arrow on the diagram.

Lever A will now impulse this tab further and the problem will be corrected.