

# The "Garrard" Models RC120/4 and RC121/4 Record Changers

**DESCRIPTION.** The "GARRARD" Model R.C.120/4 has a one-piece diecast aluminium pickup arm with the pickup head integral with it while the Model R.C.121/4 has a diecast aluminium pickup arm to take the "GARRARD" MPM2 plug-in pickup moulding which can be fitted with a range of pickup cartridges. Reference in this booklet to the R.C.120/4 also applies to the R.C.121/4 except where stated.

"GARRARD" Record Changers are simple and reliable in operation. They are thoroughly tested before leaving our Works and will give a long period of satisfactory service.

Instructions for operating the Model R.C.120/4 are given in this manual—please follow these instructions carefully. In common with all mechanical devices however, minor adjustments are sometimes necessary. The Service Instructions in-



cluded have been compiled to cover practically all the information necessary to ensure efficient operation.

If, after carefully perusing this manual you are still in doubt, our Technical Service Department will gladly assist you.

## NOTE.

Always mention the Model number, Schedule Number, and type of Pickup Head fitted when communicating with the company.

Address your enquiries to:—

The Garrard Engineering and Manufacturing  
Company Ltd.,  
Technical Service Dept.,  
Newcastle Street,  
Swindon, Wilts.

Telephone No.: Swindon 5381 (5 lines).

If you wish to make enquiries concerning the return of a Unit for repair, or to order Spare Parts, address your letter to:—

The Garrard Engineering and Manufacturing  
Company Ltd.,  
Service and Spares Dept.,  
50-54 Radnor Street,  
Swindon, Wilts.

Telephone No.: Swindon 2606.

## OPERATING INSTRUCTIONS

The "GARRARD" Model R.C.120/4 Record Changer will play automatically any number of records up to 10, the R.C.121/4 up to 8, of any one of the following types at each loading 10" or 12" at 78 r.p.m., 7", 10" or 12" at 33½ r.p.m., 7" at 45 r.p.m., 7" 45 r.p.m. records with large centre hole may be played using the large record spindle type L.R.S.2 (available as an optional extra) or centre hole clip in adaptors available at record stores. Records may also be played manually. 16½ r.p.m. records can also be played.

TO OPERATE CHANGER PROCEED AS FOLLOWS:—



1. Set correct stylus for type of record to be played.



2. Move Speed Change Knob to desired speed.



3. Gently place records on Record Spindle and move Overarm inward.



4. Switch on.

**TO UNLOAD CHANGER:—**



1. Lift Overarm and move to right hand side.



2. Lift records off Spindle.

**REJECT.** To reject a record move right hand knob to "Reject" position.

**STOP.** If it is desired to stop the changer before it does so automatically, move right hand knob to "Stop" position. If this is done while a record is playing that record will be rejected on switching on again. When lifting records off the record spindle do not grip them, hold them loosely. If it is desired to replay a stack of records they should be lifted clear of the record spindle before replacing.

**MANUAL OPERATION.** Move MANUAL/AUTO knob to MANUAL. Move right hand control knob to START. Turntable will commence to revolve and changer will operate until mechanism is in the Manual position, when the pickup arm will be on the pickup rest but the pickup free to be placed on record by hand. Turntable will be revolving.

Place record on turntable, carefully guiding it through contours of record spindle. Gently place pickup on record allowing the stylus to alight on the smooth outer edge of the record when the run-in groove will carry the stylus into the playing groove. At the end of the record the pickup will lift and return to the rest. Turntable will continue to revolve. To stop motor and turntable move right hand control knob to STOP.



To return to AUTO working, move the MANUAL/AUTO knob to AUTO. If this is done while a record is playing, at the end of the record pickup will return to the pickup rest and the auto stop will switch off the unit.

If the control is moved to AUTO when the pickup is on the rest, move the right hand control to REJECT when the mechanism will move into auto working position and then automatically switch off the unit.

**PICKUP.** To play 78 r.p.m. records the knob of the turnover pickup should show 78 or STD and for 16 $\frac{1}{2}$ , 33 $\frac{1}{2}$  or 45 r.p.m. records it should show 33/45 or L.P.

Should the Record Changer be stopped with the pickup arm not on its rest whilst the unit is set to AUTO the pickup should not be handled but the right hand knob should be moved to "Start" when the changer will operate and the pickup arm will lift and return to its rest.

The pickup arm will not move from its rest unless one or more records are on the record spindle. This is a safety device designed to prevent the pickup being damaged should the changer be switched on without being loaded with records.

**RECORDS.** To obtain the best results from your records care should be taken to see that records are stored and cleaned in the manner recommended by the record manufacturers. Do not leave records on the unit when not in use.

## INSTALLATION

### DIMENSIONS.

The Model R.C.120/4 Record Changer is 12 $\frac{1}{2}$ " long by 10 $\frac{1}{2}$ " back to front by 2 $\frac{1}{2}$ " below and 4 $\frac{1}{2}$ " above top of motor board. Clearance must be allowed for 12" records also at least  $\frac{1}{2}$ " all round to allow unit to float freely on its suspension springs.

### FITTING TO CABINET.

The motor board should be drilled and cut out as shown on template enclosed with each unit.

Open the carton, remove the cardboard packing around the turntable and lift out unit with the string loops. Remove all string and elastic bands.

The spring suspensions which will be found in a linen bag on the turntable, should be assembled to the unit, Diagram 2. They are designed for motor boards  $\frac{1}{2}$ " thick or less but should it be found necessary to use a board thicker than  $\frac{1}{2}$ ", the fixing holes should be recessed as shown on the template.

Models R.C.120/4H or R.C.121/4H. The power supply lead fitted to this model should be connected to a convenient power point. There are no links to be set, this being a single voltage range unit. See diagram 8.

Models R.C.120/4D or R.C.121/4D. A lead should be connected to the power supply terminal block on

the rear of the motor and the links in the block should be set correctly for the voltage of the power supply. See Diagram 4.

Connect a length of screened pickup lead to the tags on the pickup connecting strip, Diagram 1, and also connect a lead from a good earth point to the earthing tag on the motor, Diagram 8.

The changer can be placed in position and fixed to the motor board by pressing the spring suspensions down through the holes in the motor board, the leaf springs flexing to pass through the hole. Adjustment to level the unit is made by turning each suspension screw—clockwise to lower the unit and counter clockwise to raise it.

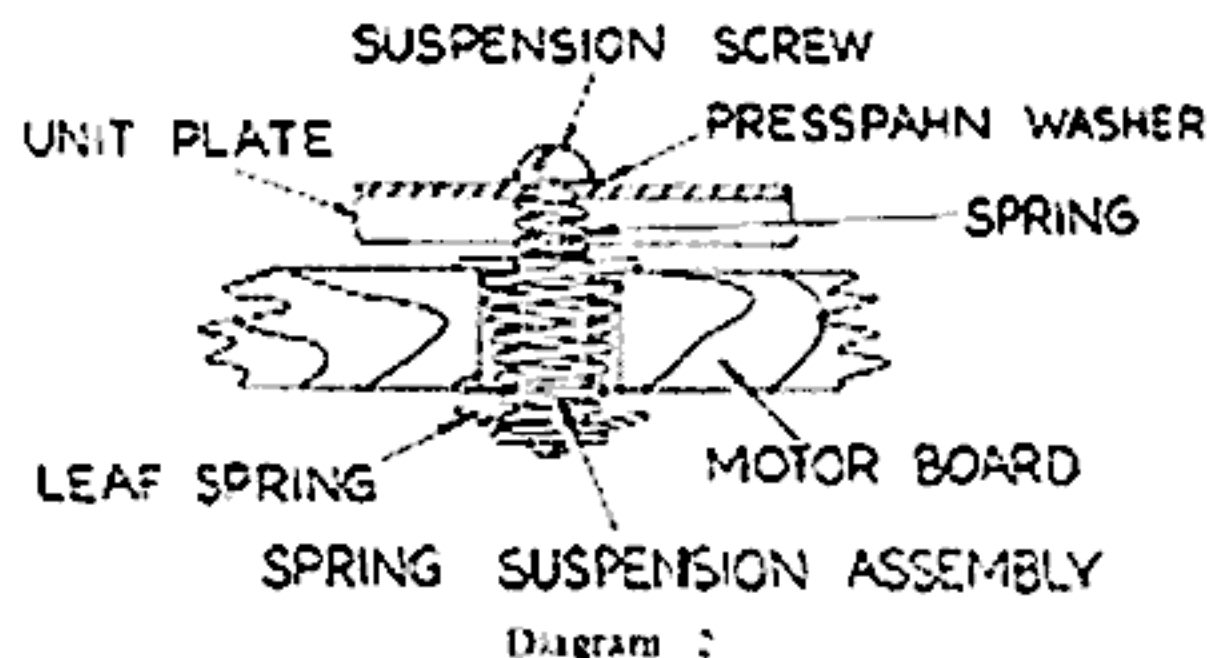
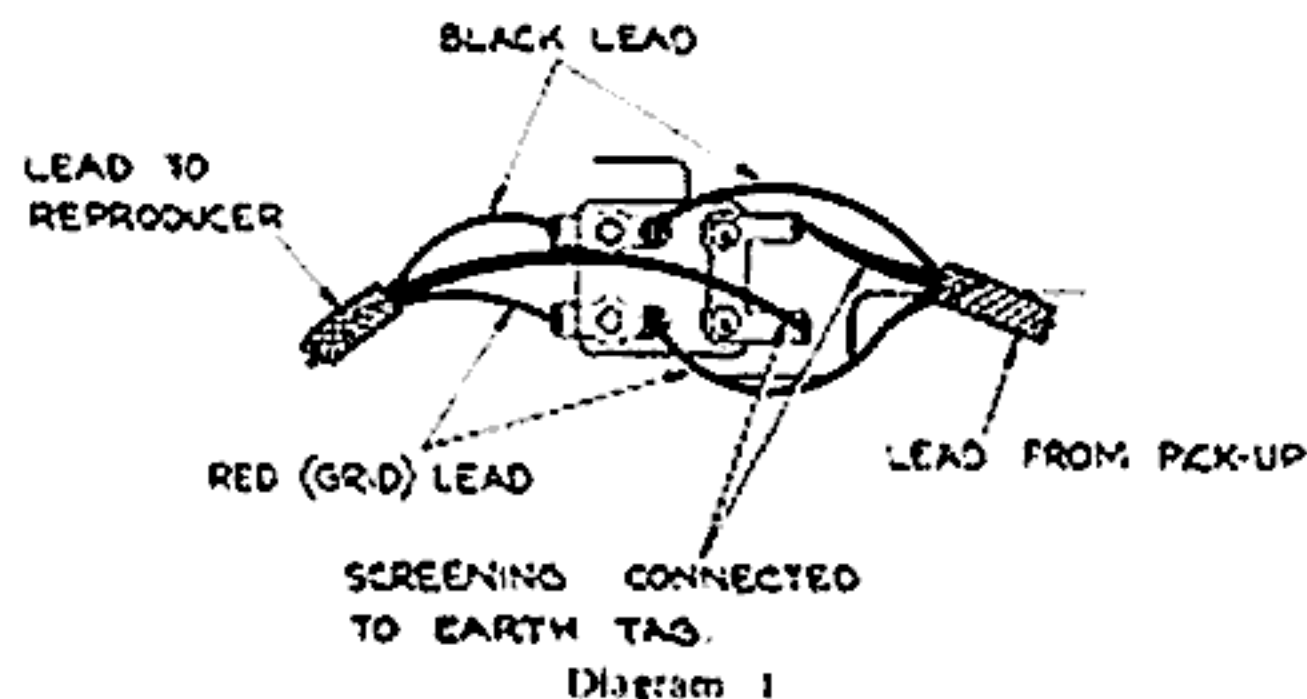
### TRANSIT SCREWS.

Two plated wood screws are supplied for use in clamping the changer to the motor board for transit purposes. The small bakelite washers should be fitted under these screws to prevent marking the unit plate. These screws must be removed before using the Record Changer. The positions of the transit screws are shown on Diagram 3.

## MAINTENANCE

The motor and intermediate wheel bearings are of the oil retaining type and rarely need lubricating: when the need for oil is apparent hold the intermediate wheel out of the way and lubricate the top motor bearing with a fine grade of machine oil. Carefully remove all traces of surplus oil before running. The intermediate wheel rubber, motor pulley and inside of turntable rim must be kept free of oil.

To lift off the turntable remove the lower retaining clip. Diagram 5. On no account remove turntable spindle retaining clip. The turntable can now be removed by carefully lifting with equal pressure on diametrically opposite sides. Turntable should be replaced with the changer in the switched off position.



## SERVICE ADJUSTMENTS

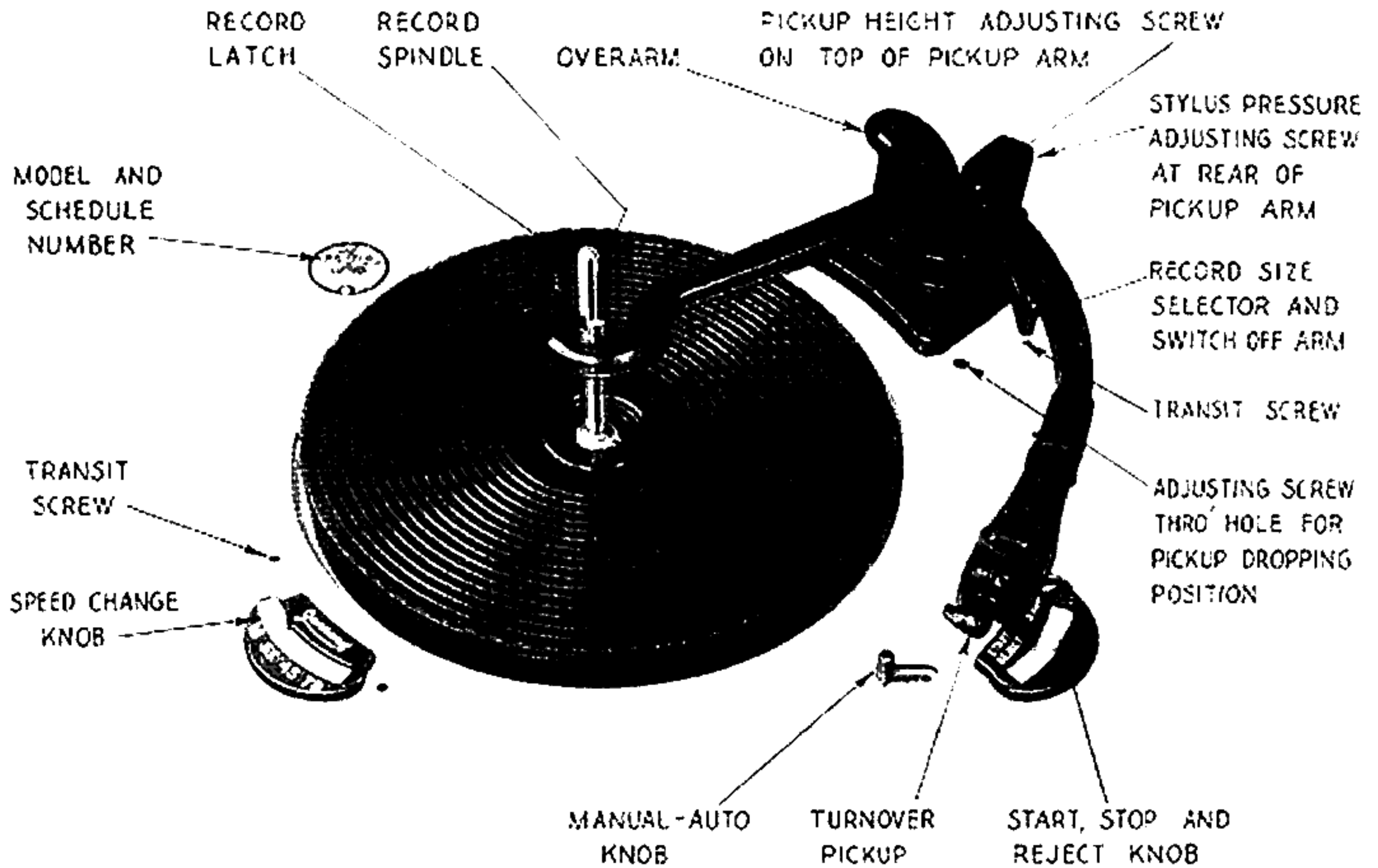
*These notes are included to help the owner of the Record Changer make any minor adjustments that may become necessary. When making any adjustments to the record changer fit the protecting clip to the pickup, or if the turnover knob has a safety mid position, turn it to this position, to protect the delicate sapphire styli from possible damage.*

### SPEED.

The Model R.C.120/4 motor is designed to give the desired turntable speed within close tolerances. Should the turntable run excessively fast or slow and the speed change knob is set correctly, examine the motor pulley to see if it is the correct one to suit the frequency of the power supply.

To assist identification the motor pulley is colour finished as follows to distinguish the two types:—

|        |           |
|--------|-----------|
| Nickel | 50 cycles |
| Brass  | 60 cycles |



Top View of R.C.121/4

Diagram 1

## SPEED VARIATION.

Should the speed vary during playing, remove the turntable as described on Page 5, and examine the motor pulley, intermediate wheel and inside of turntable rim for traces of oil and if necessary wipe thoroughly with a clean cloth. Also check that the motor pulley is in its correct position on the motor shaft, switch the changer on and see that the intermediate wheel runs in the centre of the appropriate step on the pulley and does not foul the side of the adjacent step; if necessary loosen the screws holding pulley to shaft and move pulley to its correct position.

## MOTOR.

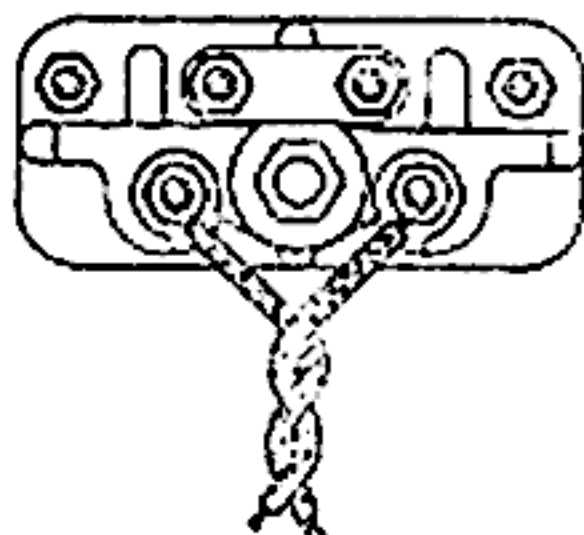
If motor fails to start when changer is switched on, first check the power supply to see if current is reach-

ing the motor terminals. If correct, switch off the power supply and examine the blades in the switch block to see that they are clean and are making good contact when the switch is in the "ON" position; clean and adjust if necessary. Check that all connections in the power supply circuit are tight and secure.

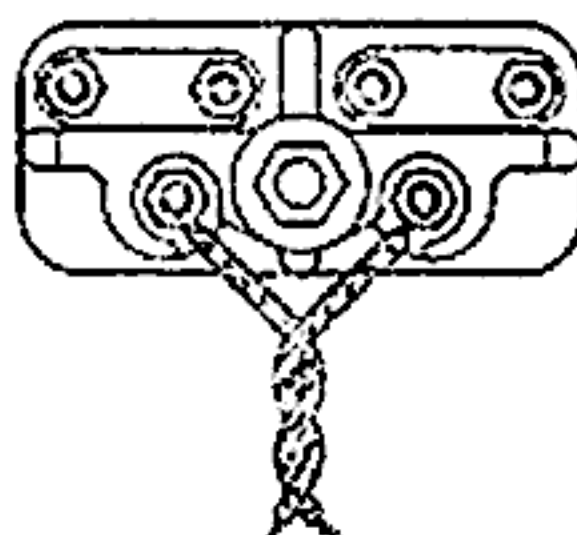
See that the motor shaft is free; if it is not, try lubricating with very thin oil and spinning the shaft; thick oil must not be used.

If motor momentarily starts then stops when switching on, lift off the turntable as directed under Maintenance on Page 5 and examine the levers on top of the unit plate that are moved by the START/REJECT/STOP Knob. Ensure that they are quite free and not sticky with congealed oil or foreign matter and that the spring is correctly in position. See Diagram 5.

Connect both bars thus  
for 200/250 volts A.C.

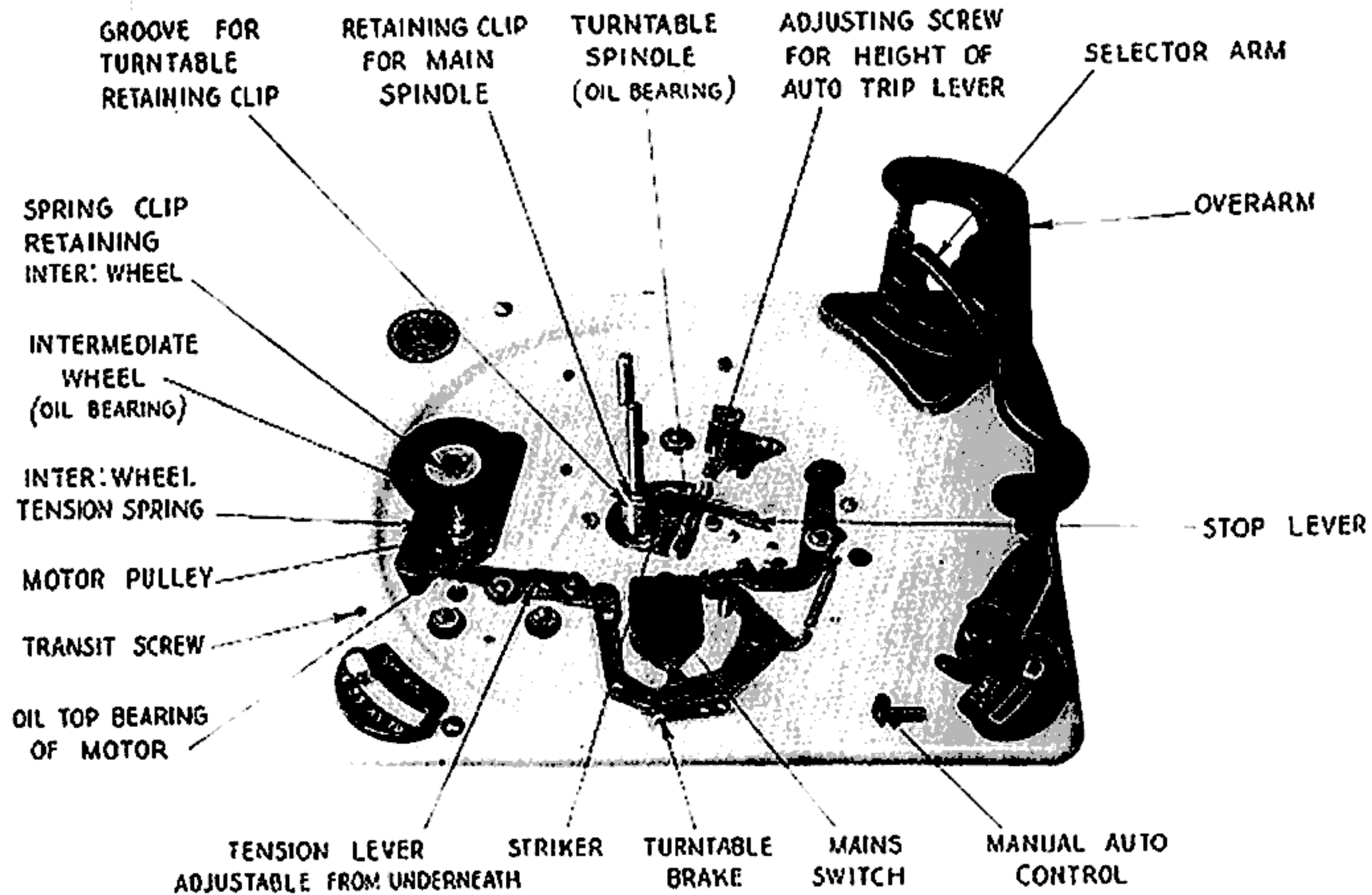


Connect bars thus for  
100/130 volts A.C.



Terminal Block and Voltage Change over Link Connections  
on R.C.120/4D and R.C.121/4D.

Diagram 4



View with Turntable removed.





Setting Pickup height  
Diagram 6

Should the motor run too hot, on dual voltage models check that the voltage change over links in the power supply terminal and changeover block are set correctly to correspond to the voltage of the power supply, Diagram 4. On both models check the motor windings by inserting an A.C. ammeter in either motor lead: the current should not exceed 0.26 amp. on 100/130 volts or 0.13 amp. on 200/250 volts 50/60 cycles. If readings in excess of these figures are obtained the motor should be returned for examination.

#### PICKUP DROPPING POSITION.

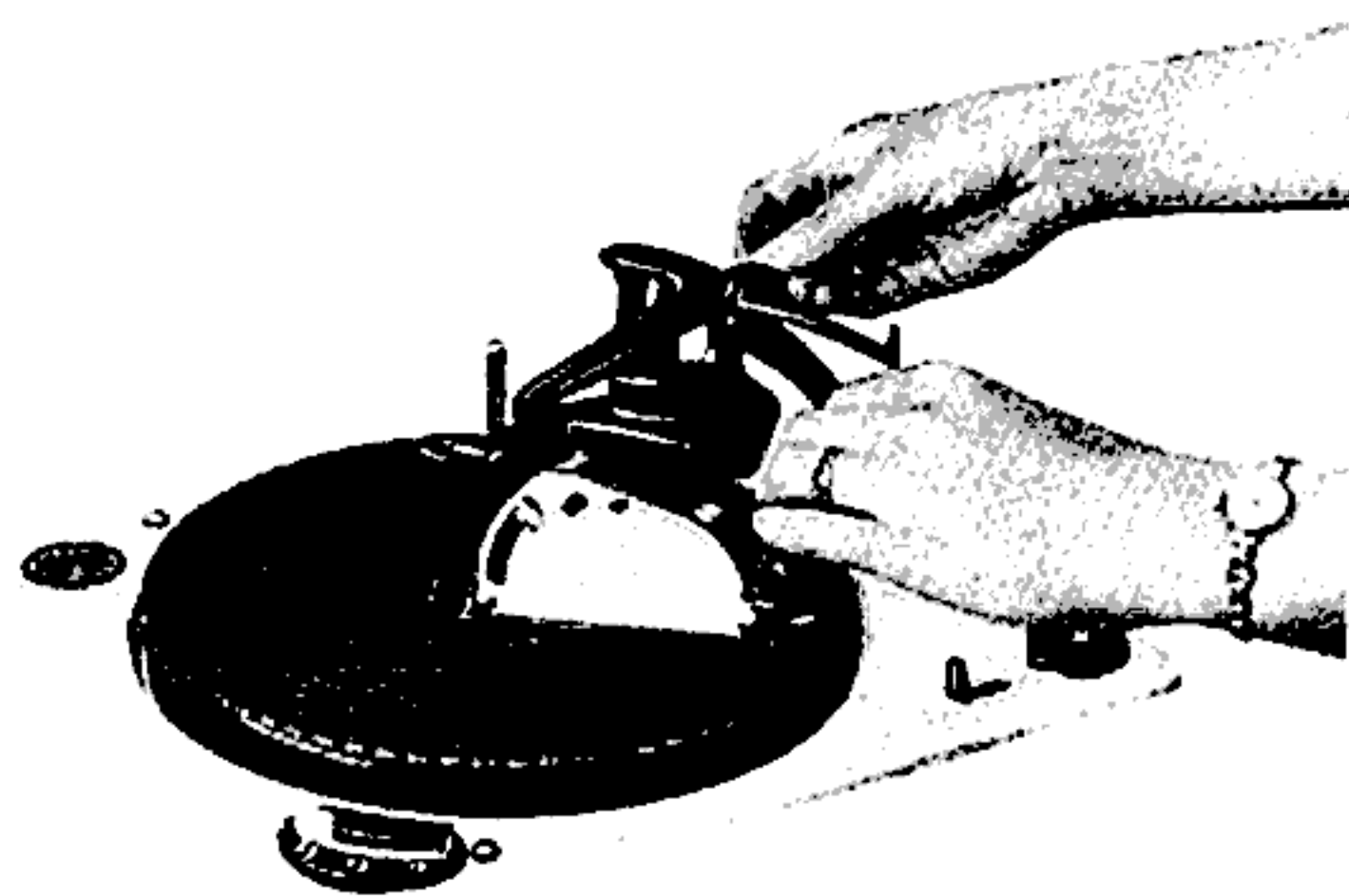
The pickup arm dropping position is factory set for optimum accuracy; should however any minor adjustment be required to accommodate abnormal records, rotate the screw accessible through the hole in top plate as shown in Diagram 3; this adjustment can only be made with the pickup arm on its rest.

#### PICKUP LIFT.

The distance the pickup lifts can be adjusted by turning the top screw at rear of pickup arm, Diagrams 5 and 6, with a small screwdriver. Ten (8 for R.C.121/4) 12" 78 r.p.m. records should be placed on turntable and the pickup lift adjusted so that as the pickup returns to the rest on completion of the top record the tip of the pickup stylus clears the record by  $\frac{1}{8}$ ".

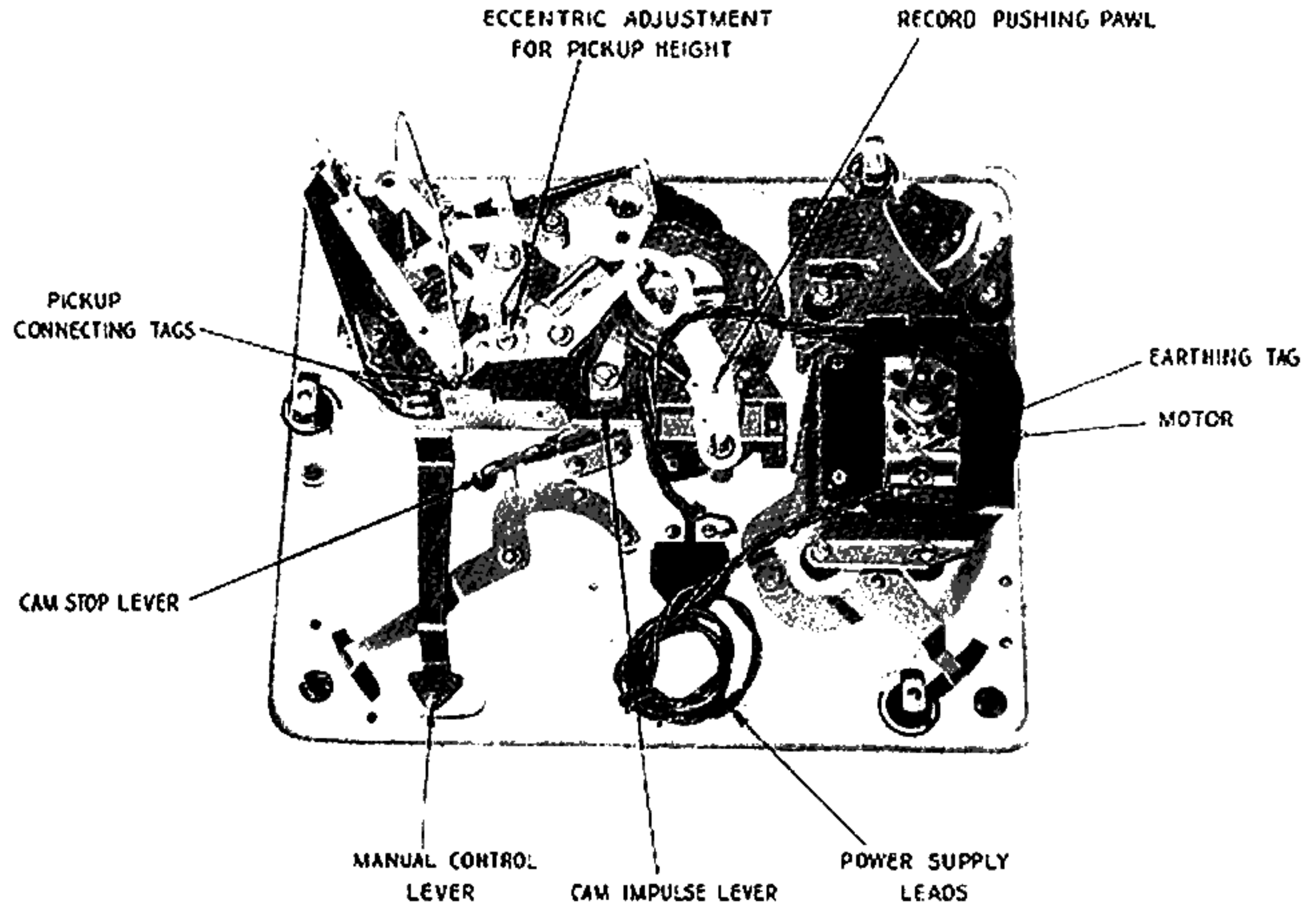
#### PICKUP STYLUS PRESSURE.

The recommended stylus pressure for playing records should be 10 grammes and it is strongly recommended that a check be made occasionally with a "GARRARD" Stylus Pressure Gauge. To adjust the stylus pressure turn the screw at rear of pickup arm, Diagrams 5 and 7, clockwise to reduce pressure and counter-clockwise to increase it.



Adjusting Stylus Pressure

Diagram 7



View underneath

Diagram 5

## PICKUP.

Two types of stylus are necessary for playing the different types of record, a stylus having a point radius of 0.0025" for standard 78 r.p.m. records and one with a point radius of 0.001" for 16 $\frac{1}{2}$ , 33 $\frac{1}{2}$  and 45 r.p.m. To obviate stylus changing, two plug in pickup heads can be used—the R.C.121/4 will be required to do this—or a turnover type of pickup having two styli can be fitted to either Model R.C.120/4 or R.C.121/4.

Should a pickup be used which was not supplied with the changer, the pickup stylus pressure, lift and dropping position may need resetting.

Care should be taken to see that the correct stylus is in position for the type of record to be played. Turnover pickups are set correctly when the type or speed of record is showing on top of the turnover knob. Should there be an arrow on the knob it indicates the direction to turn it when a change is required.

Some pickups use a colour code to indicate the type of record it is designed to play—green for standard 78 and red for 16 $\frac{1}{2}$ , 33 $\frac{1}{2}$  and 45 r.p.m. records.

Should trouble be experienced with the reproduction from a pickup it should be returned to the manufacturer whose name or trade mark appears on the cartridge.

## NOTE.

A continuity test cannot be carried out on crystal cartridges with an ohmmeter.

## PICKUP TRACKING.

Should there be a tendency for the pickup to track incorrectly, especially on the first record check the stylus pressure and adjust as explained under "Pickup Stylus Pressure" on page 9. Make sure that the flexible screened wire leading from the pickup to the connecting strip is not twisted or held in such a manner as to prevent the free movement of the pickup arm and see that the associated levers are free.

## AUTO TRIP.

The auto trip mechanism is the velocity type, that is, it operates by the quick inward movement of the pickup arm when the pickup reaches the quick run off groove at the end of the record. It is of a special patented design to be very light and sensitive in operation and is set to commence operation when the stylus reaches a 2 $\frac{1}{2}$ " radius. If the auto trip fails to operate, the pickup will remain running in the centre of the record and to correct this, raise the auto trip lever by giving the adjusting screw for height of auto trip lever, Diagram 5, about half a turn in a clockwise direction. This will raise the auto trip lever and enable it to engage the cam on the striker when the pickup runs into the record run off groove.

## SPARE PARTS LIST FOR RC120/4 AND RC121/4

The Schedule Number printed on the name plate of the Record Changer is changed whenever a non-interchangeable variation is introduced into the mechanism. It is therefore essential when ordering spare parts to quote the Schedule Number of the Record Changer as well as the Reference Number of the part required.

| Name of Part                                   | Ref. No. | Name of Part   | Ref. No.  |
|--|----------|--|-----------|
| Turntable                                      | B52406   | Switch Cover   | A51327    |
| Turntable Mat                                  | C51286   | Screw for Switch Cover   | A40343    |
| Turntable Retaining Clip                       | A41709   | Control Knobs  | A52508    |
| Intermediate Wheel with Tyre                   | A53884   | Garrard M.P.M.2. Multi Purpose Plug-in<br>Pickup Case Assembly (less cartridge)<br>with open front for turnover cartridges<br>for R.C.121/4                      | A52225    |
| Intermediate Wheel Retaining Clip              | A41723   | Garrard M.P.M.2. Multi Purpose Plug-in<br>Pickup Case Assembly (less cartridge)<br>with closed front for turnround or<br>single purpose cartridges for R.C.121/4 | A52226    |
| Switch Contact Springs                         | A41686   | Large Record Spindle   | Type LRS2 |
| Pulley for 50 cycles                           | A53953/2 |  |           |
| Pulley for 60 cycles                           | A53954/2 |  |           |
| Pickup Arm R.C.120/4                           | B52618   |  |           |
| Pickup Arm R.C.121/4                           | B52855   |  |           |
| Terminal Block Cover for R.C.120/4D-<br>121/4D | A51161   |  |           |
| Nut for Terminal Block Cover                   | A41012   |  |           |

### REPLACEMENT STYLI

For Garrard GC2 and GCE4 Turnover Pickups--

(Check make of pickup cartridge before obtaining replacement styli as other pickups are sometimes fitted to Garrard Units.)

|  |  |
|--|--|
| GC2/3 Sapphire Stylus (Green) for 78 r.p.m. (Coarse Groove) records. | GC2/3D Diamond Stylus (Green) for 78 r.p.m. (Coarse Groove) records. |
| GC2/1 Sapphire Stylus (Red) for microgroove (Fine Groove) records.   | GC2/1D Diamond Stylus (Red) for microgroove (Fine Groove) records.   |