Garrard Automatic Record Changer

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Model R.C. 75A

Installation, Operation and Service Instructions

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The Garrard Model R.C. 75A Automatic Changer is made under the following patents :—

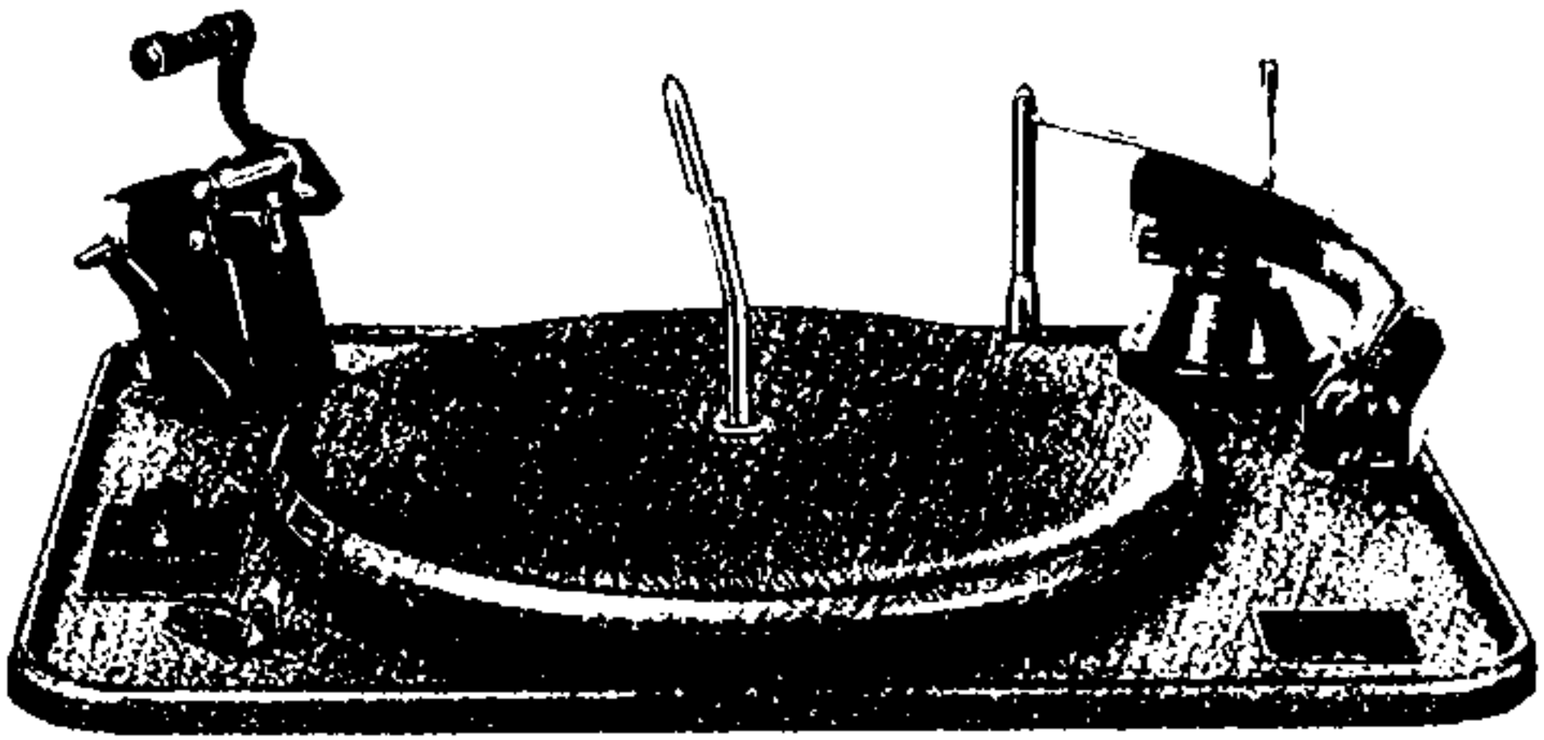
British ..	450966	Germany ..	666677	Sweden ..	88739
	607267	Swiss ..	189688	U.S.A. ..	2063199
France ..	802949	Italy ..	347645	Canada ..	551634

Other patents pending.

4391/49 14998/49 22922/49
642/50 642/50 644/50

Provisional patents.

The "Garrard" Model R.C. 75A Record Changer



"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. 75A 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 included 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 Department will gladly assist you.

NOTE.

Always mention the Model Number, Schedule Number, and type of Pick-up Head fitted when communicating with the company.

Address your inquiries to:—

The Garrard Engineering & Mfg. Co. Ltd.,
Technical Service Dept.,
Newcastle Street,
Swindon, Wilts.

Telephone No.: Swindon 2624—5—6.

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

The Garrard Engineering & Mfg. Co. Ltd.,
Service and Spares Dept.,
Okus Road,
Swindon, Wilts.

Telephone No.: Swindon 3405.

The "Garrard" Model R.C. 75A Record Changer

OPERATING INSTRUCTIONS

The "GARRARD" Model R.C. 75A Record Changer will play automatically any number of records up to ten of any one of the following types at each loading:—

10" or 12"	-	78 r.p.m.
7", 10" or 12"	-	33⅓ r.p.m.
7"	-	45 r.p.m.

To operate the Record Changer proceed in the following order:—

1 See that the correct stylus is in position for the type of record to be played.

2 Place the correct record spindle in position, i.e., stepped sloping spindle for 78 or 33⅓ r.p.m. records or large spindle (which may be obtained as an extra item) for 45 r.p.m. records. (See Diagrams 12 and 14).

3 Set lever at side of platform to size of record it is desired to play, 7," 10" or 12." Also turn subsidiary platform to forward position if it is desired to play 7" records with small hole, making sure that the hole in rear of 7" record pushing pawl locates over the pawl on platform. (See diagrams 2, 3, 4 and 5).

4 Turn speed control knob to desired speed, 78, 45 or 33⅓ r.p.m.

5 Place any number of records up to 10, on record spindle, lower record clip, and switch on by moving the front left hand knob to "Start."

Note: The record clip is not used when playing 7" records.

To reject a record, move the left hand knob to the "Reject" position.

The changer can be switched off by moving the left hand knob to the "Stop" position. If this is done while a record is playing, when switching on again, that record will be automatically rejected and the next record commenced.

NOTE:

Should the record changer be stopped with the pick-up arm not on its rest, the pick-up should not be handled, but the left hand knob moved to "Start," when the pick-up will automatically lift and return to its rest position and stop if no records are on the record spindle.

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

RECORDS.

To obtain the best results from your records preserve the surface by keeping them as dust free as possible, and it is recommended that microgroove records be cleaned with a clean soft damp cloth, also keep the turntable surface clean.

Avoid touching the music lines, keep records away from heat and keep in container when not required for playing. Do not play chipped or cracked records as they will damage the sapphire stylus point and badly warped records will give trouble in dropping.

INSTALLATION

DIMENSIONS.

The cabinet space required for fitting is 15¼" long x 13¾" wide, with 5¾" clearance above and 3½" clearance below the plate for the A.C. model. For the D.C. and Universal models an extra depth of 1½" is required. With a slight alteration to the motor board cut out, the "GARRARD" Model R.C. 75A is a direct replacement for the "GARRARD" Models R.C. 60, 65, 65A, and 70 Series Record Changers.

FITTING TO CABINET.

First, the motor board should be cut out and drilled as shown on the template enclosed with each changer. If the changer is to replace certain of the "GARRARD" Models mentioned above, only a small piece on the left hand side of the template need be cut out. A small clearance should be left between the edges of the unit plate and the cabinet sides, to allow the record changer to float freely when mounted on its suspension springs.

Having opened the carton, remove first the top liner and then the turntable. A second liner with a large centre hole and a piece of string tied across two holes will be found. Untie the string and remove this liner. The next liner, which forms a cradle for the Record Changer, has finger grip holes in opposite sides. With fingers in these holes lift out liner complete with Record Changer. The spare pick-up head, if supplied, and accessories, will be found in a package in the carton. A bag containing the fixing screws and spring mountings will be found in one corner of the carton. Assemble the spring mountings to the motor board as shown on the template and diagram 1. Next, assemble the long fixing screws to the changer mounting plate, then assemble a nut on each screw leaving ⅛" of thread below.

Before placing the Changer in position, the final switch off arm at the rear of the changer, which on unpacking will be found in a downward position, should be turned to a vertical position as shown in the illustrations. To do this, loosen the round headed screw at the top of the auto switch spindle, turn the arm to a vertical position and re-tighten the screw.

The changer can now be placed in position on its suspension springs. The changer should be levelled by first fitting the turntable, then placing a spirit level on a record on the turntable, the changer can be adjusted by raising it and adjusting the lower nuts. When level, the nuts should be assembled under the springs and locked in position with the lock nuts, and the changer connected to the power supply and pick-up to the reproducer.

It is essential to use the spring suspension assemblies on this model changer to prevent extraneous vibration from reaching the unit.

If two record spindles are used, a hole can be drilled in the wooden motor board to take the spindle not in use.

If the plug-in feature is to be used to change pick-ups, the cheese headed screw under the pick-up are at rear of pick-up should be removed. This screw should be replaced and tightened up for transit purposes only.

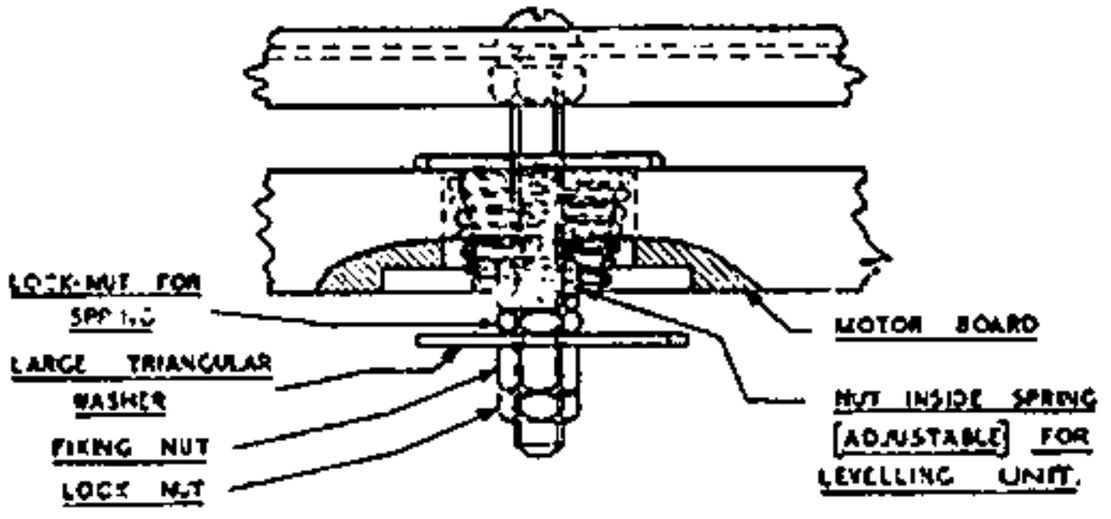
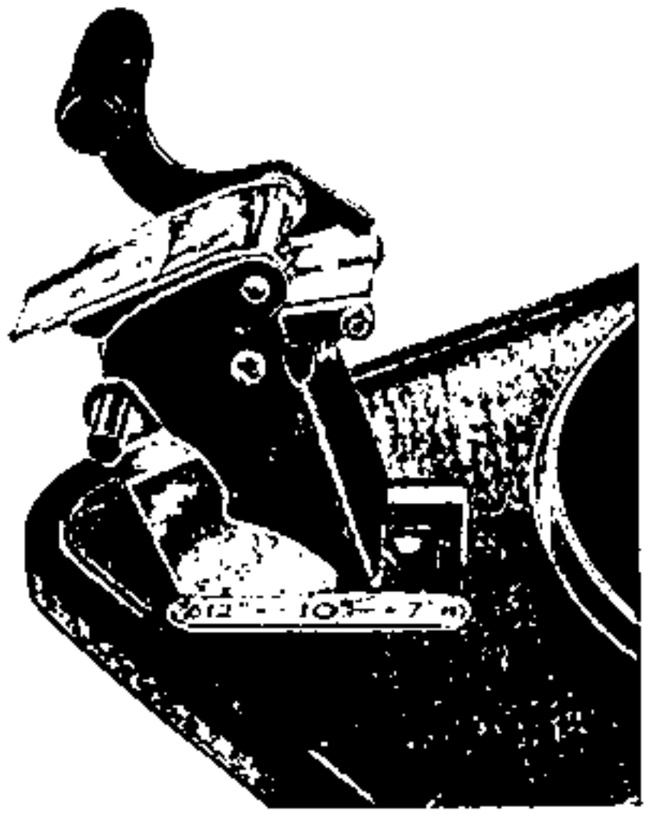
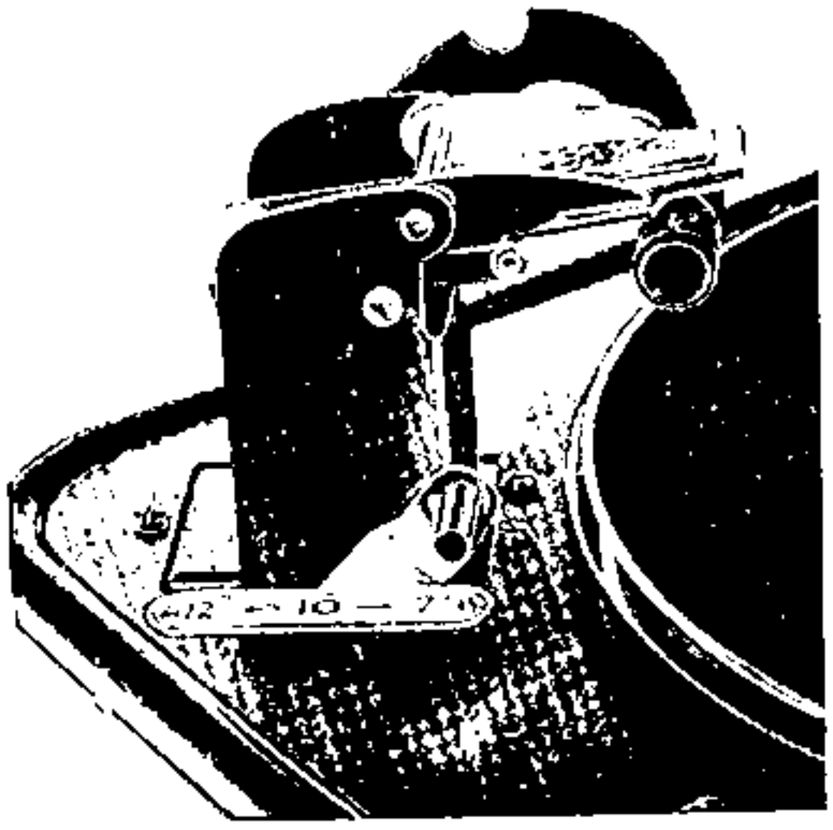


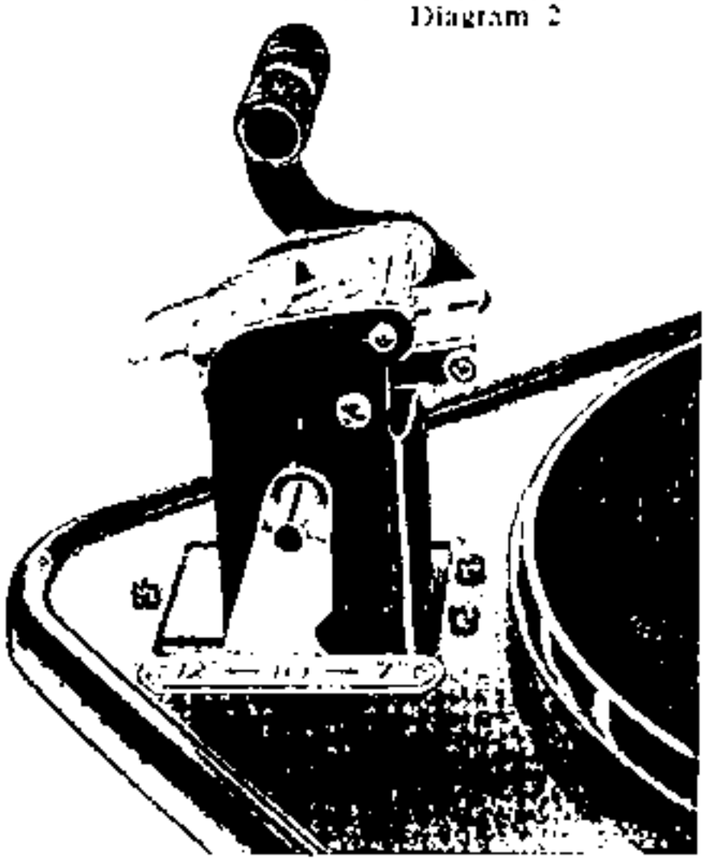
Diagram 1



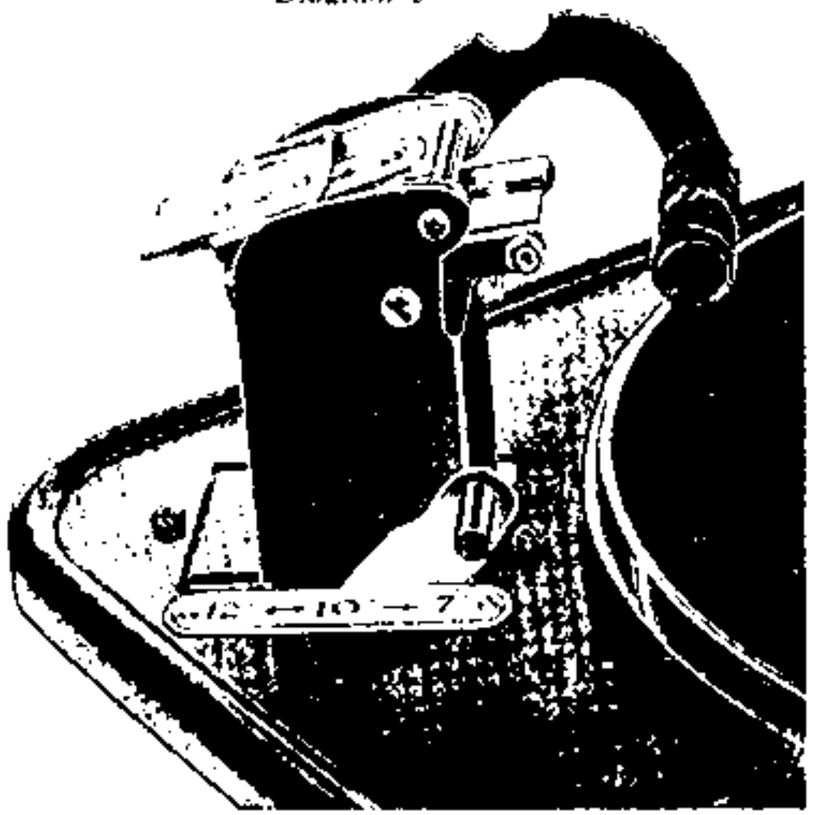
Record Platform
Set for 12" Records
Diagram 2



Record Platform
Set for 7" Records
Diagram 3



Record Platform
Set for 10" Records
Diagram 4



Record Platform set for 7"- 45 r.p.m. Records
using the large Record Spindle
Diagram 5

TRANSIT SCREWS.

Two plated wood screws are supplied for use in clamping the record changer rigid to the motor board for transit purposes. The small bakelite washers should be fitted under these screws to prevent marking the mounting plate. **THESE SCREWS MUST BE REMOVED BEFORE USING THE RECORD CHANGER.** The position of the screws is shown on template and diagram 11.

MAINTENANCE.

The bearings in the motor and intermediate wheel are of the oil retaining type and rarely need lubricating. When the need for oil is apparent, remove both the belts and while holding the rubber tyred intermediate wheel out of the way, lubricate the motor and pulley bearings with a light grade of machine oil. Carefully remove every trace of oil from the driving surfaces before replacing the belts.

To avoid slip resulting in speed variation, the rubber tyre on the intermediate wheel, the two belts, turntable drum and pulleys must be kept free from oil.

On D.C. and Universal models the three felt pads on the governor should occasionally be lubricated; they are accessible through the gap at the bottom of the motor.

TO REMOVE THE TURNTABLE.

The turntable may be removed by applying equal pressure under diametrically opposite sides of the rim with the fingers and lifting with a slightly twisting motion.

TO REFIT THE TURNTABLE.

1 Turn the speed knob to "33."

2 Move control knob to "START" then back to "STOP" position.

3 Place turntable on main spindle and while moving control knob to "START" position slowly rotate turntable clockwise when it will drop into position.

VOLTAGE AND FREQUENCY.

The "GARRARD" Model R.C. 75A/A.C. Record Changer is suitable for use on 100/130 and 200/250 volts, at either 40, 50 or 60 cycles according to the motor pulley supplied, and the links on the terminal block should be set to the correct position to correspond with the voltage of the power supply as shown in diagram 6. A motor driving pulley can be supplied for 40, 50 or 60 cycle mains as required.

The model R.C. 75A/D.C. Record Changer is suitable for use on 100/130 and 200/250 volts direct current only and the link on the terminal block should be set to the correct position to correspond to the voltage of the power supply as shown in diagram 7.

The model R.C. 75A/UNIV Record Changer is suitable for use on 100/130 and 200/250 volts. D.C., and A.C. 25/100 cycles, and the links on the terminal block should be set to the correct position to correspond to the voltage of the power supply, if A.C. as shown in diagram 8, or if D.C. as shown in diagram 9.

The speed of the UNIV and D.C. motors is governor controlled and information for adjusting the speed will be found under "Service Adjustments."

The motor should be earthed by connecting a lead from the earthing tag, (located under one of the motor end cover screws) to a good earth connection.

When adapting an A.C./D.C. (Universal) Radio Receiver, Amplifier, or one using an A.C./D.C. Power Pack, for the reproduction of gramophone records, a pick-up transformer, or condensers in series with the pick-up leads should be fitted, otherwise the pick-up circuit becomes alive. Also the leads from the radio set or amplifier to the pick-up should be screened and as short as possible.

The moulded cover on the terminal block is coloured to distinguish the type of motor.

BROWN—Motor for A.C. only.

BLUE—Motor for D.C. only.

GREEN—Low voltage D.C. motor only.

RED—Universal Motor for A.C. or D.C.

LINK CONNECTIONS FOR A.C. MODEL

CONNECT BOTH BARS THUS FOR 200/250 Volts A.C.

CONNECT BARS THUS FOR 100/130 Volts A.C.

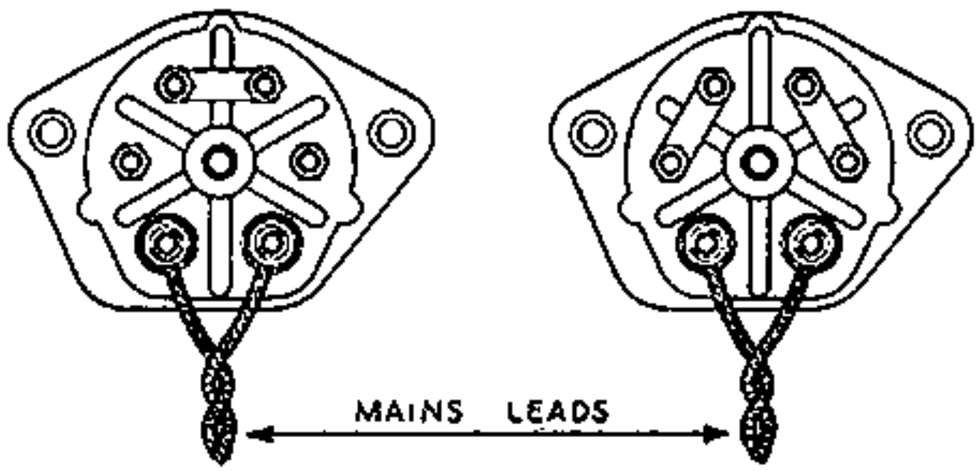


Diagram 6

LINK CONNECTION FOR D.C. MODEL

CONNECT BAR THUS FOR 200/250 Volts D.C.

CONNECT BAR THUS FOR 100/130 Volts D.C.

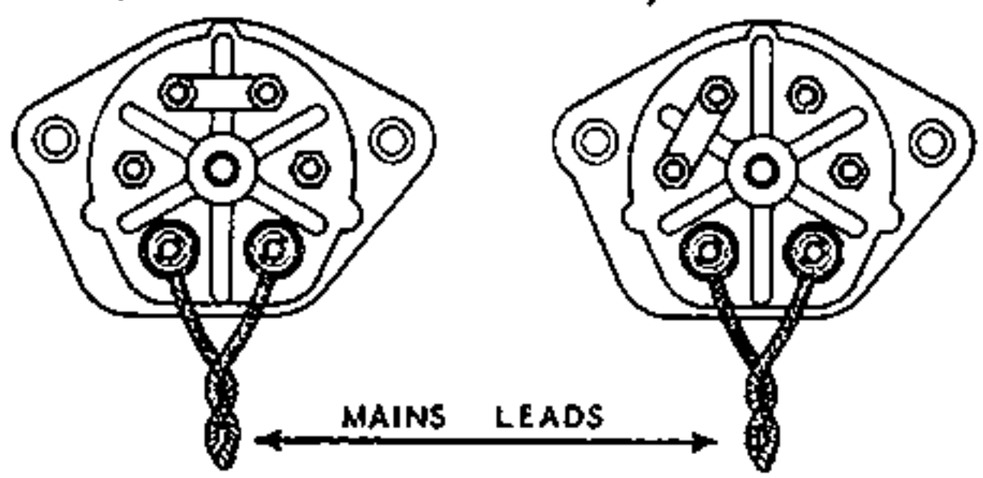


Diagram 7

LINK CONNECTIONS FOR UNIVERSAL MODEL

CONNECT BARS THUS FOR 200/250 Volts A.C.

CONNECT BARS THUS FOR 100/130 Volts A.C.

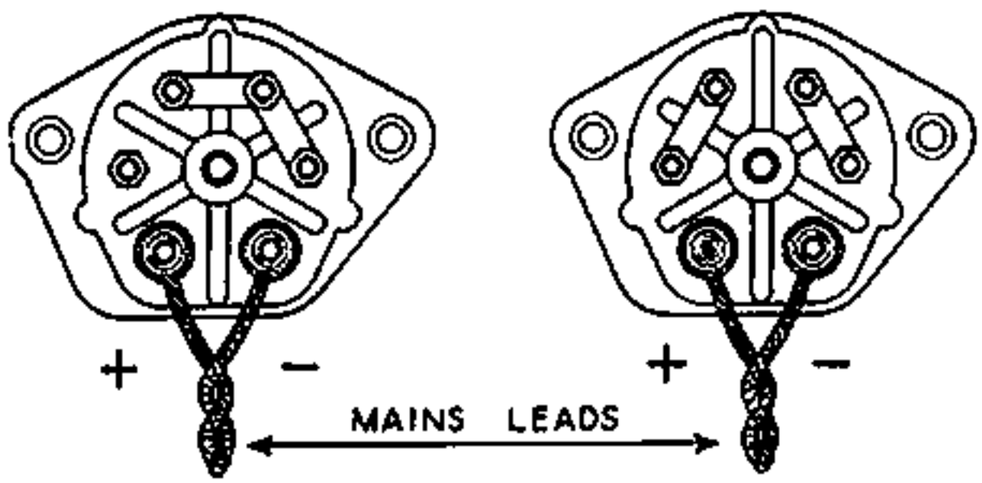


Diagram 8

CONNECT BOTH BARS TOGETHER THUS FOR 200/250 Volts D.C.

CONNECT BOTH BARS TOGETHER THUS FOR 100/130 Volts D.C.

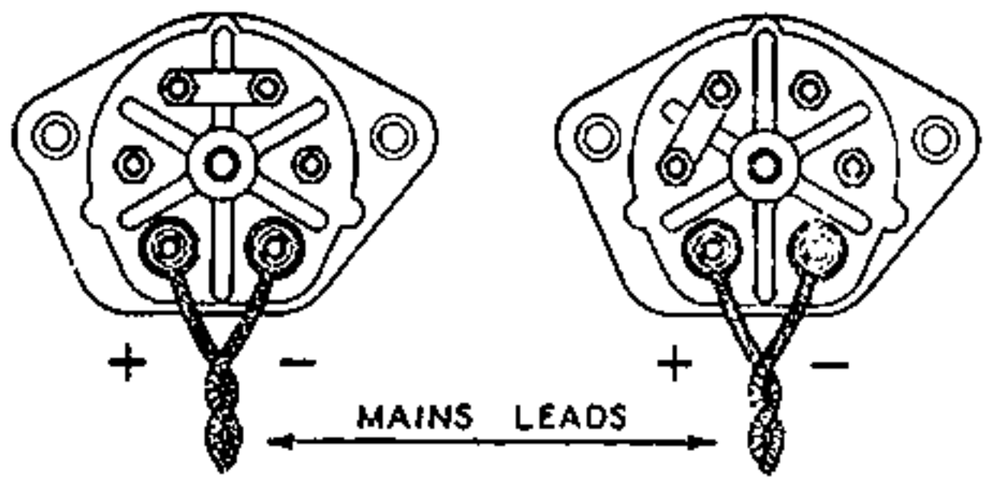


Diagram 9

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 changer always place a 12" record on the turntable to protect the pick-up stylus should it inadvertently land.

SPEED.

The Model R.C. 75A/A.C. Motor is arranged to give the desired turntable speed within close tolerances. Should the turntable run excessively fast or slow then the motor pulley should be examined to see if it is the correct one to suit the frequency of the mains supply.

The motor pulley is colour finished as follows to distinguish the three types:—

Nickel	-	50 cycles.
Brass	-	60 cycles.
Copper	-	40 cycles.

The speed of the R.C. 75A/D.C. UNIV and low voltage models, is governor controlled, the governor being located at the lower end of the motor and is screwed on to the armature shaft and held in position by a screw through the governor collar. To adjust the speed, loosen the screw in the governor, and turn the governor a very small amount clockwise to increase the speed, or anti-clockwise to reduce it. Tighten the screw before running the motor to check the speed.

SPEED VARIATION.

It is essential that the driving surfaces of the three brass pulleys, the rubber tyred interwheel, and the belts, should be kept absolutely free from all oil or grease. This is the first point which must be checked if the turntable speed varies and the pulleys, belts and interwheels should be cleaned with a dry cloth if contamination with oil is suspected. Another point to check is that the two belts run centrally on their pulleys: should they tend to run off the pulley, try removing the belt and turning it over. If this does not cure the trouble, a new belt should be fitted. Also see that the main spindle has a small amount of end play. To check this, remove the turntable and grip the main spindle firmly lifting it up and down. If no movement is felt, loosen the two screws (diagram 10) which hold the fixed portion of the main spindle, raise the main spindle a very small amount and re-tighten the screws.

MOTORS.

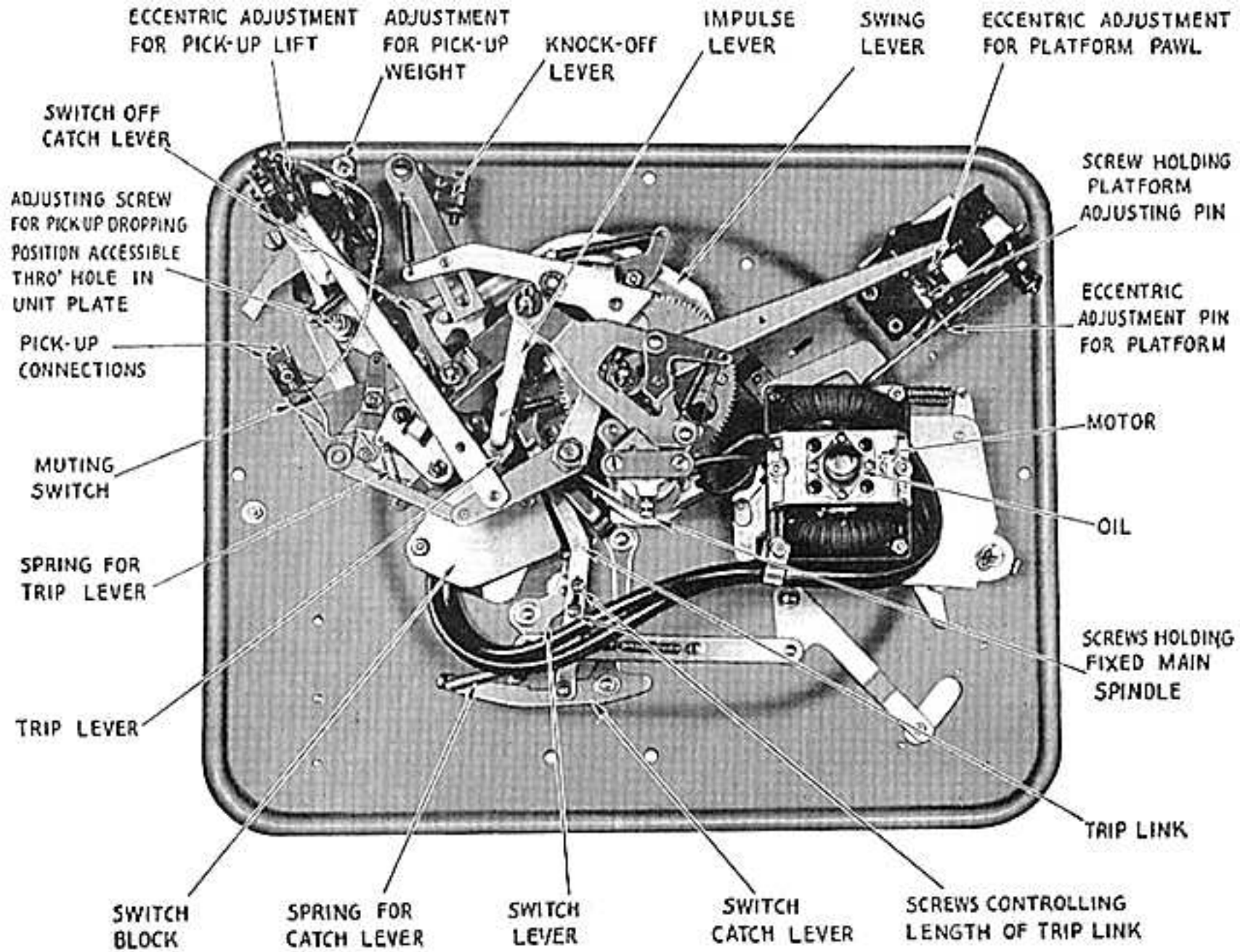
If the motor fails to start when the control knob is turned to "Start," first check the power supply and ascertain if current is reaching the motor terminals. If correct, switch off the mains supply and examine the terminal block and see that the leads and screws are tight, also examine the switch contacts accessible underneath. Clean and adjust if necessary. On the R.C. 75A/D.C., UNIV, and low voltage D.C. models examine the motor brushes and make sure they are clean and making good contact with the commutator. Also ensure that they are not sticking in the brush tubes.

The "Switch Catch Lever" (diagram 10) should also be checked to see that it is engaging when the knob is moved to "Start." If it fails to engage, adjustment is provided on the link which operates it to allow it to drop into engagement with the "Switch Lever" and hold it in position.

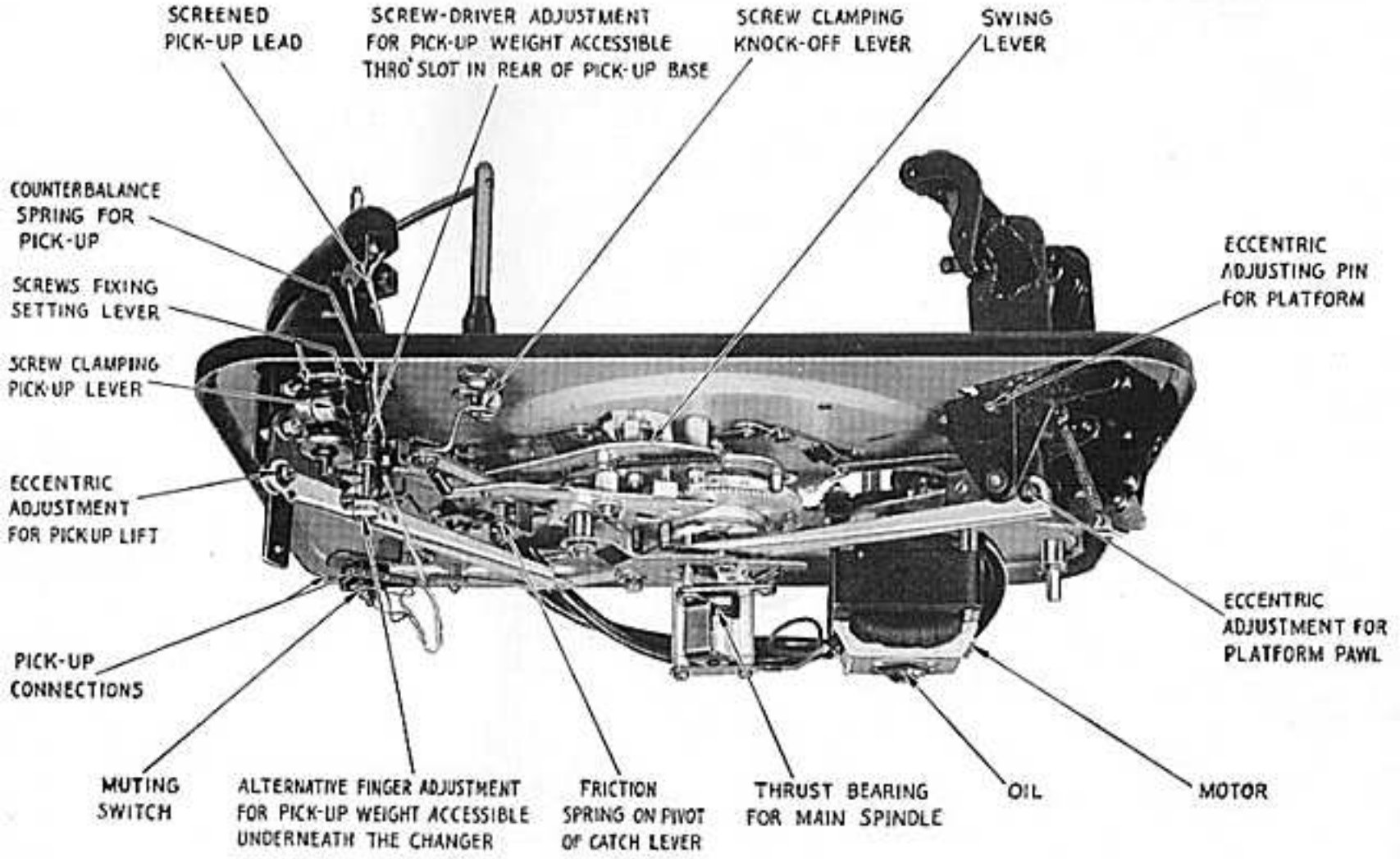
If a thick oil has been used to lubricate the motor bearings, the motor will appear weak or will not start. It will then be necessary to dismantle the motor and clean away all traces of the thick oil. It is, therefore, essential to lubricate the motor bearings with a good quality thin oil.

Should the motor get too hot, see that the voltage changeover links are set correctly to correspond with the voltage of the power supply. If correct, check the motor windings by inserting an A.C. milli-ammeter in either motor lead.

The maximum current consumption of the R.C. 75A/A.C. should not exceed 0.26 amp. on 100/130 volts. 50/60 cycles, or 0.13 amp. on 200/250 volts 50/60 cycles. On the R.C. 75A/UNIV the current should not exceed 0.14 amp. A.C. and 0.18 amp. D.C. on 100/130 volts.

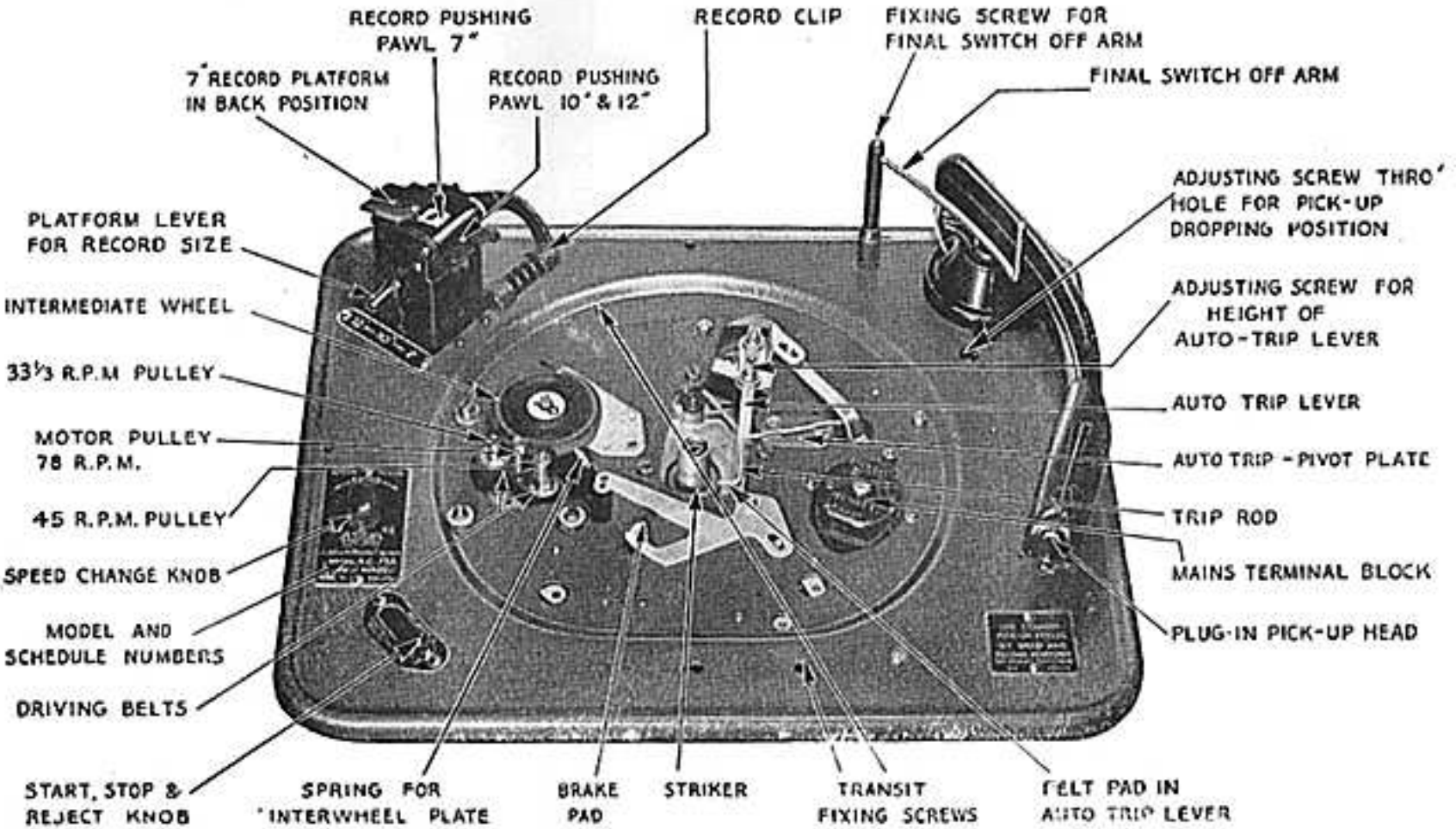


Underneath View Diagram 10



View with Turntable Removed

Diagram 10A



View with Turntable Removed

Diagram 11

or 0.2 amp. A.C. and 0.25 amp. D.C. on 200/250 volts. On the R.C. 75A/D.C. the current should not exceed 0.18 amp. on 100/130 volts or 0.25 amp. on 200/250 volts. On the low voltage 12 volt model, the current should not exceed 1.1 amps, or the 6 volt model 2 amps.

If readings in excess of the above figures are obtained, the motor unit should be returned for examination.

To remove the motor, first make sure the electricity supply is disconnected, then remove the insulated plate on the underside of the terminal block and the two terminal block fixing screws will now be accessible, after removal the terminal block will be released and will be attached only to the motor leads. The speed indicator knob should also be removed.

Next, while supporting the motor underneath, unscrew the nuts on the three suspension screws which secure the motor to the unit plate. Before finally removing the motor and its mounting plate away from the unit plate, make a careful note of the sequence of steel and rubber washers on each suspension screw in order to re-assemble correctly when re-fitting the motor.

PICK-UP

Two types of stylus are necessary for playing the different types of record a stylus having a point radius of .0025" is required for the standard 78 r.p.m. records, and one with a point radius of .001" is required for the fine groove 33⅓ and 45 r.p.m. records. To obviate stylus changing either two plug-in pick-up heads or a turnover type of pick-up having two styli can be used. Care should be taken that the correct radius stylus is used for the type of record to be played.

Turnover Pick-up Heads are set correctly when the type or speed of record to be played is showing on top of the turnover knob. The arrow on the knob indicates the direction to turn it when a change is needed.

Should another type of pick-up be used other than that supplied with the unit, some adjustment for the difference in pick-up weight may be required.

The pick-up weight adjusting screw is located under the unit plate at the rear of the pick-up arm as indicated on Diagram 10 and to adjust the pick-up weight, the knurled knob should be turned to give either an increase or decrease in spring tension. Alternatively the screw head at the top of the knurled knob is accessible by inserting a screwdriver through the slot at rear of the pick-up arm base. The maximum recommended weight for long playing records is 10 grammes, and the use of a GARRARD Stylus Pressure Gauge is strongly recommended.

Should trouble be experienced with the reproduction from the pick-ups, the head should be returned for examination to the manufacturer whose name or trade mark appears on the cartridge.

Crystal cartridges must not be opened or the manufacturers will disclaim all responsibility.

Note: A continuity test cannot be carried out on Crystal Pick-ups with an ohmmeter.

Should there be a tendency for the pick-up to track incorrectly, especially on the first record, check the pick-up weight and adjust as explained above if found lighter than 10 grammes

If the pick-up does not run into the record grooves after alighting on the record edge, see that the record changer is level by placing a spirit level on a record on the turntable. Also make sure that the flexible wire leading to the pick-up is not twisted or held in such a manner as to prevent the free movement of the pick-up arm; also see that the associated levers are free.

CAUTION.

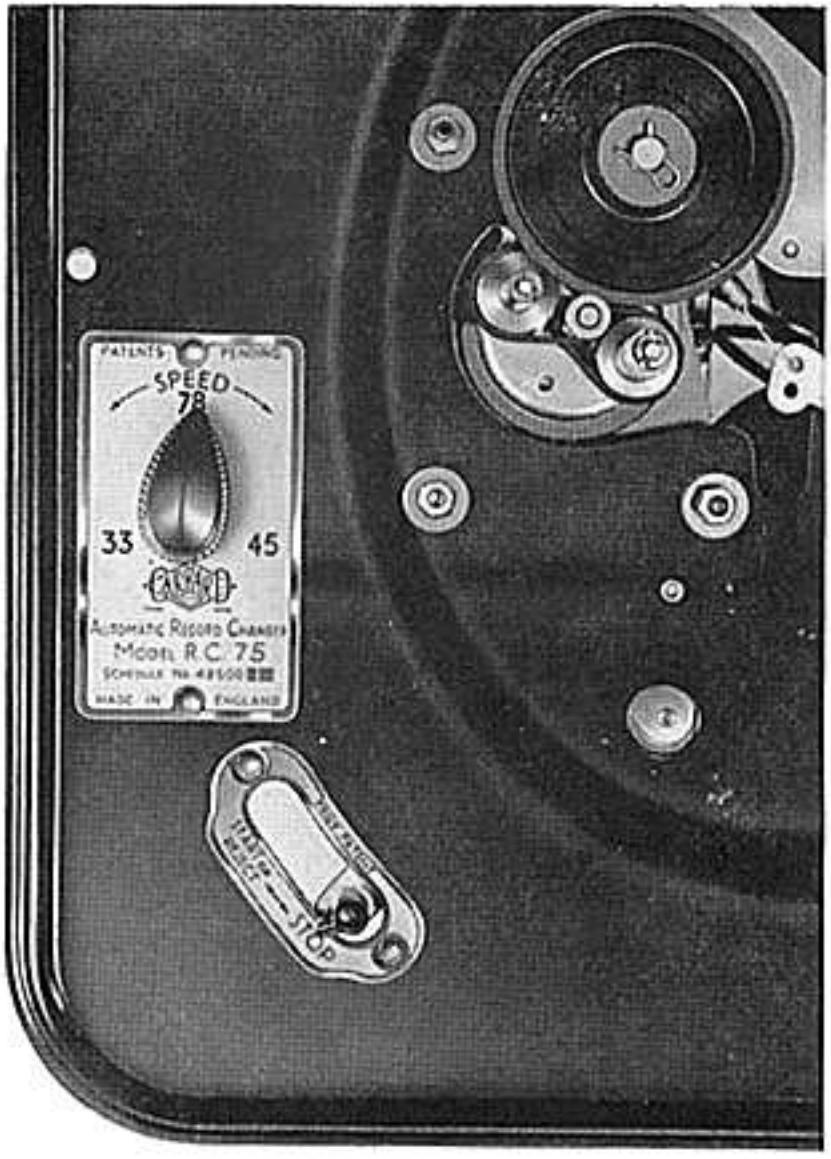
When making any adjustments to the Pick-up Arm it should NEVER on any account be forced into position. If the turntable is turned by hand it should NOT be turned backwards.

PICK-UP DROPPING POSITION.

The pick-up arm dropping position is factory adjusted for optimum accuracy. Should any minor adjustment be required rotate the screw accessible

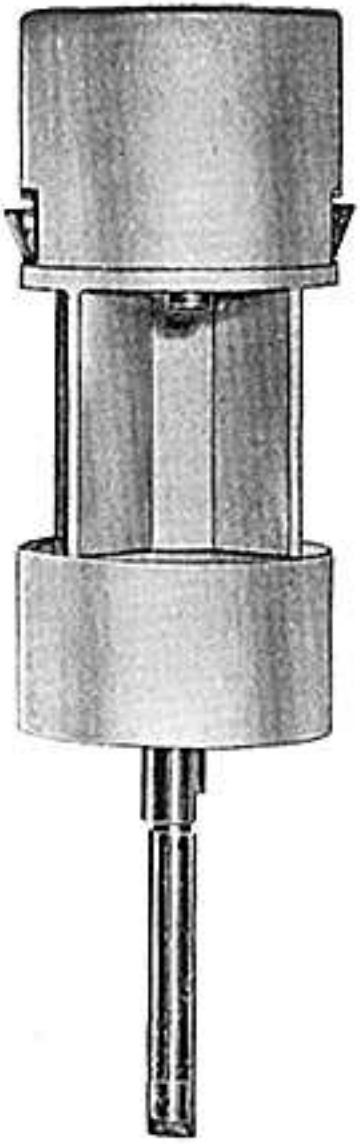
Record Spindle
for 78 & 33⅓ r.p.m.
Records

Diagram 12



View of Drive with Turntable Removed

Diagram 13



Record Spindle
for 45 r.p.m.
Records

Diagram 14

through the top plate as shown in diagram 11. Adjustment must be made only when the pick-up arm is in the rest position.

Should the pick-up hesitate when moving from the pick-up rest to the record and then suddenly jerk down and inwards thereby missing the commencing groove on the records, it is usually due to the two pick-up levers, one of which carries the "Adjusting screw for pick-up dropping" Diagram 10, being gummed up with congealed oil or foreign matter so that the spring attached to them is unable to close them smoothly as the pick-up moves towards the record. Gently ease them apart with a thin screwdriver blade and insert a spot of thin machine oil, then check that the scissor action between them is quite free.

PICK-UP LIFT.

If desired, the amount the pick-up lifts can be adjusted by loosening the nut securing the "Eccentric Adjustment for Pick-up Height" (diagram 10), and adjusting the eccentric pivot with a screw driver in the slot at back. Finally, re-tighten the nut.

PICK-UP MUTING SWITCH.

A pick-up muting switch is connected across the pick-up to short circuit the pick-up except when the changer is in the playing position. It is important to note that no sound will be obtained from the pick-up by flicking the needle when the pick-up is on its rest. The muting switch contacts should be closed except when the changer is in its playing position. Should this switch fail to operate, clean the contact faces, and ensure that they make and break according to the position of the changer mechanism.

AUTO TRIP MECHANISM.

The auto trip mechanism is the velocity type and is of a special design to be very light and sensitive in operation. It is set to commence operation when the needle reaches a 2¾" radius. The trip operates by the auto trip lever being raised by a small cam attached to the main spindle when the pick-up arm runs in on the record run off groove. The auto trip lever, on being lifted, pushes a small cranked rod which engages the clutch.

If the auto trip fails to operate, it may be caused by the auto trip lever being too low and it should be raised by giving the auto trip lever adjusting screw (diagram 11) about half a turn in a clockwise direction.

RECORD PLATFORM ADJUSTMENT.

When despatched from our Works, the record platform is set to accommodate records of average dimensions Occasionally, however, records may be found outside the normal limits. If necessary, therefore, the platform may be adjusted to take them. To adjust the platform position, loosen the screw in the platform pivot collar (diagram 10) accessible from underneath the changer, rotate the pin by means of the slot in the end, until the platform is in the required position, then re-tighten the screw. The end of this pin is eccentric, and it is this eccentric which adjusts the platform position Before finally tightening the screw after adjusting this pin, see that a small clearance, about ¼" is left between the eccentric shoulder and the side of the platform support.

Separate adjustment is provided for the platform pawl, and, to set the platform pawl, first set the platform lever in the 10" position and operate the changer until the pawl is in its forward position. It should then be flush with the edge of the record platform If it is not, the nut locking the eccentric adjustment for platform (diagram 10) should be loosened and the eccentric adjustment turned until the setting is correct, then retighten the locking nut. The pawl position should now be correct for all sizes of record.

RECORD DROPPING.

If the changer fails to drop any records other than the 45 r.p.m. type having a large centre hole, first make sure that the records are not badly warped. If they are reasonably flat, the record platform setting should be checked and adjustments made if necessary. Also check the record spindle by laying it on the template (dia-

gram 15) to see that it is not bent out of position.

Should records fail to drop correctly when using the large diameter record spindle, replace this spindle with the sloping one and see that it leans towards the record platform and is exactly in line with it. If this spindle is out of position it should be set correctly by loosening the two screws (diagram 10) holding the fixed part of the main spindle in position, turning the record spindle until it leans toward the centre of the record platform and tightening up the screws. After tightening the screws, see that the main spindle has a small amount of end play by first removing the turntable and gripping the main spindle firmly, lift it up and down. If no end play is felt, adjust as described under "Speed variation" on page 7. On fitting the large spindle the records should then drop correctly.

If the record changer should stall just before the record drops on to the turntable and as the Final Switch Off Arm, Diagram 11, moves in and touches the edge of the records, there is an excessive load on the motor due to lack of lubrication in the mechanism. Check the cam tracks in the cam unit and if they are dry grease them with a thin smear of Vaseline, also grease the cam followers on the levers.

AUTO SWITCH.

When the last record on the record spindle drops on to the turntable, it allows the final switch off arm to move inwards far enough to switch the changer off. When any records are on the spindle, the arm does not move in far enough to allow this to happen. Should the changer fail to stop automatically, check the following points:—

1 That the auto switch arm is in vertical position as shown in the illustration and that its fixing screw is tight.

2 See that the split lever holding the spindle underneath the mounting plate is also tight—it is at this point that a slight adjustment may be made to the position of the knock-off lever should it for any reason be forced out of position.

3 The switch off catch lever (diagram 10) has a friction pivot and if this should become very free it may fail to hold the catch pin when it should engage. If this is so, remove the split pin at the catch lever pivot and stretch the friction spring a small amount, replacing the washer and split pin.

TEMPLATE FOR R.C. 75A RECORD SPINDLE.

Should the sloping record spindle be accidentally bent out of position through being dropped or other reasons, the record dropping will be affected. If trouble is experienced with erratic record dropping, lay the record spindle on the template and check that it conforms to the shape thereof.

Template for Record Spindle

Diagram 15

SPARE PARTS LIST FOR R.C.75A

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.
Record Spindle (Small)	B.48741
Record Spindle (Large)	B.48480
Turntable	B.48743
Turntable Cover	A.47060
Pick-up Arm, with Bracket	B.48940
Inter Wheel with Rubber Ring	A.46524
Rubber Belt	A.48581
Motor Pulley (50 cycles)	A.48595
Motor Pulley (60 cycles)	A.48594
Motor Pulley (40 cycles)	A.49329
Pulley (45 r.p.m.)	A.48858
Pulley (33⅓ r.p.m.)	A.48861
Cover for Change Over Block	B.45473
Screw for Cover	A.40045
Switch Contact Spring with Bracket	A.47874
Switch Contact Spring with Bracket	B.47876
Rotor Spindle with Rotor	A.48592
Garrard Multi-Purpose Plug-in Pick-up Case with accessories	C.48892

REPLACEMENT SAPPHIRE STYLI FOR GARRARD PICK-UPS :—

For **Garrard Astatic Crystal Pick-up—**
A3 Stylus (Green) for 78 r.p.m. records.
A1 Stylus (Red) for microgroove records.

For **Garrard GC2 Crystal Pick-up—**
GC2/3 Stylus (Green) for 78 r.p.m. records.
GC2/1 Stylus (Red) for microgroove records.

For **Garrard Turnover Magnetic Pick-ups T.O.M.1 and T.O.M.2.—**
M1J Stylus with 2 Sapphires for T.O.M.1.
M2J Stylus with 2 Sapphires (cantilever on 78) for T.O.M.2.

To obtain the best results and longest life from your Microgroove records, occasionally check the stylus pressure with a **Garrard Stylus Pressure Gauge**, obtainable from your dealer.

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