H·M·V 2007G and 2007R

4-SPEED RECORD REPRODUCER

STUDY THESE OUTSTANDING FEATURES:—

A compact, lightweight portable 4-SPEED Record Reproducer at a popular price ● Provides playing facilities for 78, 45, $33\frac{1}{3}$ and $16\frac{2}{3}$ r.p.m. in all sizes ● Simple speed selector knob ● Lightweight pick-up with high gain turnover crystal cartridge for all speeds of records ● Inbuilt amplifier provides excellent volume ● 8″ "slot" permanent magnet speaker ● Combined volume and on/off switch ● Reliable and simple speed change and drive mechanism ● Case covered in green and grey (2007G) or in red and grey (2007R) durable leathercloth ● Protective feet on base and side ● For AC mains only.

For Technical Specification, please see over.

NZ R = £16 10 0

Oct 1957

"HIS MASTER'S VOICE"

(Made in England) Model 2007 G or R

TECHNICAL SPECIFICATION

4-SPEED Record Reproducer

MODELS 2007G and 2007R

A beautifully compact and attractive 4-speed reproducer. Thanks to its many ingenious design features, it packs into its small size an AC mains-driven 4-speed turntable unit, a lightweight pick-up, an efficient AF amplifier and the exclusive 8″ "slot" speaker—all combining to give really good quality of reproduction at an irresistible price.

CIRCUIT FEATURES: The latest type of inbuilt AF amplifier circuit, using a metal rectifier for HT supply, provides on all records an excellent output which is more than adequate for the average-sized room. The 8″ "slot" permanent magnet speaker possesses the quality advantages of a larger speaker and makes the utmost use of the smaller space available.

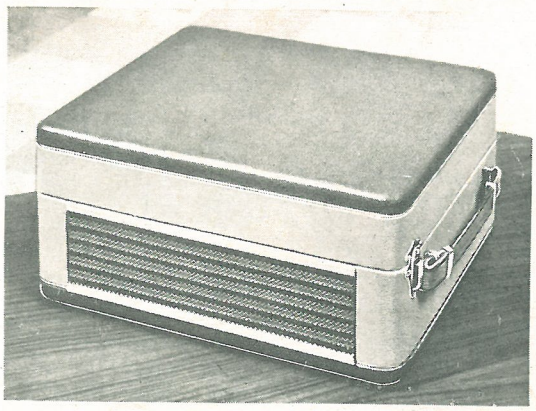
PICK-UP: The pick-up is of the high gain turnover crystal cartridge type: one stylus is employed for the reproduction of 78 r.p.m. records and the other for 16⅔, 33⅓ and 45 r.p.m. records. The stylus can be moved into an intermediate neutral position when not in use.

STYLI: The correct replacement styli are the "Acos" sapphire stylus types SK 1 (78 r.p.m.) and SK 2 (33⅓, 45 and 16⅔ r.p.m.)

MOTOR: "Squirrel cage" shaded pole induction type.

DRIVE MECHANISM: The speed selector and drive mechanism are of simplified and reliable design. Selection of speeds is controlled by means of a spring governing the height of the idler pulley.

CONTROLS: Sliding 5-position speed selector knob for four-speed positions (16⅔, 33⅓, 45, 78 r.p.m.) and "Off" to disengage the turntable. Volume and On/Off switch controls amplifier and motor.



This colourful, leathercloth covered case has a neat carrying handle and protective feet on the side and base.

VOLTAGE RANGE: 200-250 volts, 50 c/s AC only.

CONSUMPTION: 30 watts.

VALVE: UL84 AF Amplifier.

LOUDSPEAKER: 8″ "slot" permanent magnet type. Speech coil impedance 5 ohms at 1,000 c/s.

CABINET: Compact, neatly styled and finished in alternative two-colour shades of leathercloth. Model 2007G is in green and grey; Model 2007R in red and grey. There are two sets of feet for standing the instrument on its side or in the playing position.

DIMENSIONS: Height 5½″, width 12″, depth 10¼″. (approx. overall)

WEIGHT: 8½ lb. (approx.).

Made in Great Britain.

"HIS MASTER'S VOICE"
(N.Z.) LTD.,
Box 296, Wellington, N.Z.

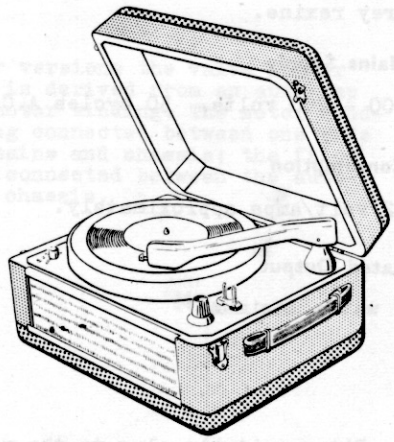
C. S. W. LTD.

"HIS MASTER'S VOICE"

MODELS 2007G
2007R

SERVICE MANUAL

FOUR-SPEED PORTABLE RECORD REPRODUCER FOR A.C. MAINS



MODELS 2007G & R

CONTENTS

Part No. 96372 Issue 1 March, 1957

2007G & 2007R

SPECIFICATION

Physical

Height	5½ inches	)
Width	12 inches	)Approx.
Depth	10¼ inches	)Overall.

Models 2007G and 2007R differ only in cabinet styling. The cabinet of Model 2007G is finished in green and grey rexine while that of Model 2007R is finished in red and grey rexine.

Mains Supply

200 - 250 volts, 50 cycles A.C.

Consumption

32 volt/amps approximately.

Rated Output

2 watts maximum.

Valve

V1	Audio Amplifier	UL84

Loudspeaker

8" slot permanent magnet, moving coil type. The speech coil has a D.C. resistance of 4.5 Ω and an impedance of 5 Ω at 1,000 c.p.s.

Pick-Up

High output, turnover, crystal type.

Styli

The styli are referred to as follows:-

SK1 - for 78 r.p.m. (green identification)
SK2 - for 16 2/3, 33⅓ and 45 r.p.m. (red identification)

Playing Weight

12 - 14 grammes (adjustable)

INSTALLATION

Fit a suitable plug to the mains lead and insert into the supply socket. The supply socket to which this instrument is connected should be fused for not more than 2 amperes.

If the mains supply socket is normally fused at a higher rating than this, a plug fused for 2 amperes may be used satisfactorily.

OPERATING INSTRUCTIONS

1. Select the correct turntable speed by positioning the SPEED SELECTOR knob into the slot marked with the speed required.

2. Turn the VOLUME ON/OFF control clockwise to switch on the instrument. The valve will take a few minutes to warm up.

3. Select the correct stylus for the type of record to be played by turning the STYLUS CONTROL knob to "33" or "78". The green "78" should be uppermost when playing standard records at 78 r.p.m. The red "33" should be uppermost when playing microgroove records at 16 2/3, 33⅓ and 45 r.p.m.

4. Lift the pick-up in one hand and place the record on the turntable.

5. Lower the pick-up carefully on to the plain edge of the record.

6. Adjust volume.

7. At the conclusion of the record lift the pick-up and remove the record.

FIG. 1

8. Return the pick-up arm to its rest position.

9. The turntable may be stopped by positioning the Speed Selector knob into the "off" position. The turntable will revolve a few more times but may be stopped by hand. Alternatively the instrument may be switched off by the Volume control, but since this switches off the amplifier it is desirable to change the record immediately, otherwise the instrument will have to warm up again to give full volume.

IMPORTANT: Failure to observe operation 3, may cause damage to both the record and the stylus.

It is advisable to switch the Speed Selector to the "off" position if the instrument is not going to be used for several days to avoid tempory distortion of the rubber-edged idler pulley wheel which would produce a knocking sound when the instrument is used again.

WARNING: **This instrument should not be operated with the cabinet lid closed.**

CIRCUIT DESCRIPTION

The signal from the pick-up is connected via the volume control, RV1, to the grid of the audio amplifier, V1 (UL84). The amplified signal from V1 anode is coupled directly to the primary of the output transformer, TR1.

H.T. is developed by a contact-cooled metal rectifier, MR1, and reservoir capacitor, C4. Smoothing is by R2 and C2.

The valve heater voltage is derived by dropping the mains voltage through the motor winding; the filament being in series with the motor and connected to chassis.

The capacitor, C3, decouples the mechanism plate, and at the same time isolates it from the mains supply, thus preventing contact with the live side of the mains under any condition.

NOTE: On later versions the valve heater voltage is derived from an auto-tap on the motor winding. The motor winding being connected between one side of the mains and chassis; the filament is connected between the auto-tap and chassis.

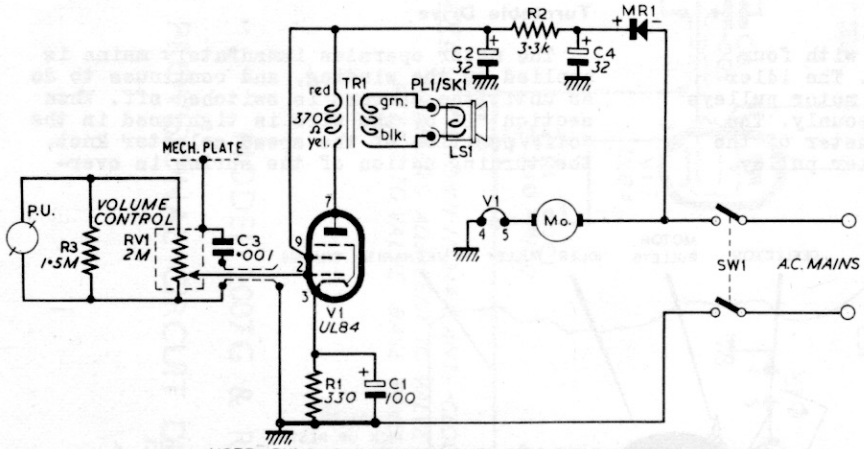


FIG. 2 CIRCUIT DIAGRAM - EARLY VERSION

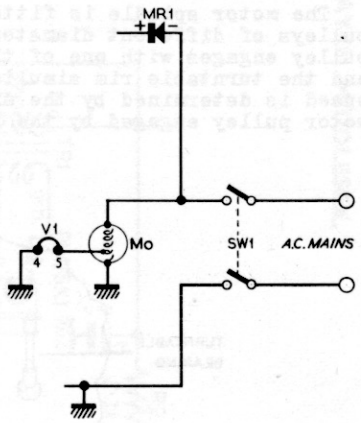


FIG. 2A LATER VERSION

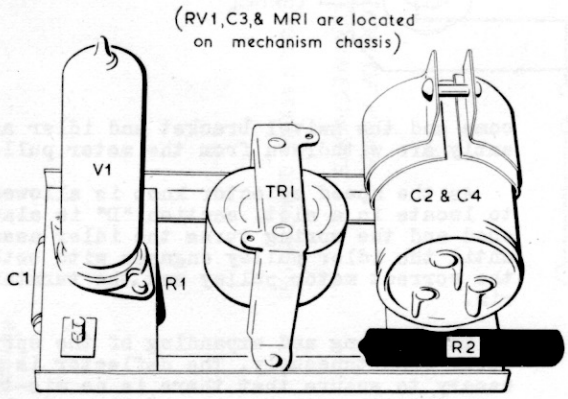


FIG. 3 AMPLIFIER UNIT

VOLTAGE AND CURRENT READINGS

The following readings are given for a mains input of 240 volts. Due allowance should be made for any variation in mains voltage.

V1	pin 7	160V	39 mA.
V1	pin 9	170V	2 mA.
V1	pin 3	14V	41 mA.

MR1 +ve to chassis : 300V
Smoothed H.T: 170V

DISMANTLING

The amplifier and mechanism may be removed from the cabinet as one unit. To do this proceed as follows:-

1. Disconnect the instrument entirely from the mains.
2. Remove four round-headed screws securing mechanism to cabinet.
3. Lift out mechanism plate.
4. Remove two nuts and washers securing amplifier unit to supporting screws.
5. Remove plugs from loudspeaker sockets.
6. Remove amplifier and mechanism together.

For access to topside of mechanism plate, switch speed selector to "off" and lift off turntable. When removing the turntable it is advisable to twist the circlip a quarter of a turn. This will then free the turntable and prevent the circlip from being lost.

WARNING: When testing the mechanism and amplifier after withdrawal from the cabinet, always ensure that there is no contact between the amplifier chassis and the mechanism as the chassis may be live under certain conditions.

OPERATION OF MECHANISM

Speed Selection

The motor spindle is fitted with four pulleys of different diameters. The idler pulley engages with one of the motor pulleys and the turntable rim simultaneously. The speed is determined by the diameter of the motor pulley engaged by the idler pulley.

Turntable Drive

The motor operates immediately mains is applied to the winding, and continues to do so until the current is switched off. When section "D" of the wire is tightened in the "off" position of the speed selector knob, the turning action of the spring is over-

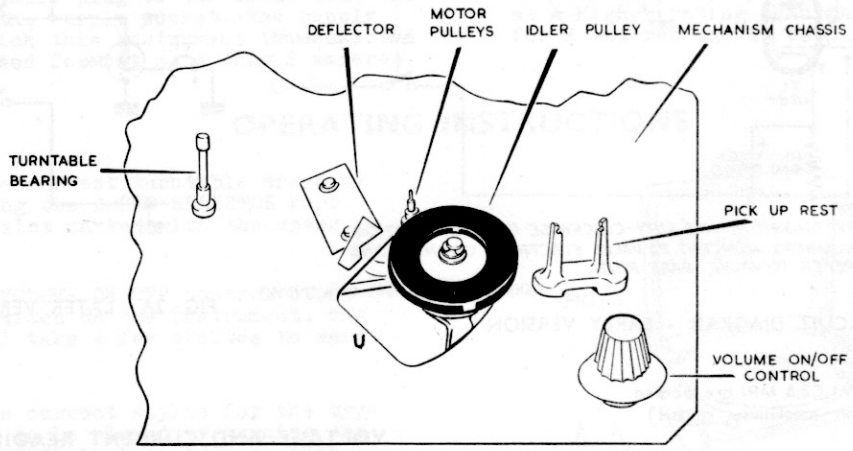


FIG. 4
MECHANISM WITH TURNTABLE REMOVED

The idler pulley is mounted on a bracket attached to a spring. Contraction or expansion of the spring varies the height of the idler pulley. This is effected by tightening or slackening section "S" of a wire which is passed through a curved tube so that it acts in a vertical direction only. See Fig.5.

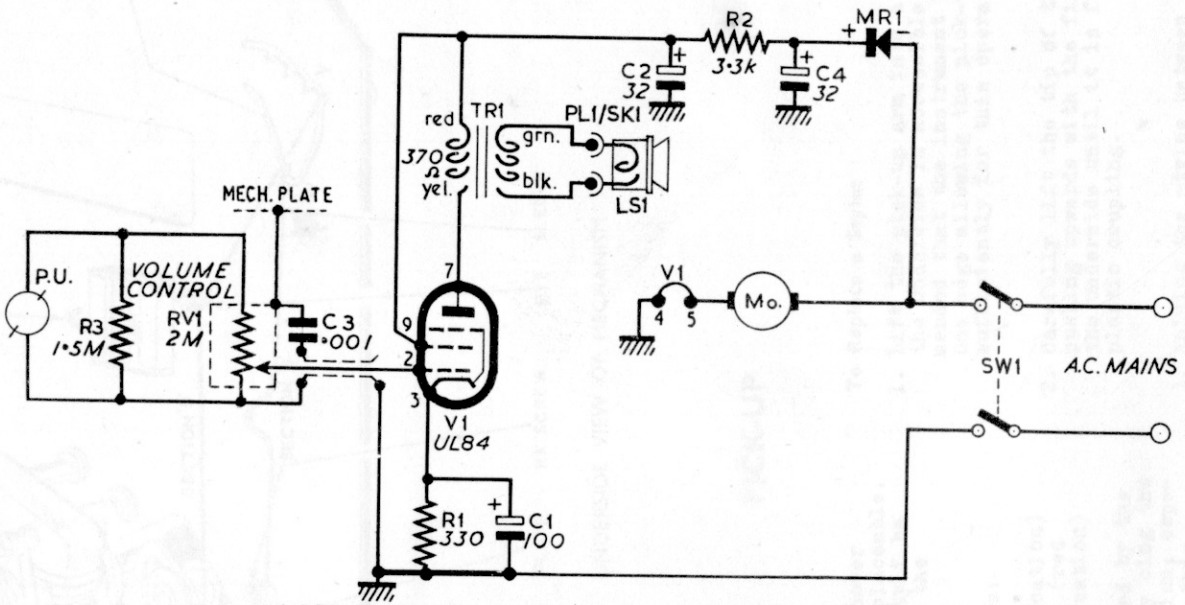
In the 16 r.p.m. position the section "S" is taut, the spring contracted, and the idler pulley held at the height of the smallest motor pulley. In the 78 r.p.m. position the opposite occurs and the idler pulley is adjusted to the height of the largest motor pulley.

come and the swivel bracket and idler assembly are withdrawn from the motor pulleys.

As the speed selector knob is allowed to locate in a slot, section "D" is slackened and the spring turns the idler assembly until the idler pulley engages with both the correct motor pulley and the turntable rim.

The turning and expanding of the spring occur simultaneously. The deflector is necessary to ensure that there is no mis-timing caused by the idler pulley falling back too far and engaging the wrong motor pulley when a speed is selected.

ISSUED BY:- **E.M.I. SALES & SERVICE LTD., HAYES, MIDDLESEX.**



NOTE: RV1 SHOWN IN MAX. ANTI-CLOCKWISE POSITION OF KNOB.
NUMBERS ADJACENT TO VALVE ELECTRODE CONNECTIONS REFER TO VALVE BASE PINS.

TECHNICAL PUBLICATIONS DIVN. TP7359/1

MODEL 2007 G & R

PROVISIONAL CIRCUIT DIAGRAM

Part No. 96372/CT

Printed in England

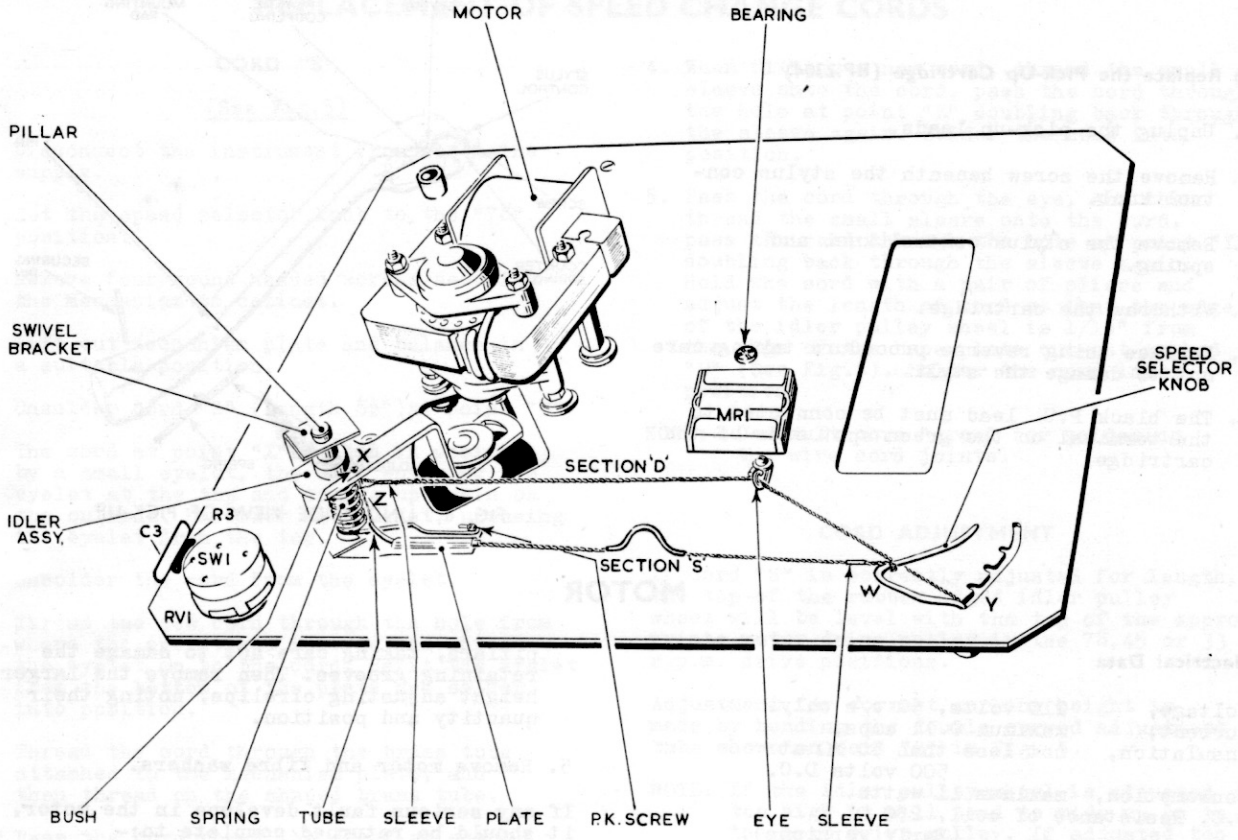


FIG. 5 UNDERSIDE VIEW OF MECHANISM

PICK-UP

The pick-up is fitted with a turnover crystal cartridge. The styli are replaceable. Under no circumstances should any styli be used other than those specified for the cartridge.

The styli are referred to as follows:-

SK1 - for 78 r.p.m. (green identification)
SK2 - for 16 2/3, 33⅓ and 45 r.p.m. (red identification)

The life of a stylus is determined by the care with which it is used. Dust may clog the stylus tip and cause poor reproduction, especially of long playing records. If this occurs, the dust is best removed by brushing with a small soft brush.

Long playing records should be cleaned periodically with an EMITEX cleaning cloth, which is designed to prevent the attraction of dust. Rubbing with an ordinary dry cloth is not advisable.

To Replace a Stylus

1. Lift the pick-up arm into a position where the underside is accessible. It is recommended that the instrument be stood on one edge allowing the pick-up to overhang sufficiently for this operation.

2. Carefully lift the tip of the stylus by pushing upwards with the finger-tip from the underside until it is free from the plastic coupling.

3. Holding the stylus between the thumb and forefinger, withdraw the shank from the circular mounting pad.

4. Replace in the reverse manner. The stylus should be pressed on to the plastic coupling firmly with the fingernail, but not clinched on with a tool of any description

To Replace the Pick-Up Cartridge (BP.2304)

1. Unplug the pick-up leads.
2. Remove the screw beneath the stylus control knob.
3. Remove the stylus control knob and spring.
4. Withdraw the cartridge.
5. Replace using reverse procedure taking care not to damage the styli.
6. The black P.U. lead must be connected to the terminal on the green spot side of the cartridge.

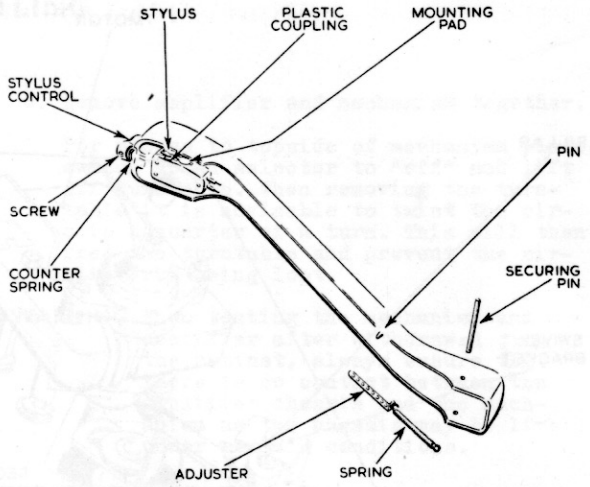


FIG. 6 UNDERSIDE VIEW OF PICK-UP

MOTOR

Electrical Data

Voltage, 210 volts, 50 c/s only.
Current, maximum 0.11 amps.
Insulation, not less than 50 MΩ at 500 volts D.C.
Consumption, maximum 11 watts.
D.C. Resistance of coil, 250 Ω (Early versions).
D.C. Resistance of coil, 270 Ω (Later versions).
Voltage at tap with valve connected 45 volts.
Voltage at tap with valve removed 55 to 57 volts.

To Remove the Motor

1. Disengage the idler pulley by positioning the speed selector knob to "off".
2. Lift off the turntable.
3. Unsolder leads from the motor tags.
4. Remove the small circlips from supporting pillars, taking care not to damage the retaining grooves. Then remove the larger height adjusting circlips, noting their quantity and position.
5. Remove motor and fibre washers.

If any serious fault develops in the motor, it should be returned complete to:-

Service Department, E.M.I. Sales & Service Ltd., Sheraton Works. Wadsworth Road, Greenford, Middlesex, England.

Key	Description	Part No.
1	Nut (2)	200704
2	Washer (2)	201804
3	Bottom Bearing Housing	46582A
4	Ball Bearing	249
5	Shading Ring	46581B
6	Rotor & Top Bearing Housing	96213A
7	Securing Bolts	96215
8	Coil	96216A

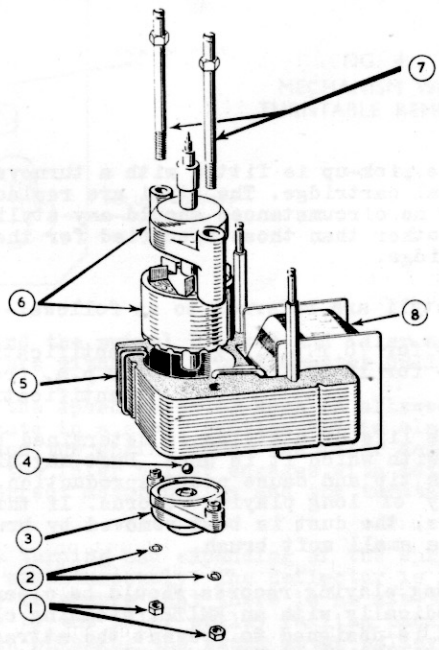


FIG. 7 EXPLODED VIEW OF MOTOR

REPLACEMENT OF SPEED CHANGE CORDS

CORD "S"

(See Fig.5)

1. Disconnect the instrument from the mains supply.
2. Set the speed selector knob to the "78" position.
3. Remove four round headed screws securing the mechanism to cabinet.
4. Lift out mechanism plate and balance in a suitable position.
5. Unsolder cord "S" (Length 8½")at point "W".
6. The cord at point "X"is held in position by a small eyelet, the cord entering the eyelet at the top and coming up again on the outside. Unsolder the eyelet, pressing the eyelet from the top.
7. Unsolder the cord from the eyelet.
8. Thread the new cord through the hole from where the eyelet was removed and thread the eyelet on to the cord. Refit the eyelet from the bottom of the plate and solder into position.
9. Thread the cord through the brass tube attached to the mechanism plate, and then thread on the shaped brass tube.
10. Pass the cord round the speed selector at point "W", hold the end of the cord with a pair of pliers and adjust the length of cord so that the idler pulley is just ⅛"below the top of the 78 r.p.m. pulley. Solder the cord into position.

CORD "D" (LENGTH 9")

(See Fig. 5)

1. Set the speed selector to the "16" position.
2. The cord at point "Y" is threaded through an eyelet and doubles back through a small sleeve. Unsolder the sleeve and slide it away from the eyelet, then unsolder the cord from the eyelet.
3. The cord at point "Z" can be removed in the same manner as above.
4. When fitting a new cord, thread the small sleeve onto the cord, pass the cord through the hole at point "Z" doubling back through the sleeve again. Solder the cord into position.
5. Pass the cord through the eye, and then thread the small sleeve onto the cord, pass the cord through the hole at point "Y" doubling back through the sleeve again. Hold the cord with a pair of pliers and adjust the length of cord so that the edge of the idler pulley wheel is 1/16" from the edge of the base plate cut-out marked "U" (See Fig.4). Solder the cord into position.

NOTE:- Use Multicore "Arax" for soldering the wire cord joints.

CORD ADJUSTMENT

If cord "S" is correctly adjusted for length, the top of the rubber edged idler pulley wheel will be level with the top of the appropriate motor drive pulley in the 78,45 or 33 r.p.m. drive positions.

Adjustment for correct working height is made by bending the double curved adjustment tube shown on cord "S" in Fig. 5.

NOTE: If the idler pulley wheel is adjusted too high it will tend to ride up on to the next drive pulley. If adjusted too low, the lower edge of the idler pulley will foul the top edge of the adjacent larger drive pulley. This will cause wear of the rubber, incorrect speed of the turntable and bad wow.

If cord "D" is correctly adjusted for length, there will be no tension in the cord when the speed control knob is set in the 16 r.p.m. position. When the control is set in the "OFF" position the idler pulley will be approximately ⅜" from the motor pulleys.

NOTE: Adjustment for cord "D" is made by moving the eye backwards or forwards. If cord "D" is too long, the idler pulley will not come clear of the motor pulley during speed changing, thus fouling the edge of an adjacent larger diameter drive pulley. If the cord is too short, the idler pulley will not properly engage both drive pulley and turntable.

GENERAL ADJUSTMENTS

The pick-up playing weight is adjustable between 13 and 15 grammes. Adjustment is by means of the adjuster and spring located on the underside of the pick-up arm. See Fig.6.

If it is found that the idler pulley is engaging with the wrong motor pulley following a component replacement, the height of the motor may be adjusted by the addition of circlips to the supporting pillars on the topside of the mechanism plate. After considerable use, a few drops of light machine oil should be applied to the turntable bearing, idler pulley bearing and the sliding bush attached to the spring.

SPARE PARTS LIST

PART No.	DESCRIPTION	No. PER INST.	FIN-ISH
	INSTRUCTIONS		
96371	Instruction Card	1	00
96377	Guarantee Card	1	00
	CABINET AND FITTINGS		
96257A	Cabinet complete - Model 2007G only	1	00
96257B	Cabinet complete - Model 2007R only	1	00
164/305/501	Tygan for Baffle Board - Model 2007G only	1	00
164/305/802	Tygan for Baffle Board - Model 2007R only	-	-
96258A	Handle - Model 2007G only	1	00
96258B	Handle - Model 2007R only	1	00
200042N	Screws securing Loudspeaker to Baffle Board	4	689
200042M	Screws securing Baffle Board to Cabinet	4	689
200704	Nuts) securing Baffle	10	696
201304	Washers) Board Loudspeaker & Handle	10	689
96262	PVC Channel on Baffle Board edge	2	00
168/306/501	Rexine Leathercloth for lid & bottom (Green)) Model 2007G Only	-	-
168/306/802	Rexine Leathercloth (Grey) for Cabinet sides & inside of lid)	-	-
168/306/201	Rexine Leathercloth for lid & bottom(Red)) Model	-	-
168/306/802	Rexine Leathercloth for Cabinet sides & inside of lid (Grey)) 2007R only	-	-
173/399/401	Gold Bead	-	-
19203	Brads securing Gold Bead	As req'd	
96259A	Lid Catch	2	00
25627	Woodscrews securing lid catches	10	00
96260A	Hinges	2	00
25628	Woodscrews securing Hinges	8	00
9837	Rubber Feet	4	00
96261A	Bell Feet	4	00
95696E	Combination Screws securing Amplifier Unit in Cabinet	2	00
164/003/110	Felt packing pieces(under Motor Plate) on mounting block	2	00
165/001/102	Felt packing piece(under Motor Plate) on front of cabinet	1	00
46440	H.M.V.Trade Mark Transfer	1	00
96267	Transfer - "DO NOT CLOSE LID, etc".	1	00
	AMPLIFIER ASSEMBLY		
96200A	Amplifier Assembly (less loudspeaker, valve, & Flat Rectifier)	1	00
96255	Wood Spacer) securing	2	00
200704	Nut) Amplifier	2	696
201804	SP Washer) Assembly	2	00
96200	Chassis Angle Plates	2	00
1735	Earth Tag on Valve mounting plate	1	104
16757	Grommet on valve mounting plate	1	00
39250N	V1 Valveholder	1	00
-	UL84 Valve	1	00
34680DK	TR1 Output Transformer	1	513A
59119AD	Rivets securing Output Transformer	2	00
59007AA	Rivets securing Valveholder and Earth Tag	3	00
38150D	C2 & C4 Electrolytic Capacitor 350v	1	00
38420C	C1 - 100 μF Electrolytic Capacitor 12v	1	00
38552ACM	C3 - .001 μF 25% 1000v Capacitor	1	00
38190B	Clip for C2 & C4	1	00
200040G	Screw) securing Clip	1	689
200704	Nut) to plate	1	696
200040M	Screw) securing Capacitor	1	689
200704	Nut) in clip	1	696
47019	Insulating Strip between Clip and Capacitor	1	00
37990G	RV1 - 2 MΩ volume control & Mains ON/OFF switch	1	00
33362BK	R1 - 330 Ω 10% ½w Resistor	1	00
37873R	R2 - 3300 Ω 5% ½w Resistor	1	00
33362EH	R3 1.5 MΩ 20% ½w "	1	00
35444	Earth Tag on RV1	1	104
46626B	Control knob for RV1	1	00
35508	Spring for control knob	1	00
38387A	MR1 - Flat HT Rectifier	1	00
92447	Flat washer under nut fixing RV1	1	689
38750	Fixing nut for RV1	2	00
146/010/071	Mains Lead in bulk	6ft	
49651	Grommet on base plate for mains lead	1	00
	LOUDSPEAKER		
93790H	Slot Elliptical Loudspeaker complete	1	00
96208A	Spider Assembly	1	00
93788C	Cone & Coil Assembly	1	00
96210	Dust Cover	1	00
36863	Dust Cap	1	540
93793	Card Ring	1	00
91977B	Socket Panel Assembly	1	00
59119CB	Rivets securing socket panel	2	00
31852	Loudspeaker lead plugs	2	944
201304	Washer) securing loudspeaker	4	689
200704	Nut) to Baffle Board	4	696
	RECORD PLAYER UNIT (HOME)		
96230B	4 Speed Record Player complete	1	00

PART No.	DESCRIPTION	No. PER INST.	FIN-ISH
Record Player Unit (Home) (Continued)			
9559	Woodscrew)securing Record	4	06
201304	Washer)Player in cabinet	4	03
96230A	Base Plate (Printed)	1	00
46580AC	No.10 Squirrel Cage Motor	1	00
201302	Washers)	2	689
1055	Fibre Washers)securing	4	00
46347	Rubber Bushes) Motor	4	00
96231B	Circlips)	2	00
96232	Pulley Wheel) Deflector Plate)	1	689
96231A	Circlips)	2	00
96213A	Rotor Assembly only for No.10 Squirrel Cage Motor	1	00
46582A	Bottom Bearing Assembly only	1	00
96214	Short Studs)securing top	2	689
96215	Long Studs)& bottom bear-	2	689
200704	Nuts)ings together	4	696
201804	SP Washers)& motor to)caseplate.	4	00
36489	Tag under nut	1	104
96245A	Turntable Assembly	1	00
96247	Turntable Mat	1	00
96249	Spring Clip securing Turntable	1	00
96248	Turntable Bearing Spindle	1	00
	PICK-UP ASSEMBLY		
96250C	Pick-up Assembly complete (less base)	1	00
96250	Pick-up Arm only	1	00
96251	PU Trunnion only	1	00
BP2302	Adjusting Spring & Plate in PU Arm	1	00
BP2301	Pin securing PU Arm to Trunnion	1	00
96252	PU Base	1	00
BP2304	PU Cartridge (GP-59-5C)	1	00
BP2303	PU Lead and Tags	1	00
39799G	Sleeves on PU Lead	5	00
96253	Compression Ring Clip securing PU Trunnion	1	00
96244	PU Rest	1	00
SK2	LP Sytlus	1	00
SK1	Standard Stylus	1	00
49651	Grommet on Baseplate for Mains Lead entry	1	00
	SPEED SELECTOR ASSEMBLY		
96243A	Speed Selector knob & Hook Assembly	1	00
96236	Bracket supporting Pillar carrying Idler Wheel bracket Assembly	1	689
96233	Pillar through bracket	1	789
200042F	Countersunk Screw securing Pillar to Baseplate	1	689
96231C	Circlip on Pillar between Spring and bracket	1	00
96237	Spring on Pillar	1	00
96238A	Idler Wheel & Bracket Arm Assembly	1	00
95778E	Idler Wheel only	1	00
96231B	Circlip)securing	1	00
95781	Paxolin Washers)Idler wheel	2	00
116/399/600	Speed Selector Drive Wire	2ft.	
96235	Brass Tube Wire Guide	1	00
96234	Plate securing Brass Tube	1	689
211	PK Screw securing Plate	1	00
1735	Tag holding wire on Speed Selector knob & Hook Assy.	1	104
73075	Sleeve Pinch securing wire on Tag	1	00
44047	Small Brass eyelet securing wire to Idler Wheel Bracket Arm	1	00
96242	Eye on Baseplate - (near metal rectifier) supporting wire.	1	689
8777	PK Screw)securing Eye to	1	00
201306	Washer) Baseplate	1	689
95886	Brass Tube Tension Adjuster on wire	1	00