SERVICE

PHILIPS AUTOMATIC STEREOPHONIC RECORD CHANGER AG 1015/47

PHILIPS ELECTRONICS INDUSTRIES LTD.

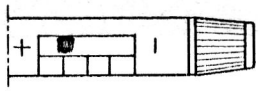
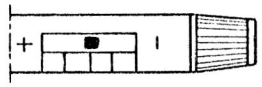
HALIFAX • MONTREAL • WINNIPEG
EDMONTON • VANCOUVER • TORONTO

SERVICE DATA
PHILIPS FULLY AUTOMATIC STEREO RECORD CHANGER
TYPE AG1015/47

SUPPLY (See Figure 22)

LINE VOLTAGE 117V LINE FREQUENCY 60 Cps.

NEEDLE PRESSURE ADJUSTMENT

TYPE	SYSTEM	MICRO GROOVE STYLUS M	STANDARD GROOVE STYLUS N	NEEDLE PRESSURE	APPROXIMATE NEEDLE PRESSURE ADJUSTMENT
AG3302	piezo-electric	sapphire	sapphire	4 - 6 grams	
AG3305	piezo-electric	diamond	sapphire		
AG3402	magneto-dynamic	diamond	--	4.5-5.5 grams	
AG3403	magneto-dynamic	--	sapphire	7 - 9 grams	

MANUAL OPERATION

For manual operation place the lever (133 on exploded view) in the rear position (lever pointing away from you). In this position, the ring under the coupling disc 46 is turned, thus raising the pick-up arm. The pick-up arm mechanism will not function when the starting button is pressed, if the lever 133 is in the rear position.

Check

When the lever 133 is in the rear position (lever pointing away from you) the pick-up needle should be 5/32" to 1/4" above the outer rib of the turntable mat.

Adjustment

To obtain the correct height of needle, shorten or lengthen the wire rod which connects the lever 133 to the lifting ring.

STARTING MECHANISM

1. Check

Place lever 133 in the rear position (lever pointing away from you).

a. Press the nylon block of scanner 40 against the cam of the turntable 11.
b. When the shorting button is pressed the starting wire must be at least 1/32" clear of the scanner. (See Figure 1).

Adjustment

Shorten or lengthen the starting wire.

2. Check

Place lever 133 in the front position (lever pointing towards you).

a. Press the nylon block of scanner 40 against the turntable spindle.

b. When the starting button is pressed, the starting wire must just touch the scanner (see Figure 2).

Adjustment

Shorten or lengthen the starting wire. Then check point 1.

DRIVING MECHANISM (See Figures 3, 4, 5).

Check

1. In the four playing positions the intermediate wheel 167 must be at least 1/64" clear of the other pulley steps (see Figure 4).

2. In the lowest position of the intermediate wheel (78 R.P.M.) the lower edge of the running surface must be at least 3/64" above the bottom edge of the turntable.

3. In the top position of the intermediate wheel (16 2/3 R.P.M.) the intermediate wheel must contact the lower portion of the upper pulley step, with a maximum of 1/32" clearance above the next step.

4. In the top position of the intermediate wheel (16 2/3 R.P.M.) it must remain a minimum of 1/32" clear of the chassis (see Figure 5).

Adjustment

Point 1 can be adjusted by bending the bracket 163 of the intermediate wheel. Check the other points after adjustment.

5. During playing, the switching bracket 152 must be at least 1/32" clear of the wire rod uncoupling the intermediate wheel (Figure 6).

Adjustment

Lengthen wire rod.

6. With the line switch in the "OFF" position, the vertical tag of switching bracket 152 must be in contact with the bracket of the chassis.

Adjustment

Lengthen or shorten the rod uncoupling the intermediate wheel.

7. If the adjustment has been carried out according to point 6, the intermediate wheel must be clear of the turntable and motor pulley in the 78 R.P.M. position.

Adjustment

If this is not the case, lug A (Figure 3) must be bent.

8. With the line switch in the "ON" position and the speed control at 16 2/3 R.P.M. an air gap must be visible between the intermediate wheel bracket 163 and the adjusting lug A of the switching bracket 152.

Adjustment

Bend the lug A. After this adjustment check point 7.

9. The distance between the top of the motor chassis plate and the bottom of the suspension brackets must be 1/16". (See Figure 7).

Adjustment

ADJUST NUTS AND WASHER 151 to proper location and seal nuts with lacquer.

10. The force measured on the intermediate wheel bracket according to Figure 3 must range from 100 to 140 grams.

Adjustment

Lengthen or shorten the spring 164.

CHANGING MECHANISM

Two conditions will motivate the changing cycle:

1. When the "start" button is pressed.
2. When the needle follows the running out groove of the record.

In both cases the cam under the turntable will contact the nylon block of the scanner 40 which pushes the scanner away. As a result, the pawl 23 is turned and the switching bracket 19 is released. Spring 50 pulls the nylon gear into mesh with the pinion of the turn table. The driving bracket and gear wheel moves the monitoring strip 17. This strip controls the movements of the various parts of the mechanism. The adjusting bracket 24 is so adjusted by the brass roller 37 that the vertical lug touches the switching bracket 19, thus locking it during changing.

During a changing cycle, strip 17 is first pushed away from the centre spindle, and then returns to its original position. When strip 17 reaches its extreme position, the roller 31 of the changing lever 4 rests against the oblique end of the strip (see Figure 10). The changing lever turns to the right, thus driving the tail of the centre spindle. The cam of the spindle moves inward, permitting the lower record to drop onto the turntable.

When strip 17 returns to its stopping position, the pawl 23 presses against the switching bracket 19 which releases the nylon gear from the pinion under the turntable. Strip 17 has then reached its stopping position. When strip 17 has reached its stopping position, the roller 31 goes into the recessed portion of the strip. The cam of the turn table can only push the scanner 40 when the strip 17 is in the stopping position. In all other positions the lug of the scanner facing downwards is stopped by the guide strip on strip 17.

1. The mechanism must begin the change cycle when the needle is in the 5 1/8" dia. lead-out grooves.

Adjustment

If the mechanism changes too late or not all all, bracket 83 must be bent in the direction of A (see Figure 8).

2. In the stopping position, the cam of the central pin 234 must be on the extreme outside. The tail of the central pin must touch the changing lever 4 (see Figure 11).

Adjustment

A screw driver should be used in the slot of the changing lever 4 to increase or decrease the distance from the hole for the central pin to the roller 31.

3. In the extreme outward position of strip 17 and with the centre spindle in place, it must be possible to rotate the roller on the changing lever. (Approx. 1/8" clearance). For adjustment see point 2. After this adjustment check point 2 (see Figure 10).

4. The spring on gear bracket 19 must have a tension ranging from 10 to 25 grams measured at the stop (see Figure 9).

Adjustment

a) Bend the lug on the mounting bracket.
b) Shorten or lengthen spring 50.

If the nylon gear 21 is turned anticlockwise by hand until the brass roller on strip 17 is on the straight part of adjusting bracket 24, this bracket must have no play between this roller and switching bracket 19 (see exploded view).

Adjustment

Bend the vertical lug of the adjusting bracket so that no play can be felt.

SWITCHING-OFF MECHANISM

The stopping strip in bracket 169 is kept in its upper position by the spring 206. When the last record drops onto the turntable, the loading arm 174 also drops down. The loading arm holds down the stopping strip. When the last record has finished playing, strip 17 moves backwards and moves along the switching-off bracket 63 (see Figure 13). When the leaf spring 67 hits against the stopping strip the switching-off bracket is turned. The lug of switching-off bracket which protrudes through the top of strip 17, turns the blocking bracket (see Figure 14). The lug of this blocking bracket projecting from a slot in mounting bracket 2, moves from position b to position a. In the latter position, the lug is in front of the lug of scanning bracket 93 which faces downwards. The pick-up arm is now checked.

While strip 17 moves to its stopping position, the pick-up arm is lowered onto the support and the blocking lug, which has been released, is returned to the original position b by the tipping spring 39. When strip 17 has nearly reached its stopping position, the lug of bracket 63 pushes the main switch into "OFF" position. Since the roller 31 has already reached the stopping slope and exerts a force on it, strip 17 jumps into its stopping position. (see Figure 12).

The brass spring of switching-off bracket 63 is stopped by the end of the screw turned through the mounting bracket 2. As a result the switching-off bracket 63 takes up its original position.

1. The line switch must be switched off when the roller 31 is between the lines marked A(see Figure 12).

Adjustment

If the line switch cuts out too soon (the stopping position is not yet attained) loosen screws in fixing plate 71 c and move it towards the turntable spindle. If the line switch cuts out too late, the plate must be moved in the opposite direction.

2. The nylon gear must be turned anti-clockwise by hand until strip 17 has taken up the changing position (roller against the oblique side of the strip). The spindle of the loading arm must be inserted into the proper hole, so that the stopping strip is pressed down. If the leaf spring 67 is pressed against the lower end of the stopping strip, the projecting lug of the switching-off bracket 63 must be in contact with the side of the hole in strip 17 (see Figure 13).

Adjustment

Spring 67 can be turned with respect to switching-off bracket 63 after loosening the fixing screw.

3. After the last record has been played, the pick-up arm moves outwards. If the lug of scanning bracket, 93 facing down, is 1/32" beyond the blocking lug, the latter must slide from position B to position A (see Figure 14). If the two lugs are placed in line, the pick-up arm must be lowered exactly onto the support.

Adjustment

Move the pick-up arm support. If this adjustment is not sufficient, bend the two lugs towards each other, or apart.

4. At a distance of 1/8" from the stopping position the switching off bracket 63 is moved into its original position by the action of the brass spring which is stopped by the end of the screw turned into the mounting bracket. This must be done in such a way that in the stopping position the lug of switching-off bracket 63 is in contact with the side of the hole in strip 17.

Adjustment

Bend the brass leaf spring on switching-off bracket 63.

INDEXING MECHANISM

The indexing mechanism consists of the record scanner 75 d connected to the large step bracket 75 c by means of spring 75 a, the small step bracket 75 b and the tumbler fitted to plate 93 (see Figures 16, 17, 18).

If a 7" record is played, the large step bracket remains in its normal position. When the pick-up arm moves inward, the tumbler moves against the first step. If a 10" record drops onto the turntable, it pushes the scanner 75 d slightly outwards. The second step of bracket 75 b now moves against the scanner 75 d. When the pick-up arm moves inward, the tumbler moves against the second step of the large step bracket 75 C. The pick-up arm is now adjusted for a larger diameter. If a 12" record drops onto the turntable, the scanner 75 d is pushed outwards so that the lower step of the small step bracket 75 b moves against the scanner. Now the tumbler moves against the third step of the large step bracket and the pick-up arm is adjusted for the largest diameter. When the pick-up arm moves outwards, after the last record has been played, bracket 54 returns. The cam of the scanner and the leaf spring connected to the large step bracket follow this movement. First the scanner moves to its highest position, subsequently the upper step of the small step bracket abuts against the scanner. The indexing mechanism is now in the correct position for lowering the needle into the running-in groove of a 7" record. The scanning diameter can be adjusted by adjusting the flat head set screw 100.

1. The needle must always be lowered into the running-in groove of the record.

Adjustment

To obtain the correct indexing, adjust the flat head screw 100 which is accessible through a hole in the turret (see Figure 15). If the needle should need adjusting inwards, turn the set screw in direction A; if outwards, turn the set screw in direction B.

2. The tumbler 93 a must stop approximately in the middle of the steps of step bracket 75 c (see Figure 16).

Adjustment

Small step bracket 75 b may be turned after loosening the fixing screw. (see Figure 17).

3. Press the scanner 75 d so that the second step of step bracket 75 b moves against the scanner.

Adjustment

Turn the nylon gear by hand until the tumbler 93 a moves against the second step of the large step bracket 75 c. Now adjust the small step bracket 75 b so that the point at which the tumbler 93 a moves against the second step of the step bracket 75 c is approximately in the middle of this step.

4. Tighten bracket 75 b again.

5. In its highest position, the lock of tumbler 93 a must project 1/64" to 1/32" from the step bracket. (See Figure 16).

6. During the changing cycle when the scanner 75 d has just attained its topmost position, the small step bracket 75 b must still be at a distance of 1/64" from the side of the scanner.

Adjustment

Bend the leaf spring on the large step bracket 75 c (see Figure 17).

7. In the stopping position, the record scanner 75 d must remain at a minimum distance of 5/64" from the mounting bracket 2.

Adjustment

Bend the horizontal lug projecting from the top of the mounting bracket 54 (see Figure 18).

8. During the changing cycle, the bracket 54 must remain a minimum of 1/64" from each end of the slot.

Adjustment

Bend the vertical lug of bracket 54. After this adjustment check point 10 (see Figure 18).

COUPLING DISC 46 (see Figure 19)

1. When the needle is upon the record, the long lug of coupling disc 46 must press against the stopping pin with a force of at least 80 G. (see Figure 19)

Adjustment

Bend the lug on which the spring is hooked.

2. The distance between the nylon friction block 99 and the coupling disc 46 must be .023" to .027" in the lowest position (see Figure 19).

Adjustment

Loosen the set screws 102 and move bracket 101 along the spindle.

PICK-UP ARM

One end of strip 17 is a bevelled lug. When this strip starts moving, the coupling disc 46 is lifted via the lug. The plate 93, resting on the coupling disc with the nylon block 99 is also lifted. The pin, flanged onto this plate presses against the leaf spring 113 (see Figure 20). When this spring is pushed further to the rear, the pin 59 presses against a small lug of coupling disc 46. In this way the disc 46 is turned and the pick-up arm moves outwards through friction between the nylon block 99 and the coupling disc. When strip 17 returns to its original position, spring 82 pulls the lug of the coupling disc 46 against the pin 59. The lug now follows the movement of the pin again and the coupling disc rotates in the opposite direction. The pick-up arm is taken along again and now moves inwards. At the moment, when the bevelled lug of strip 17 is under the pin of the coupling disc 46, the pick-up arm is lowered again.

1. For lifting, the pick-up arm must be lifted 1/32" to 5/64" above the support.

Adjustment

Turn the set screw 117 (see Figure 20).

2. If a record with minimum thickness lies on the turntable, the distance between the set screw 118 for the lowest position and the bracket of the lifting mechanism must be at least 1/64". This can be adjusted by turning the set screw. The distance between the lifting pin and the leaf spring 113 must be 1/64". This can be adjusted by turning the screw 117. After this adjustment check point 1 (see Figure 20).

3. The actual play of the horizontal spindle of the pick-up arm must range from .003" to 1/64".

Adjustment

Bend the lugs in which the spindle is pivoted.

4. After a record has been played the pick-up arm must only move outwards at the moment that it is lifted to its highest position.

Adjustment

Turn the nylon gear by hand until the spindle of the coupling disc is exactly on the horizontal part of the strip 17. Loosen the screws of the plate 59 and adjust the assembly so that the driving pin is in contact with the short lug of coupling disc 46.

LUBRICATING INSTRUCTIONS

The letters used in the figures of page 13 have the following meanings:

A Lubricate with lubricant X01957.
B Lubricate with ball bearing grease X01358.
C Lubricate with graphite grease X01358.
D Lubricate with Neat's foot oil X00712.
E Lubricate with rust-preventing oil X00458/04.

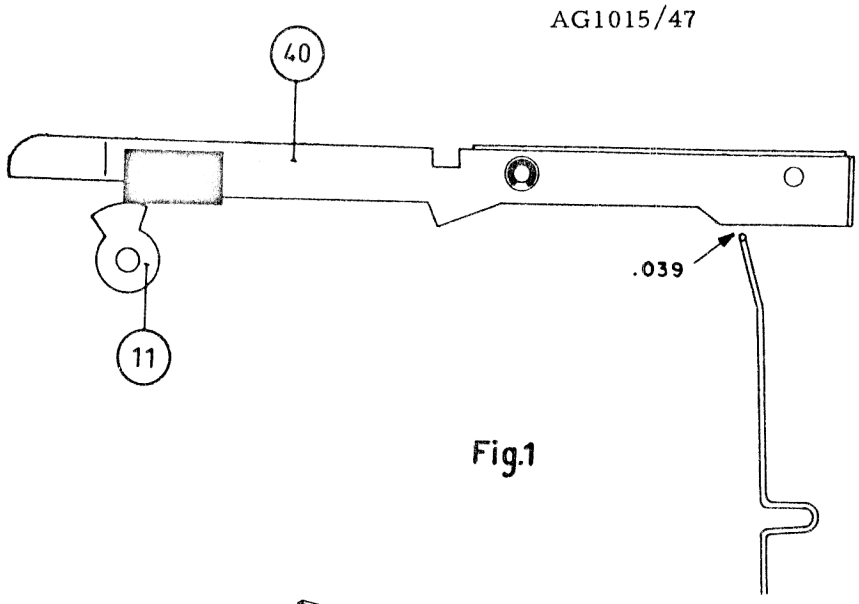


Fig.1

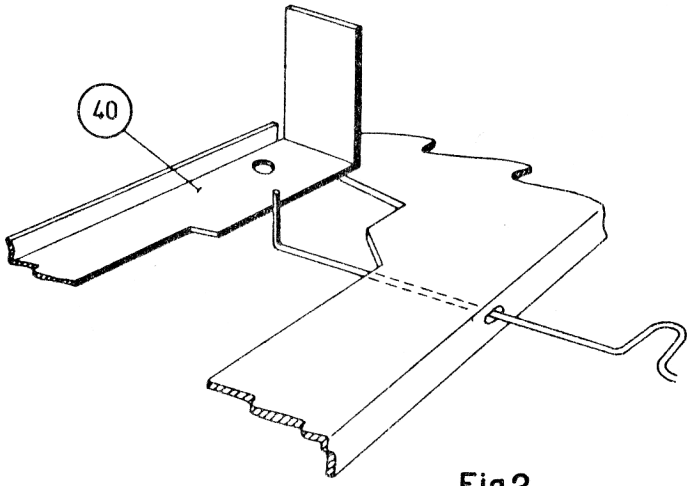


Fig.2

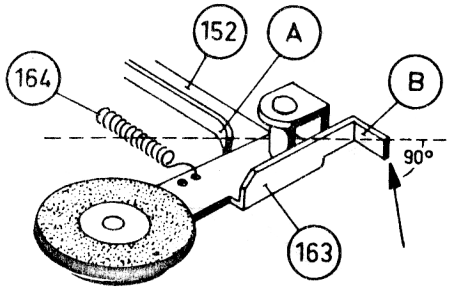


Fig.3

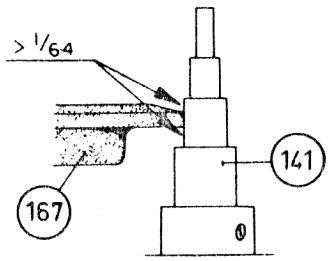


Fig.4

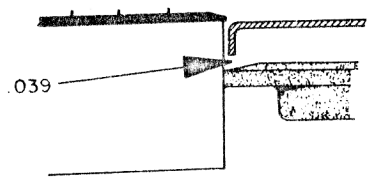


Fig.5

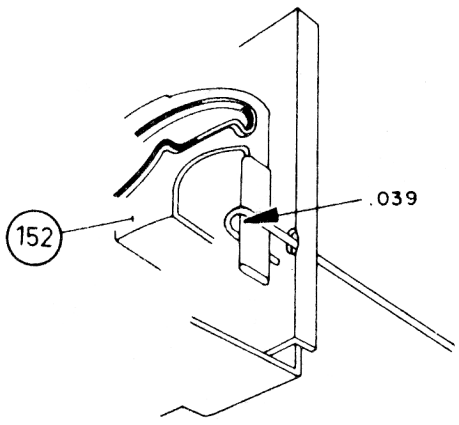


Fig.6

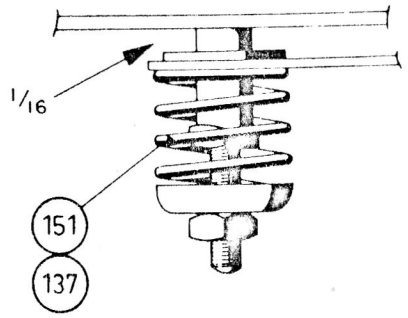


Fig.7

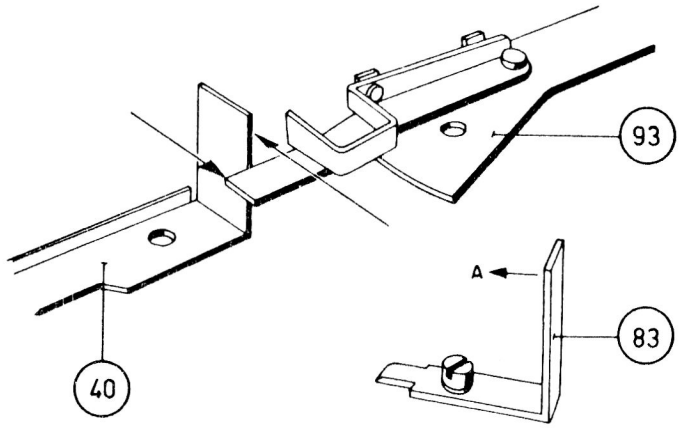


Fig.8

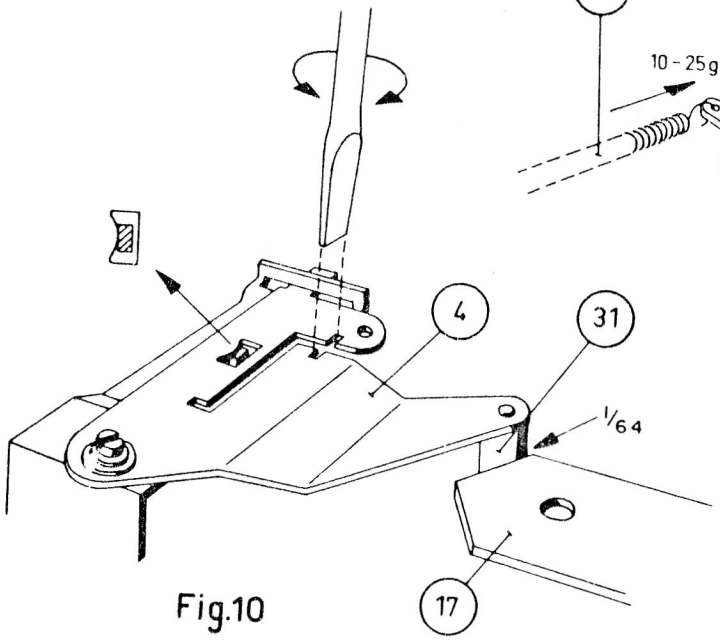


Fig.10

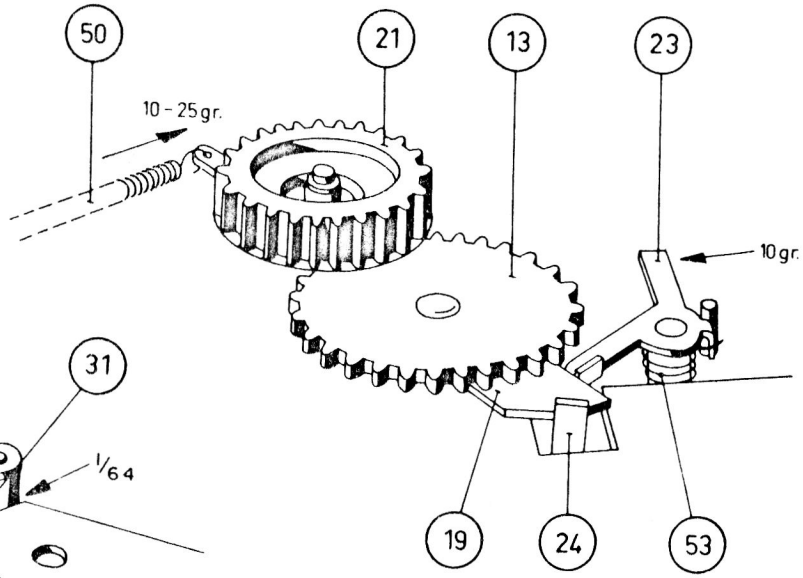


Fig.9

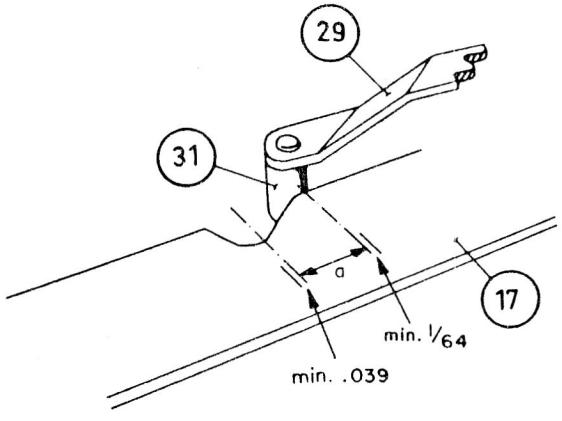


Fig.12

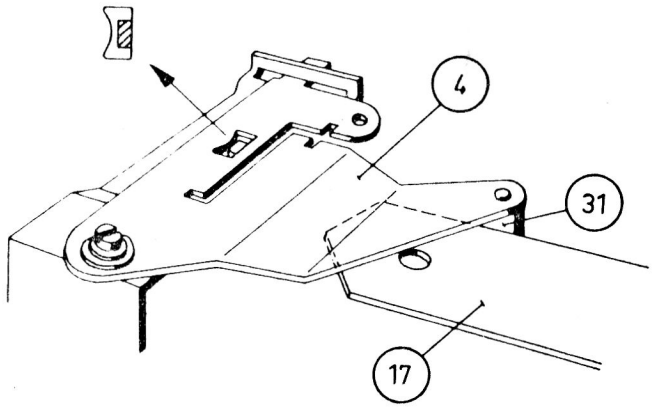


Fig.11

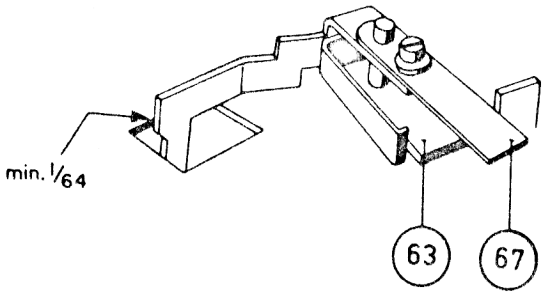


Fig.13

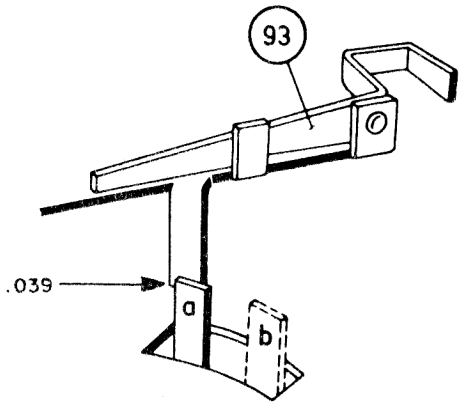
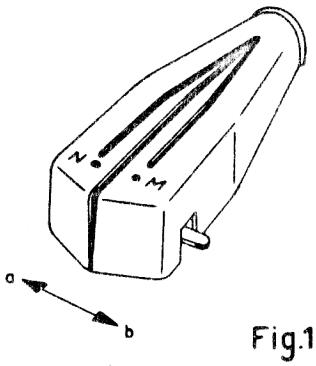


Fig.14



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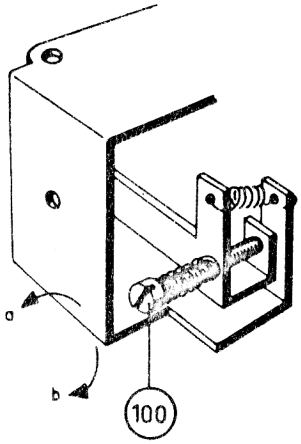


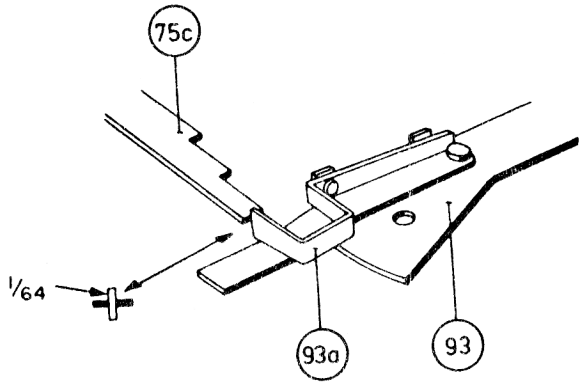


Fig.16

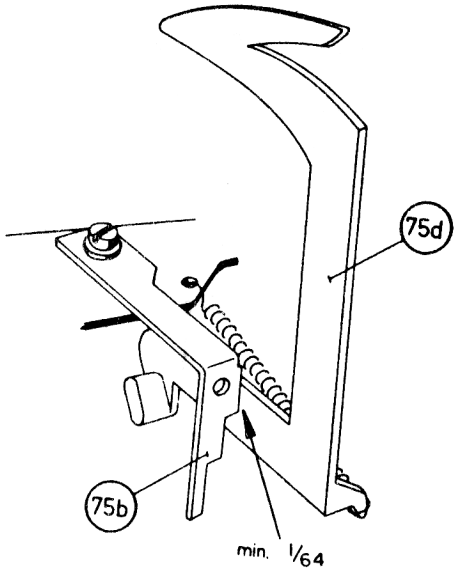


Fig.17

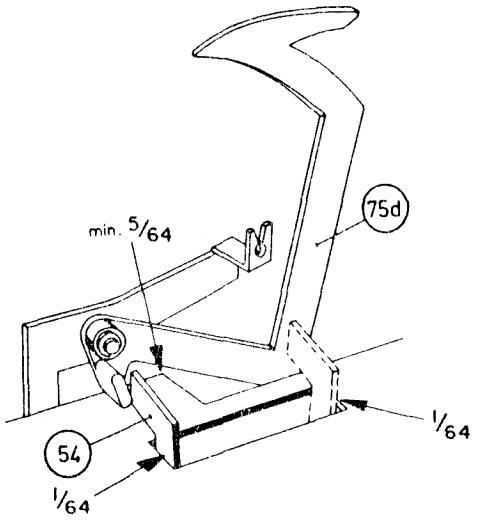


Fig.18

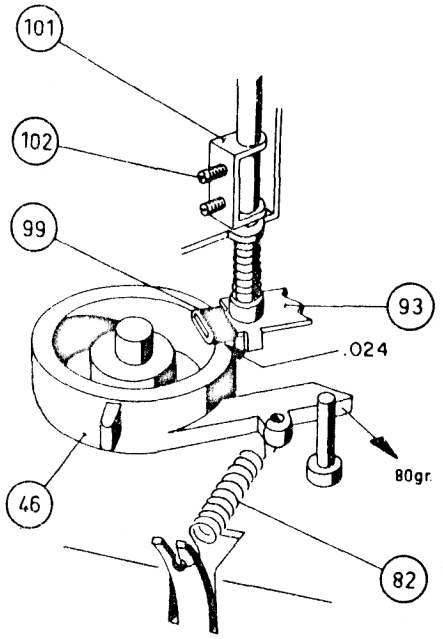


Fig.19

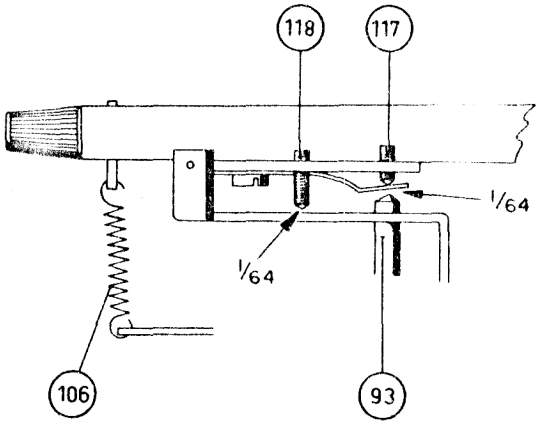


Fig.20

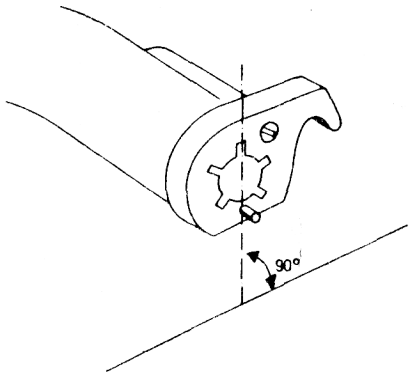
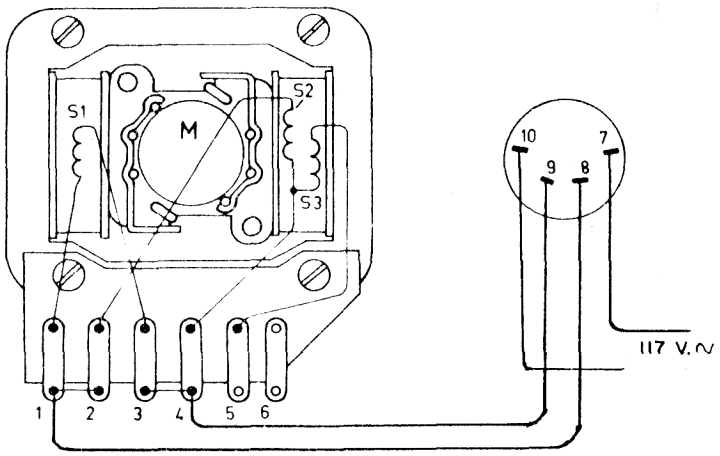


Fig.21

Fig. 22



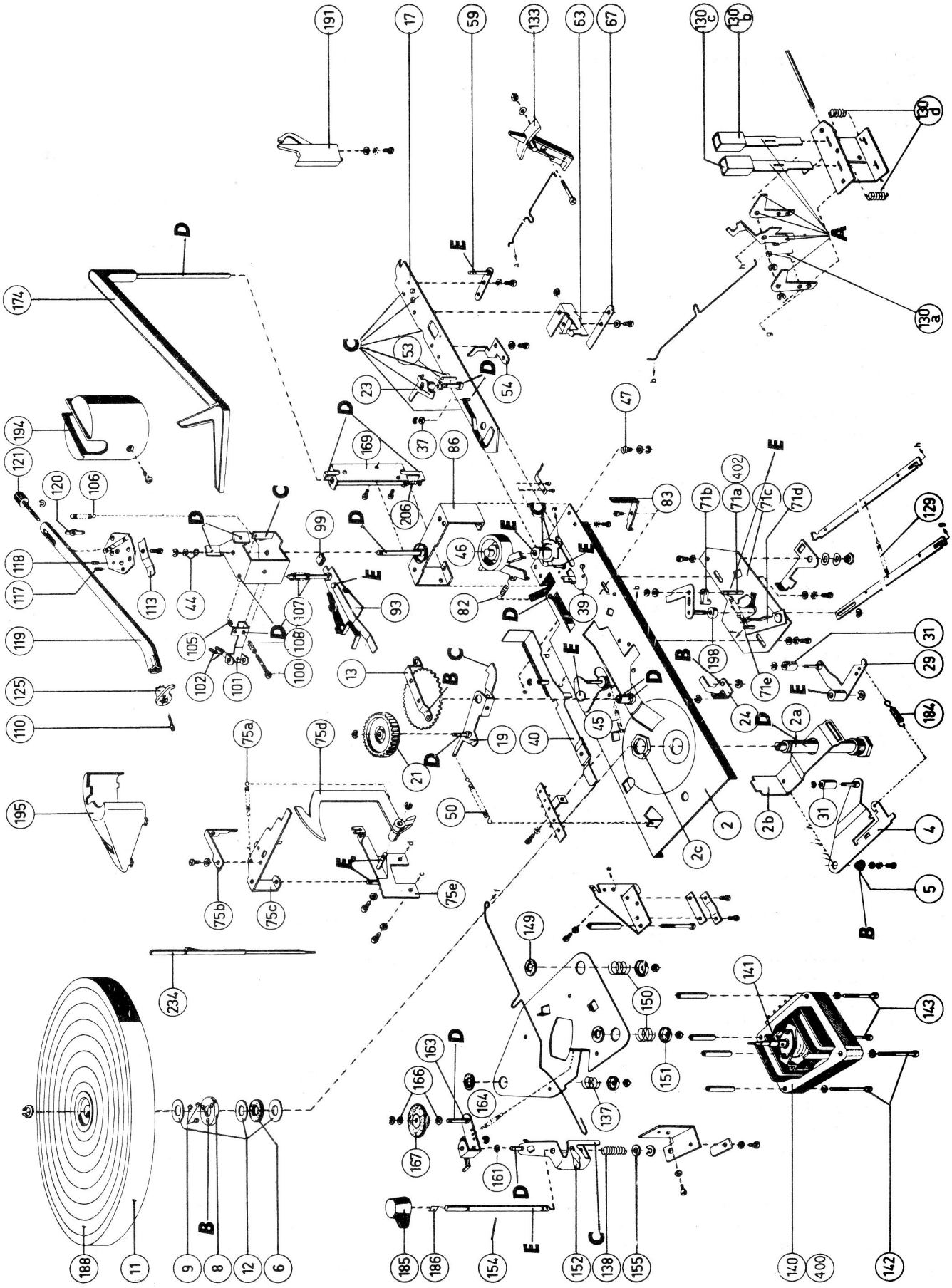


DIAGRAM LUBRICATION POINTS & EXPLODED VIEW OF MECHANISM

LIST OF SPECIAL PARTS

Ref. No.	Description	Part Number
2	Mounting bracket assy.	AE 605 77
2a	Turntable spindle	AE 153 66
2b	Bracket	AE 008 54
2c	Nut	AE 010 01
4	Changing lever assy.	AE 605 86
5	Bushing ring	AE 010 31
6	Ring	P7 520 25/000
8	Ball cage	P5 510 99/931
9	Ball 1/8"	89 205 02
11	Turntable assembly	AE 605 88
12	Ring	AE 010 10
13	Gear wheel assembly	AE 605 78
17	Strip assembly	AE 605 87
19	Switching bracket assy.	AE 605 80
21	Gear Wheel	P5 511 38/334
23	Switching bracket assy.	AE 605 89
24	Adjusting bracket	AE 010 08
29	Stopping lever assy.	AE 605 91
31	Roller	P5 511 05/332
37	Roller	AE 011 63
39	Spring	AE 011 73
40	Scanner assembly	AE 605 79
44	Disc	P5 515 64/304
45	Tension spring	AE 010 49
46	Coupling disc	AE 007 63
47	Conicle pressure spring	AE 010 15
50	Tension spring	AE 010 29
53	Torsion spring	AE 010 11
54	Bracket	AE 008 61
59	Plate assembly	AE 605 81
63	Switching-off bracket assy.	AE 605 90
67	Leaf spring	AE 008 70
71a	Switch	F 071 AA/05
71b	Switching lever	P5 510 98/332
71c	Fixing plate assembly	AE 012 69
71d	Switching lever assy.	AE 010 17
71e	Tension spring	AE 009 47
75a	Tension spring	AE 008 45
75b	Bracket	AE 008 44
75c	Stopping bracket assy.	AE 605 85
75d	Scanner	P5 511 06/931
75e	Bracket assembly	AE 605 97
82	Tension spring	AE 008 79
83	Stopping bracket	AE 008 72
86	Bracket + cupped disc	AE 605 99
93	Plate assembly	AE 605 82
99	Friction block	P7 520 36/357
100	Cylindrical screw	B 054 ZZ/165
101	Adjusting bracket	AE 008 80
102	Flat-head set screw	B 061 DD/3X6
105	Tension spring	AE 009 39
106	Tension spring	AE 010 50
107	Pressure spring	AE 009 40
108	Pressure spring	AE 009 41
113	Leaf Spring	AE 008 85
117	Set Screw	B 061 AD/3X5
118	Set Screw	B 061 AD/3X8
119	Pick-up arm assembly	AE 605 95
120	Adjusting plate	AE 008 88
121	Control knob	P5 511 11/423
129	Tension spring	AE 005 53
130a	Torsion spring	AE 008 26
130b	Stop button	P5 511 02/423JE
130c	Start button	P5 511 01/423FB
130d	Pressure spring	AE 008 25
133	Lever	P5 511 13/423
137	Pressure spring	49 952 68
138	Pressure spring	49 897 74
140	Motor assembly 60 cps.	49 917 08
141	Pulley 60 cps.	49 894 34
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143	Cylindrical screw	B 054 EE/4X35
149	Ring	P5 510 27/150
150	Pressure spring	49 935 30
151	Spring cup	49 935 25
152	Switching bracket assy.	AE 605 83
154	Tension pin	B 074 AF/2X24
155	Ring	AE 006 80
161	Disc	P5 515 64/304
163	Intermediate wheel(assy)	AE 605 92
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167	Intermediate wheel assy.	AE 153 01
169	Bracket assembly	AE 605 76
174	Loading-arm assembly	AE 153 64
184	Tension spring	AE 502 22
185	Knob	AE 153 88
186	Spring	994/03
187	Leaf spring	AE 009 82
188	Rubber mat	P7 520 26/000
189	Ornamental cap	AE 153 39
190	Nipple	P5 511 10/722
191	Assembly of pick-up arm support	AE 605 84
194	Turret	P5 511 04/423
195	Cap	P5 511 12/423
198	Ring	P5 515 93/16
206	Tension spring	AE 011 80
233	Pressure spring	AE 155 35
234	Central pin	49 914 59
400	Motor cover	P4 519 32/801
402	Switch cover	P4 519 31/801

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