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1237

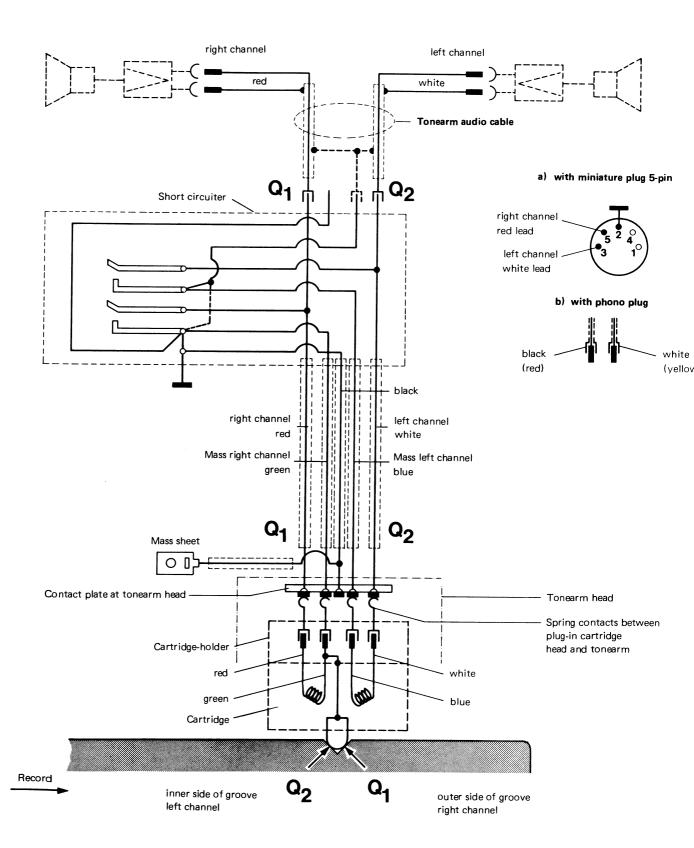




Service Manual

Dual Gebrüder Steidinger 7742 St.Georgen/Schwarzwald

Fig. 1 Pick-up Connection Diagram



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Technical data

Current Type AC 50 or 60 cycles, with appropriate motor pulleys Line Voltage 110 - 125 V and 220 - 240 V, selector Drive Dual Eight Pole Synchronous Motor via Flat Belt to Flywheel Rotor Power consumption approx. 10 watts at 220 V, 50 Hz: approx. 75 mA **Current requirements** at 117 V, 60 Hz: approx. 140 mA **Platter** non magnetic 1 kg, 270 mm ϕ Platter speeds 33 1/3 and 45 rpm, automatic tonearm setdown coupled to speed selector Adjustment of approx. 1 semi-tone (6 %) at both platter speeds. Pitch control <±0,1 % rated in accordance with DIN 45 507 Wow and flutter Signal-to-noise-ratio Rumble unweighted signal-to-noise-ratio >40 dB >60 dB (according to DIN 45 500) Rumble signal-to-noise-ratio Torsion-resistant aluminium tonearm in four point gimbal suspension. **Tonearm** Tonearm bearing friction < 0.08 mN (0.008 g) horizontal < 0.16 mN (0.016 g) Tracking force 0 - 50 mN (0 - 5 p) continuously variable reliable as from 5 mN (0.5 g) tracking force Pick-up head Detachable, suitable for all pick-up cartridges with Dual catch mounting and 1/2"

mounting and a deadweight of 4.5 - 10 g (including hardware)

Weight approx. 3.8 kg

approx. 5.0 kg

For dimensiones and cutout refer to Installation Instructions.

Fig. 2 Motor and drive

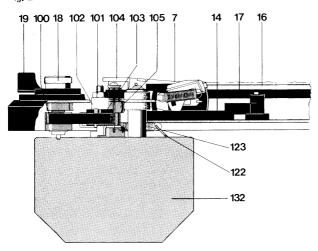
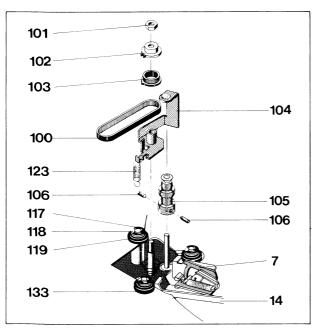


Fig. 3



Fig. 4



Note: The numbers listed above refer to the below spare parts lists and exploded views.

Motor and Drive

Power for the turntable platter and the changing mechanism is supplied by a split eight pole synchronous motor suspended by radially located elastic mounts and having a very small stray magnetic field as well as little vibration.

The speed of the motor is independent of line voltage, temperature or load variations. Speed is dependent on and proportional to power line frequency. The motor is adapted to 50 or 60 cycle (Hz) power line frequencies by the correct choice of the motor pulley.

Pulley for 50 Hz Art.-No. 234 453 Pulley for 60 Hz Art.-No. 243 454

The drive is transmitted to the platter by means of the flat belt (17)

Speed Changeover

Platter speeds of 33 1/3 and 45 rpm are adjusted by linking the flat belt (17) to the corresponding step of the drive pulley (105) (Fig. 5).

The speed switch lever is brought into the required position (33 or 45 rpm) by means of the speed selection lever (19), the switch lever (108) and the spring lever of the switch levers. If the machine is switched off, then the switch lever is interlocked by the stop lever (14). The speed is only preselected in this way. The stop lever (14) is only released when the platter (16) turns. This then moves the flat belt (17) onto the required step of the drive pulley (105).

Platter

The platter (16) is held in position by the platter locking lever (155). When removing the platter, lift the platter covering over one of the cutouts and rotate the platter until the cutout is above the drive pulley. Detach the flat belt (17) from the drive pulley (105) and lay it on the running surface of the platter. Rotate the platter until the cutout is above the platter locking lever (155). Push this outward and lift the platter out.

Sandwich platter

The sandwich platter (16) is secured by means of a spring clip on the bearing tube of the bearing housing (164). This clip should be taken away when removing the platter.

Flat Belt

The exchanging of the flat belt is described above with the platter to be removed. Fit the new belt to the running surface of the platter (16).

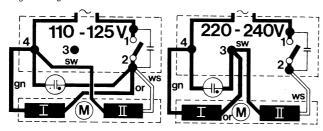
Warning: The ground (matt) side of the belt must be in contact with the running surface of the platter. Reinstall the platter and lay the flat belt back over the drive pulley (105).

Changing the drive pulley

- Remove the flat belt (17) from the drive pulley (105) and take off the platter (16). Remove the toothed belt (100).
- 2. Detach tension spring (123) from screening sheet (122).
- 3. Remove the hexagonal screw (101), remove the adjustment cam (102), the belt pulley (112) as well as the counter bearing (104).

- 4. Loosen set screws (106) and remove motor pulley (105). Place complete replacement motor pulley on motor axle. Remove conical sleeve. Be careful with the interior distance bushing. Adjust motor pulley vertically (see Fig. 5) and tighten set screws (106) uniformly. Place conical sleeve into the motor pulley (105).
- Outer counter bearing (104), belt pulley 2 (112) and adjustment cam (102) should now be fitted and the hexagonal head mounting screws tightened (101). Replace the tension spring and toothed belt (100). Install the platter (16). Fit the flat drive belt (17) onto the drive pulley (105).
- Setting up the rotational speed: set the regulator knob (18) to its central position. By loosening or tightening the hexagonal nut (101) adjust the rotational speed.

Fig. 6 Diagram for Motor Connection



Pitch Control

The unit has a separately adjustable pitch control the two standard speeds 33 1/3 rpm and 45 rpm can be varied by approximately 6 % (1 semitone).

By turning the fine speed adjustment knob (18) the belt pulley 2 (112) is moved. This rotation is transferred by means of the toothed belt (100) to the drive pulley 1 (103). (Fig. 7) thus moving the counter bearing (104) upwards or downwards. The taper bush of the drive pulley is designed to vary the diameter of the drive pulley thus varying the nominal speed within the tolerance of \pm 3 %.

Tonearm and Tonearm Bearing

The Dual 1237 has a feather-light, extremely torsion-resistant allmetal tonearm which is suspended in a gimbal. Suspension is by means of 4 hardened and precision polished steel points which rest in precision ball bearings. Tonearm bearing friction is thus reduced to a minimum.

Bearing friction vertical $\,<$ 0,08 mN (0,008 p) Bearing friction horizontal < 0,16 mN (0,016 p)

As a result, it ensures most favourable pick-up conditions. Before adjusting the pick-up force to suit the built-in pick-up cartridge the tonearm is balanced with the scale set to zero. Coarse adjustment is caried out by moving the weight with the pin (60), the subsequent fine adjustment by turning the weight. The balance weight is designed such that pick-up cartridges having a deadweight (incl. hardware) of 4.5 - 10 g can be balanced. The tracking force is adjusted by turning the graduated spring housing (71) incorporating a coil spring. The scale has markings for a range of adjustment from 0 to 50 mN (0 to 5 p) which permit accurate adjustment of the tracking force.

Fig. 5

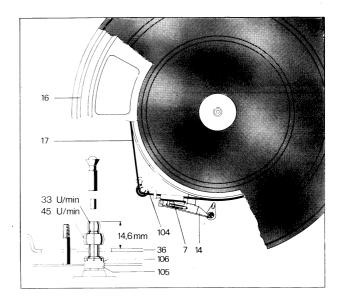


Fig. 7 Pitch control

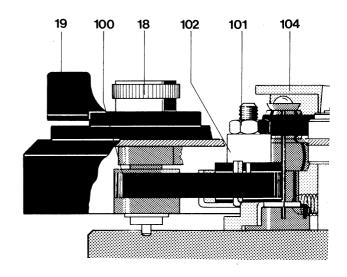


Fig. 8 Tonearm bearing

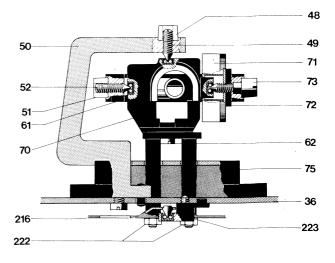
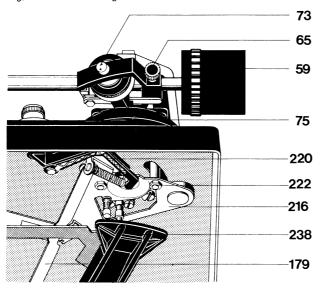


Fig. 9 Tonearm bearing



Removing the tonearm from the bearing frame

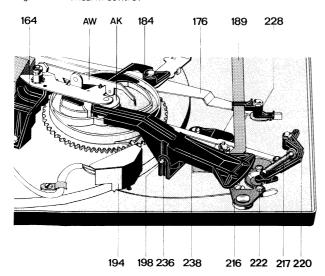
- Clamp unit in the repair stand. Remove the counter-weight (59), remove clamp screw (65). Set spring housing scale (71) to zero.
- Turn the unit over and remove the shield (194). Unsolder the tonearm connections on the muting switch (191).
- Turn the unit back to normal position.
 Remove the two fixing screws (67) (SW 4.5) and the cable holder (66). Remove the tonearm (58).

Reverse this procedure when reassembling

Removal of the complete tonearm and bearing assembly We recommend the following procedure.

- Clamp unit in the repair stand. Secure the tonearm (58) and remove the counterweight (59). Set spring housing scale (71) to zero.
- 2. Turn the unit over and remove the shield (194). Unsolder the tonearm connections on the muting switch (191).
- Remove lock washers (197 and 236) and the axle (198).
 Remove the main lever (238).
- Remove the hexagonal nut (222). Hold the tonearm securely and remove the machine screw (53). Lift out the complete tonearm and bearing assembly.

Fig. 10 Tonearm control



When reassembling the tonearm proceed in the reverse order, taking care that the threaded pin (49) is correctly seated in the bearing when fastening the frame (50) (see Fig. 8).

Replacing spring housing

Remove tonearm (58) from bearing frame (64) as described above. Loosen lock nut (51) and threaded pin (52). Unscrew bearing screw (73). Lift bearing frame (64). Remove spring housing (71) and washer (72). When installing note that the helical spring catches the bearing frame. Slide in washer (72) and tighten bearing screw (73). Reinstall tonearm (58). Set bearing play as described below using threaded pin (52) and lock nut (51).

Adjusting the tonearm bearing

First balance tonearm exactly. Both bearings must have slight, just perceptible play.

The horizontal tonearm bearing is correctly adjusted when at anti-skating settings "0.5" and being touched it slides in without resistance.: The vertical tonearm bearing is correctly adjusted when it swings in after being touched. The play of the horizontal tonearm bearing should be adjusted with threaded pin (52).

Tonearm Control

Automatic movement of the tonearm is initiated by the control cams on the inside of the cam whel (157) on rotating through 360° .

The control elements for raising and lowering are the main lever (238) and lift pin (215), for horizontal movement the main lever (238) with segment (216).

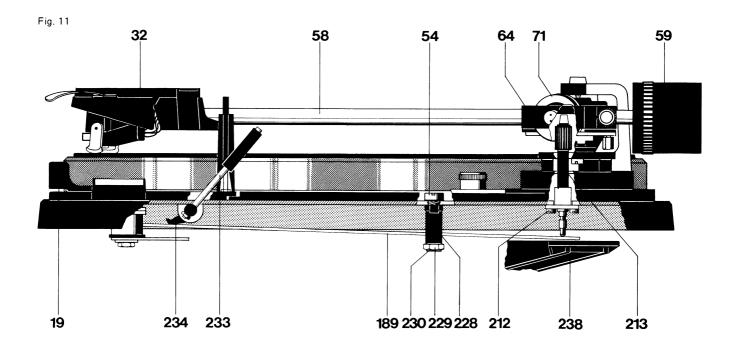
The automatic tonearm set down is designed for 30 cm and 17 cm records and is coupled to the platter speed changeover. The set-down points of the tonearm are determined by the spring pin of segment (216) contacting the setting rail (189). Limitation of the horizontal movement of the tonearm is produced by the pin of segment contacting the stop attached to the setting rail (189). Only during set-down does main lever (238) lift the slide bar (189) and the stop attached to it which, as a result, moves into the swivel range of the stop pin fitted on the segment. After completion of set down (lowering of the tonearm onto the record) the setting rail (189) is released again and returns to neutral position. As a result the stop moves out of the swivel range of the stop pin so that unimpeded horizontal movement of the tonearm is possible for playing.

Antiskating Device

The adjustment of the antiskating force is made by turning the indicator disc located on the supporting back (75). The skating lever (226) is displaced from the tonearm fulcrum by an amount depending on the setting of this control. The antiskating force is transmitted to the tonearm (58) via the tension spring (217) and segment (216).

Optimum adjustment is carried out at the works for styli with a tip radius of 15 μm (spherical), 5/6 and 18/22 μm (elliptical), and CD 4-cartridges.

Any alteration can only be carried out with the aid of a Dual-Skate-0-Meter and a test record and should only be done by an authorized service station.



Tonearm lift

Raising the lever (233) to position " $\underline{\mathsf{X}}$ " or " $\underline{\mathsf{X}}$ " moves the lift cam (234) and the setting rail (189) so that the tonearm is raised from the record (or lowered onto it). If the unit is started with the arm lever in the " $\underline{\mathsf{X}}$ " position, then the tonearm is guided over the record by the set-down mechanism. Only when the lever (233) is brought to the position " $\underline{\mathsf{X}}$ " will the tonearm be lowered onto the record. The vertical lift height can be adjusted by means of the locating screw (54) and should be 3-5 mm.

Exchanging the lift plate

When changing the lift plate (213), we recommend the following procedure:

- Clamp the unit in a repair stand and lock the tonearm in rest position. Turn the unit over.
- 2. Remove lock washers (197 and 236) and the axle (198). Remove the main lever (238).
- 3. Remove lock washer (230). Turn the locating screw (54) until the hexagonal unit (229) can be removed. Lift the setting rail (189) and the guide bearing (228) and pivot toward the cam wheel (157).
- 4. Remove the two machine screws (212) and take out the lift plate (213).

Reverse this procedure when reassembling.

Start

Switching the start/stop lever (78) into the "start" position initiates the following sequence:

- a) The start lever (186) rotates the switch lever (181) which is pivoted about the notched stud. At the same time, the switch arm (176) is moves and the motor (132), via the mains switch (138), and the platter starts turning.
- b) Operating the start/stop lever (78) also releases the start slide (35) which is drawn toward the cam by means of the tension spring (34). This causes the shut-off lever to engage with the drive pinion and the cam turns.
- c) This switch lever (181) is coupled to the switch angle (184) and this is brought into the range of the shift lever so that the next rotation of the cam forces this into its starting position.



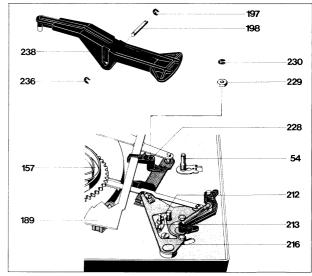


Fig. 13

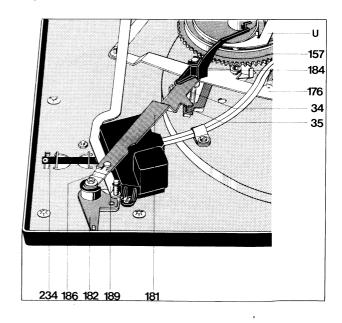
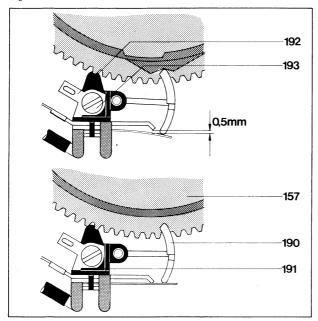


Fig. 14 Short circuit



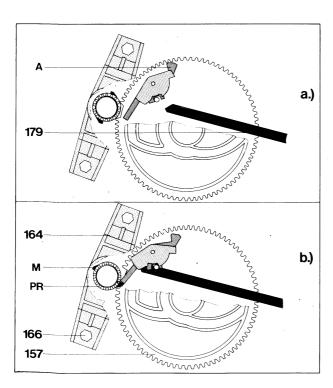
Short Circuiter

To prevent disturbing noises during automatic operation of the tonearm the unit is fitted with a short circuiter. Control of the switch springs for both channels is effected by the camwheel. With the unit in neutral state the short circuit of the pick-up leads is eliminated.

Adjustment

In zero position of the cam there should be a clearance of approximately 0.5 mm between the contacts of the short circuiter. This clearance should be adjusted by bending the short circuit contact. The contacts should be sprayed with a suitable cleaning agent.

Fig. 15



Manual start

The latch (171) which is connected to the switch arm (176) engages in the four-sided plate when the tonearm is moved manually. The switch arm (176) connects the mains supply to the motor (132) via the power switch (138) and the platter rotates. When the run-out of the record is reached, the tonearm is lifted and the motor is switched off automatically. If the tonearm is lifted off the record before the run-out, and returned by hand to the pillar, then the bolt on the segment (216) engages the latch (171) so that the switch arm is returned to its starting position. This switches off the mains supply.

Stopping

When control lever is set to "stop" position the start lever (35) which is pulled towards the cam by means of tension, is feed. As a result, the shut-off lever is moved into the range of dogs cam. The cam follower lever remains in its stop position.

Record drop

Insert the appropriate spindle - AW 3 for standard records (7 mm or 1/4" center hole) or AS 12 for 45 rpm records (38 mm or 1 1/2" center hole).

The record drop is initiated by the cam wheel (157) whose drop cam surface (AK) controls the release rocker (AW) and the changer actuator rod.

Shut-off and change cycle

The dog (M) on the turntable platter gear (PR) and the shut-off lever (A) actuate both the change cycle at the end of the record as well as the shut-off after the last record in a stack is played.

At the end of a record, the tonearm moves towards the center at an accelerated rate due to the increased pitch of the grooves. This motion carries the shut-off lever (A) towards the dog by means of the stop lever (179). The eccentric dog pushes the shut-off lever (A) back at each revolution as long as the tonearm advance is only one normal record groove (Fig. 15).

The run-out groove with its steeper pitch moves the shut-off lever against the dog with greater force, engaging the shut-off lever (A) and causing the main cam wheel (157) to be driven out of its neutral position by the turntable platter gear (Fig. 15 b).

Shut-off mechanism

Shut-off and change functions are determined by the position of the cam follower lever (U). After every start or recorddrop, the cam follower lever is brought to its stop position by the main lever (238) (longer end towards the center of the main cam). As the record is dropped the cam follower lever (U) is turned to its start position by the cam rocker, so that the tonearm can swing in toward the record and be lowered on to it. If there are no more records on the spindle, and the cam rocker cannot turn the cam follower lever, the lever remains in its stop position and allows the tonearm to swing to its rest position.

When the main cam wheel (157) returns to its neutral position, the switch arm (176) drops into a cut-out in the main cam, opening the power switch (138) and disengaging the drive idler.

Adjustment

Tonearm set-down point

After removing the stop plate (79) (by pressing it forward and lifting the rear edge first) the adjustment screw (A) is accessible. The needle set-down point can be varied toward the centre or the outside by turning the adjustment screw to the right or left respectively.

The switch off position

With the tonearm on the pillar, the eccentric (B) can be adjusted to alter the switch off position. The eccentric is accessible through the supporting back (75).

If the unit switches off too early or not at all, then the eccentric (B) should be turned to the right or left respectively (see Fig.17).

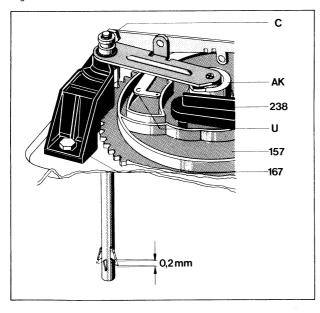
Release rocker

The eccentric screw (c) is used to alter the travel of the changing bolt (167). The setting is correct when at the rest position of the cam wheel (157), and with interlocked changer spindle, the changing bolt (167) has a travel of 0.2 mm.

Tonearm vertical lift

The adjustable sleeve (210) is used to adjust the tonearm vertical lift (for automatic operation). Pull out the mains plug, unlock the tonearm, turn the cam wheel (157) until the tonearm reaches its highest point of travel. The tonearm should now be approximately 4 mm above the pillar stop (see Fig. 19). Adjust by means of sleeve (210).

Fig. 18



Defect

Tonearm does not set down or sets down too fast

Defect

Platter does not turn after machine is connected and "start" switch is pressed.

Cause

Damping is too great or too small due to dirt in the silicone oil of the lift tube

Cause

- a) Power supply is interrupted.
- b) Drive pulley is loose.

Fig. 16

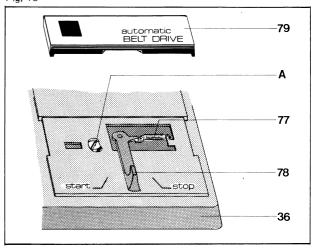


Fig. 17

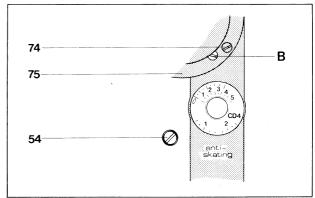
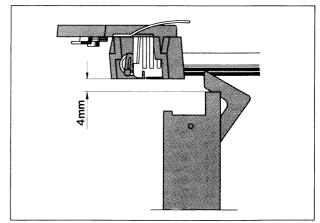


Fig. 19



Repair

Remove the lift plate assembly (213) as described on page 7. Remove the guide (208) on the lift rod, remove the lock washers (209 and 211) together with the adjustment sleeve (210). Take out the lift pin (215) and compression spring (214), clean rod and tube and then coat both rod and tube with "Wacker Silicone oil AK 300 000". Reassemble and wipe away any extrancous oil.

Repair

- a) Check connections on switching board and mains plug
- b) Tighten screws of drive pulley.

Defect
Rotational speed lies at limit of adjustment range.
Platter does not
come up to speed.
Needle slides
out of record groove.
Motor does not switch off when

Cause

Bad adjustment of bearing.

- a) Drive pulley incorrect for mains frequency.
- b) Slip between flat belt and drive pulley or flat belt and platter.
- a) Bearing friction in tonearm too high.
- b) Steel ball (180) for shut off rail missing.

Interference suppression capacitor (in mains switch) has short circuit.

Repair

Set control knob (18) to its central position, loosen or tighten the hexagonal nut (101) to set up the correct rotational speed.

- a) Change pulley to correct size for mains frequency.
- b) Clean the contact surfaces of the flat belt, drive pulley and platter. If necessary renew the flat belt.
- a) Readjust tonearm bearing.
- b) Replace steel ball (180).

 $\label{lem:Replace} \textbf{Replace interference suppression capacitor in mains switch}.$

Replacement parts

tonearm is on the

billar

Pos.	PartNo.	Qty.	Description
1	215 470	1	Automatic spindle AS 12
2	213 895	1	Automatic spindle AW 3
3	220 213	1	Centering piece
4	201 101	1	Centering pin
5	238 434	1	Washer
	243 043	1	Washer
6	242 598	1	Turntable mat compl.
	243 518	1	Turntable mat (model sandwich)
	242 939	1	Turntable compl. (model G)
	243 517	1	Turntable (model W)
7	241 549	1	Support compl.
8	210 472	1	Machine screw AM 3 x 4
9	210 586	1	Washer 3.2/7/0.5
10	238 819	1	Tension spring
11	240 000	1	Tension spring
12	239 950	1	Switch-off lever
13	210 145	6	Lock washer 2.3
14	241 551	1	Stop lever compl.
15	210 194	1	Grip Ring 2×0.6
16	242 599	1	Platter with mat compl.
	242 938	1	Platter with mat (model G)
	242 940	1	Platter with mat (model sandwich)
	243 506	1	Platter with mat (model W)
	200 543	1	Ring (for sandwich platter)
17	234 435	1	Flat belt
18	238 958	1	Adjustment knob
	243 033	1	Adjustment knob (model W)
19	239 957	1	Speed selector lever
20	242 600	1	Speed selector cover
21	200 444	3	Spring washer
22	232 975	1	Spring suspension compl. (motor side front)
	232 972	1	Spring suspension compl. (motor side back)
22	234 815	1	Spring suspension compl. (tonearm side)
23 24	230 529	3	Threded part
24	230 523 230 521	1	Compression spring (motor side front)
j	230 521	1	Compression spring (motor side back)
25	200 723		Compression spring (tonearm side)
26 26	200 723	3	Rubber damping
26	241 554	1	Steel cup
28	234 611	1	Contact plate compl. Handler
29	210 182	1	
30	210 182	1	2,0
31	210 030	1	, 0, 0.0
32	241 555	1	Ring 4 x 0.8
33	236 242	¦	Tonearm head compl.
34	230 242	1	Cartridge mount TK 24
35	239 926	i	Tension spring Start slide
36	242 601	1	
50	243 507	1	Mounting Plate
	270 007		1 late

42 201 632 2 Rubber washer 43 237 117 2 Washer 44 237 118 2 Lock washer 45 241 556 1 Pointer compl. 46 211 673 1 Washer 1.7/3.5/0 47 237 672 1 Nail 48 234 635 2 Lock nut 243 041 2 Stop nut (model W) 49 230 063 1 Threaded pin 50 242 602 1 Frame compl. (model W) 51 234 635 2 Lock nut 243 041 2 Lock nut (model W) 52 234 635 2 Lock nut (model W) 52 234 634 1 Threaded pin 53 210 516 1 Machine screw AM 4 > 243 030 1 Locating screw (model W) 55 210 147 1 Lock washer 1.7/3.5/0 1.7/3.5/	
40).3
41).3
42 201 632 2).3
44	
45	
46	
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47 237 672 1	
243 041 2 Stop nut (model W) 49 230 063 1 Threaded pin 50 242 602 1 Frame compl. 243 508 1 Frame compl. (model W) 51 234 635 2 Lock nut 243 041 2 Lock nut (model W) 52 234 634 1 Threaded pin 53 210 516 1 Machine screw AM 4 > 54 239 809 1 Locating screw 243 030 1 Locating screw (model W) 55 210 147 1 Lock washer	: 8
49	: 8
50	: 8
243 508	: 8
51	: 8
243 041 2 Lock nut (model W) 52 234 634 1 Threaded pin 53 210 516 1 Machine screw AM 4 > 54 239 809 1 Locating screw 243 030 1 Locating screw (model W) 55 210 147 1 Lock washer	: 8
52	: 8
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243 030 1 Locating screw (model W) 55 210 147 1 Lock washer	
55 210 147 1 Lock washer	
and the state of t	
56 232 978 1 Support some!	
56 232 978 1 Support compl.	
57 210 362 1 Hex nut	
58 241 560 1 Tonearm compl.	
243 509 1 Tonearm compl. (model W)	
59 242 604 1 Weight compl.	
243 511 1 Weight compl. (model W)	
60 239 277 1 Pin	
243 044 1 Pin (model W)	
61 233 744 1 Bracket	
62 239 777 1 Machine screw	7
64 242 605 1 Bearing frame compl.	
243 512 1 Bearing frame (model W)	i
65 241 447 1 Clamp screw	
243 040 1 Clamp screw (model W)	ı
66 241 893 1 Cable holder	
67 227 467 2 Hexagon sheet metal screw 2.9 x 6	.5
70 242 606 1 Bearing compl.	.
243 513 1 Bearing compl. model (W)	Ì
71 241 565 1 Spring housing compl.	
243 514 1 Spring housing compl. (model W)	
72 237 563 1 Washer	
73 237 564 1 Bearing screw	
243 051 1 Bearing screw (model W)	
74 239 193 3 Fillister sunk screw M 3 x	6
75 242 607 1 Supporting back compl.	_
243 515 1 Supporting back compl. (model W)	
76 200 444 1 Spring washer	
77 226 357 1 Tension spring	- 1
78 239 938 1 Switch lever compl.	

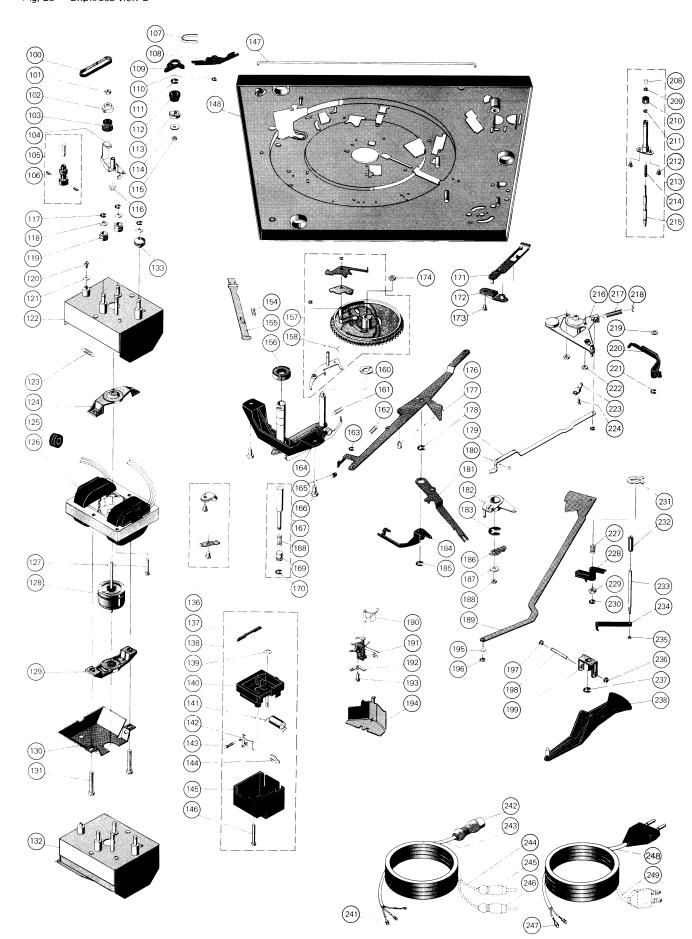
Replacement parts

Pos.	Part. No.	Qtv.	Description
79	242 608	1	Stop plate compl.
79	242 608	1	Stop plate compl. Stop plate compl. (model G)
	243 516	i	Stop plate compl. (model W)
80	242 609	1	Supporting front compl.
81	200 444	2	Spring washer
100	238 832	1	Toothed belt
101	222 200	1	Hex nut M 3.5
102	241 641	1	Adjustment cam
103	241 642	1	Toothed belt pulley 1
104	241 644	1	Counter Bearing
105	234 453	1	Drive pulley compl. 50 Hz
	234 454	1	Drive pulley compl. 60 Hz
106	233 137	2	(Set screw) 2.5×3
107	238 828	1	V-spring
108 109	238 827 238 826	1 1	Shwitch lever Change over part
110	210 144		Lock washer 1.9
111	210 149		Lock washer 6
112	240 027	1	Toothed belt pulley 2
113	240 035	1	Washer
114	210 607	1	Washer 3.2/10/0.5
115	210 362	1	Hex nut M 3
116	232 615	1	Compression spring
117	210 146	5	Lock washer 3.2
118	241 084	3	Washer 4.2/8/1
119	242 285	2	Sleeve
120	210 480	1	Machine screw AM 3 x 6
121	210 609	1	Washer 3.2/10/1
122	239 232	1	Screening sheet compl. (SM 860-2)
	242 419	1	Screening sheet compl. (SM 860-4)
123	233 777	1	Tension spring
124	241 570	1	Top bearing bracket
125	209 939	1	Sleeve
126 127	242 587 233 815	1	Stator 110/220 V compl. (SM 860-4) Machine screw AM 2.5 x 18
128	241 571	1	Armature compl.
129	241 571	1	Botton bearing bracket compl.
130	238 516	1	Screening sheet
131	210 525	2	Machine screw AM 4 x 25
132	241 573	1	Motor SM 860-2 compl.
	242 585	i	Motor SM 860-4 compl.
133	242 111	1 1	Sleeve
136	231 079	1	Cable holder
137	236 335	1	Slide
138	242 581	1	Power switch compl.
	242 582	1	Power switch compl. with spec. C.
4.00	236 999	1	Power switch compl. (for single-pole plug)
139	200 444	1	Spring washer
140	233 012	1 1	Switch plate compl.
141	236 606 241 883	1 1	Switch plate compl. with spec. C. Capacitor 10 nF/250 V
1-71	230 355	1 1	Capacitor 10 nF/250 V Capacitor 68 nF/250 V/20 %
142	230 148	1 1	Switch angle
143	239 732		Tension spring
144	219 200	1	Snab spring
145	242 102	1	Cover
	233 421	1	Cover (for single-pole plug)
146	210 498	1	Machine screw M 3 x 28
147	239 925	1	Switch rod
148	242 601	1	Plounting plate
	243 507	1	Base plate (model W)
154	237 665	1	Tension spring
155	239 788	1	Platter locking lever
156	229 754		Ball bearing
157	242 657	1 1	Washer (model sandwich-platter)
157	242 610	1 1	Cam wheel cpl.
158	200 522	1	Snab spring
160	239 789	1 1	Slip washer
161	227 045	1	Tension spring
162 163	229 698	1	Tension spring Lock washer 2.3
164	210 145	1	Lock washer 2.3 Bearing housing compl.
104	242 611		Bearing housing compl. (model sandwich)
	242 941		boaring nousing compr. (model sandwich)
165	200 650	1 1	Rubber sleeve
165 166	200 650 218 155	1 2	Rubber sleeve Machine screw M 4 x 6

Pos.	PartNo.	Qty.	Description
	240 426	1	Changing bolt compl. (model sandwich)
168	213 920	1 1	Compression spring Sleeve
169 170	213 921 210 145	6	Lock washer 2.3
171	239 913	1	Latch cpl.
172	239 915	1	Square plate
173	210 472	1	Machine screw AM 3 x 6
174 176	210 366 239 927	1 1	Hex nut M 4 Switch arm
170	239 931	1	Roll
178	210 147	2	Lock washer 4
179	239 916	1	Stop lever
180	209 358 239 932	1	Ball Switch lever
181 182	239 932	1	Adjustment lever
183	232 621	1	Lock washer
184	239 933	1	Switch angle
185	210 147	2	Lock washer Start lever
186 187	239 941 210 642	1	Washer 4.2/10/1.5
188	210 361	1	Hex nut M 3
189	239 936	1	Setting rail
190	239 807	1	Contact arm
191 192	242 612	1 1	Muting switch compl. Ground shut
193	210 486	1	Machine screw AM 3 x 8
194	239 808	1	Shield
195	234 106	1	Cone spring
196	210 145	6	Lock washer 2,3 Lock washer 2.3
197 198	210 145 200 528	6	Axle
199	239 947	1	Bearing support
208	216 844	1	Guide
209	210 143	2	Lock washer 1.5
210 211	218 318 210 143	1 2	Sleeve Lock washer
212	210 472	2	Machine screw AM 3 x 4
213	242 613	1	Lift plate compl.
214	234 798	1	Compression spring
215 216	240 009 242 614	1 1	Lift pin Segment compl.
210	218 591	1	Tension spring
218	201 184	1	Adjustment washer
219	242 298	1	Lock washer
220	239 917	1 5	Skating lever compl. Lock washer 3.2
221 222	210 146 210 362	2	Hex nut M 3
223	242 615	1	Counter bearing cpl.
224	203 475	1	Sink screw M3 x 8
225	210 145	6	Lock washer 2.3
227 228	239 935 239 934	1	Compression spring Guide bearing
229	210 366	1	Hex nut M 4
230	210 145	6	Lock washer 2.3
231	239 810	1	Fuse spring
232 233	237 543 237 541	1	Sleeve Lever compl.
233	243 028	1	Lever compl. (model W)
234	239 909	1	Lift cam
235	210 353	1	Hex nut M 2
236	210 145 210 147	6	Lock washer 2.3 Lock washer 4
237 238	242 616	1	Main lever
241	209 436	3	Pick flat plug shell
242	209 424	1	Five pole plug
243	207 303	1	Pick-up lead compl.
244 245	207 301 209 425	1	Pick-up lead compl. with cynch plug Cynch plug white
246	209 426	1	Cynch plug black
247	214 602	2	AMP connector
248	232 996	1	Power cable europe compl.
249	232 995	1	Power cable US compl.
	214 120 241 159	1	Hardware for cartridge mounting cpl. Operating instruction
	241 439	1	Operating instruction UAP
	241 158	1	Mounting instruction
	241 083	1	Shipping carton
	242 627	1	Shipping carton CS

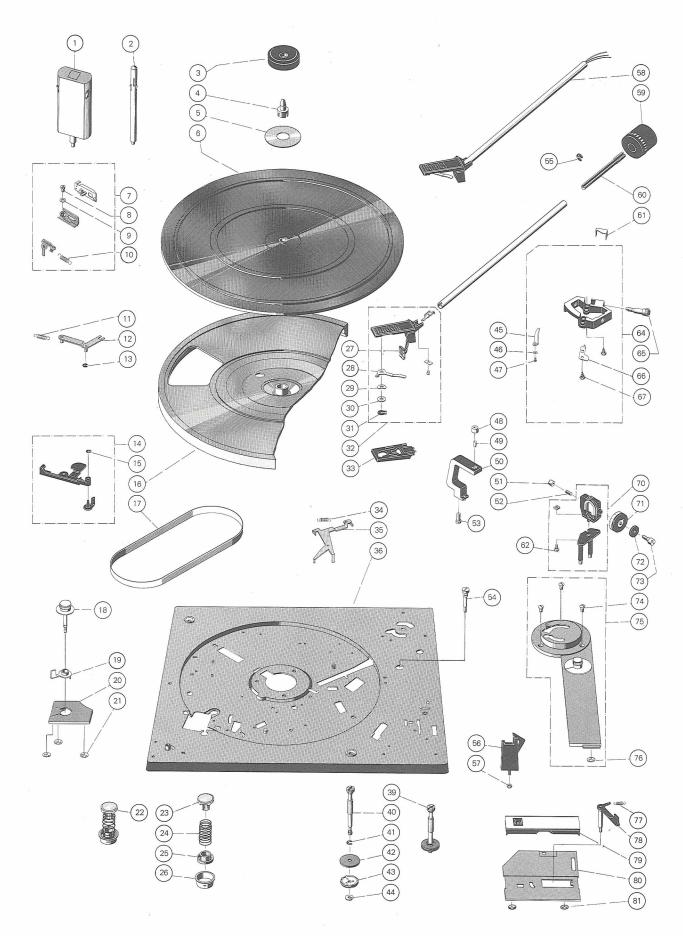
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Fig. 20 Exploded view 2



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Alterations reserved



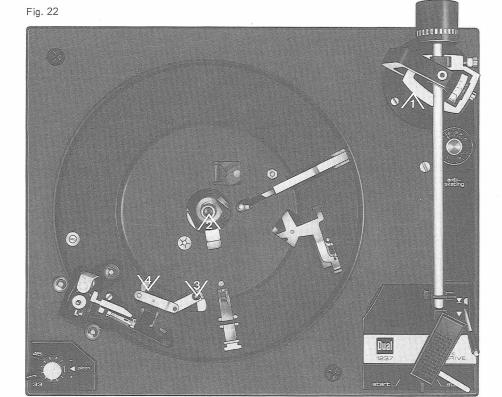
Lubrication

All bearing and friction points of the unit are adequately lubricated at the works. Replenishment of oil and grease is only necessary after approximately 2 years of normal use of the record player as the most important bearing points (motor bearings) have sintered metal bushes.

Bearing points and friction faces should be lubricated sparingly rather than generously.

It is important that no oil grease should come in contact with the friction faces of the flat belt, drive pulley and flywheel rotor, otherwise slip will occur.

When using different lubricants, chemical decomposition can often take place. To prevent lubrication failure we recommend using the original lubricants stated below.



\1/

Wacker Siliconöl AK 300 000



Haftöl Renotac Nr. 343



BP Supper Viscostatik 10 W/40



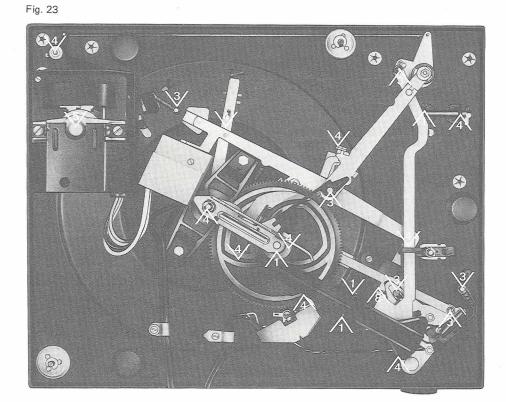
Shell Alvania Nr. 2



Isoflex PDP 40



Molykote



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