Service Manual

522

Edition January 1980

Technical data

	Measured values = typical values. Rumble and wow and flutter values obtained with test record.
Current	AC 50 or 60 Hz, changeable by changing motor pulley
Line Voltage	115 or 230 V, changeable
Drive	Dual 16-pole synchronous motor: flat belt for flywheel drive
Power consumption	approx. 8 watts
Starting Time	(to each nominal speed) approx. 2 seconds at 33 1/3 rpm
Power Consumption	at 220 V, 50 Hz: approx. 75 mA at 117 V, 60 Hz: approx. 140 mA
Platter	Non-magnetic, detachable, 1 kg, 304 mm ϕ
Platter speeds	33 1/3 and 45 rpm
Pitch Control Variation	at both platter speeds Adjustment range at 33 1/3 rpm approx. 1 semitone (6 %)
Speed control monitoring	with stroboscope for platter speeds 33 1/3 and 45 rpm, adjustable to 50 or 60 Hz.
Sensitivity of the strobe for 0.1 % speed deviation	6 division markings per minute at 50 Hz, 7.2 division markings per minute at 60 Hz.
Total Wow and Flutter	DIN ±0.07 % WRMS ±0.04 %
Rumble (according to DIN 45 500)	Unweighted 48 dB Weighted 70 dB
Tonearm	Torsion-resistant tubular aluminium tonearm in four-point gimbal bearing
Effective Length of Tonearm	221 mm
Offset Angle	24° 4'
Tangential Tracking Error	0.16°/cm
Tonearm Bearing Friction (related to stylus tip)	vertical 0.07 mN (0.007 g) horizontal 0.15 mN (0.015 g)
Stylus Pressure	from 0 – 30 mN (0 – 3 g) infinitely variable with 1 mN (1/10 g) calibrations from 0 – 15 mN (0 – 1.5 g) operable from 5 mN (0.5 g) stylus pressure up
Cartridges	with 1/2 inch screw-type attachment. These can be fitted with the special accessories no. 262 186 which can be obtained from trade dealers.
Weight	4.1 kg

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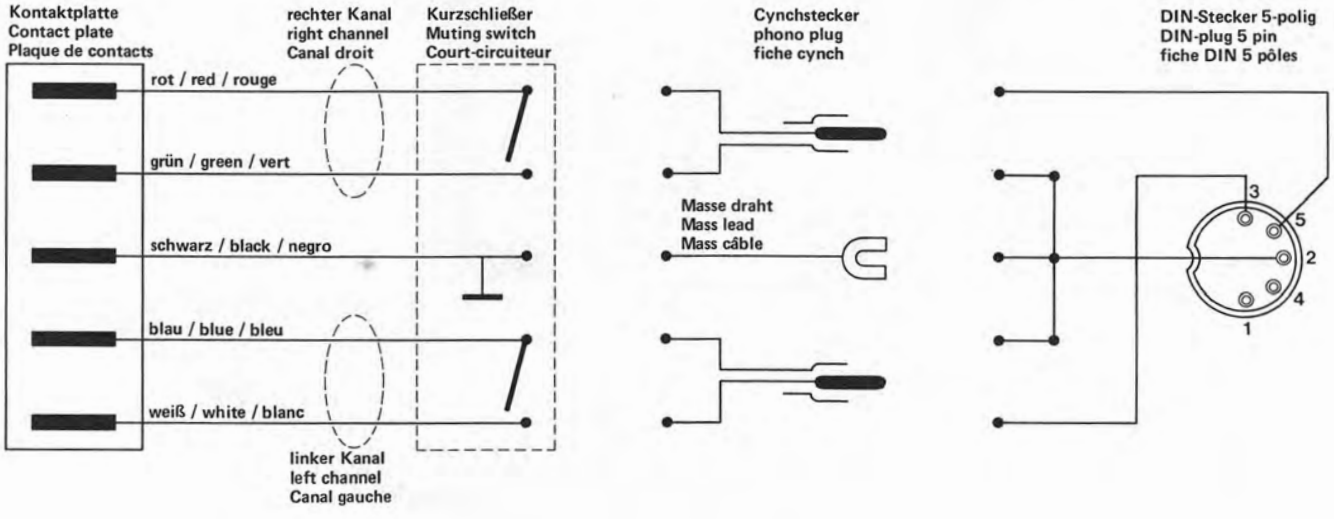
NOTE: The item numbers mentioned in the text refer to the illustrations, exploded views and Parts List.

Fig. 1 Audio Connection Diagram



Motor and Drive

Turntable and mechanism are driven by the motor **130.** This shaded-pole motor runs vibration-free in radially elastic mounts and has extremely low magnetic leakage. .
The motor speed is independent of voltage, temperature, and load variation. It can only fluctuate with the mains frequency. Two motor pulleys permit adaptation to the mains frequency of either 50 or 60 Hz; one pulley **116** is showin in both Fig. 2 and Fig. 3.

For 50 Hz use the pulley part no. 261 938,
for 60 Hz use the pulley part no. 261 939.

The driving force is transmitted to the turntable **14** by belt **17**.

Speed Selection

To adjust the turntable speed to either 33 1/3 or 45 rpm, the belt **17** is shifted to the one step of pulley **116** with the associated diameter (see Fig. 3). This is achieved when you adjust the speed lever **20** so that the START/STOP lever and the spring lever will move the change-over lever into the desired (33 or 45 rpm) position. When the record player is turned off, the changeover lever is blocked by the blocking bar and the speed is just preselected. Only when the turntable **14** starts running, the blocking bar **8** will release the change-over lever. The latter will then shift the belt **17** to that step of motor pulley **116** which corresponds to the desired speed.

Platter

The platter is secured to the securing disc **5** by the bayonet catch. When removing the platter **14** press the securing disc lightly downwards and turn it approximately 60° to the right until it is felt to click out of position.

Belt

To replace the belt **17**, first remove the turntable as above described, then separate the belt from the turntable **14**. Mount the new belt on the turntable.
NOTE: the ground (mat) surface of the belt should face the driven part. Install the turntable and place the belt **17** over the motor pulley **116**.

To Replace the Motor Pulley

1. Separate the belt **17** from pulley **116** and remove the turntable. Remove the toothed belt **109.**
2. Disengage the tension spring **114** from the shield **122.**
3. Unscrew the hex. nut **111**, remove the setting cam **112**, belt pulley **113**, and counter bearing **114**.
4. Slacken the grub screws **117** and slide off the motor pulley **116**. Slide the replacement pulley onto the motor shaft. Remove the taper sleeve. Pay attention on the internal distance spring. Position the motor pulley **116** at proper height above the mounting plane, see Fig. 3. Uniformly tighten the grub screws **117**. Put the taper sleeve into the motor pulley **116**.
5. Mount the counter bearing **114**, the belt pulley **113** and the setting cam **112** and secure them in place with hex. nut **111**. Install the tension spring **122** and the toothed belt **109**.
   Mount the turntable. Pull the belt **17** and place it around the motor pulley **116**).
6. Turn the knob **18** to adjust the belt pulley to its mid position. (The nose of the belt pulley **113** should point to the motor pulley center line.) Adjust the hex. nut **111** to the rated speed; the speed increases when you turn the nut clockwise and vice versa.

Fig. 2

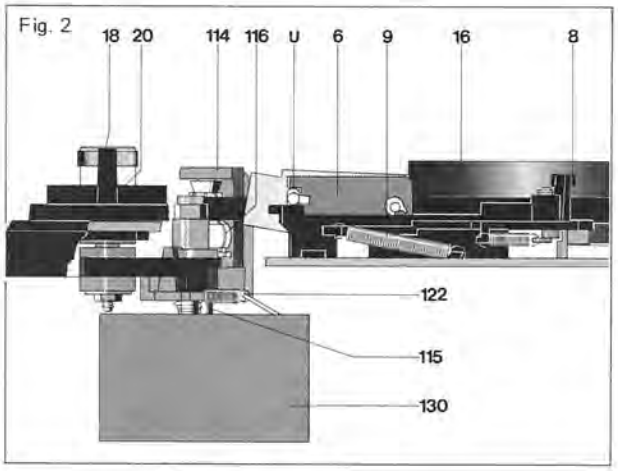


Fig. 3

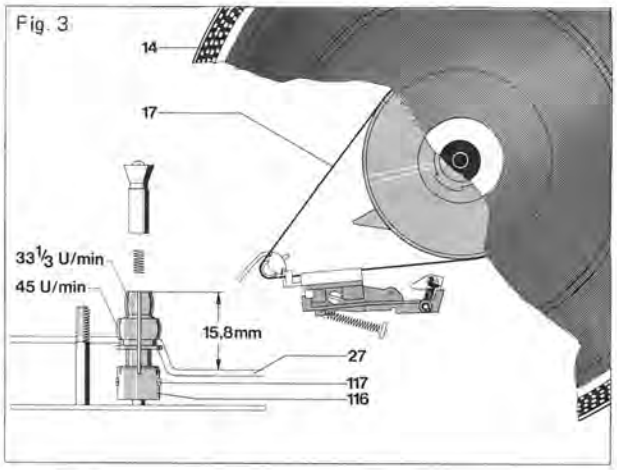


Fig. 4

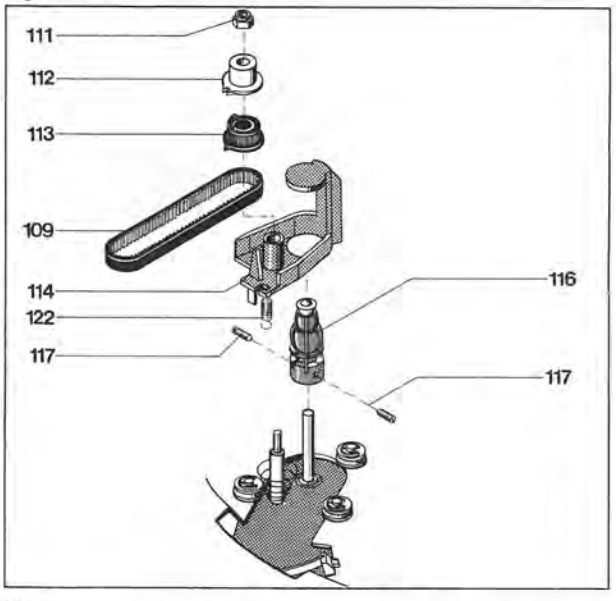


Fig. 5

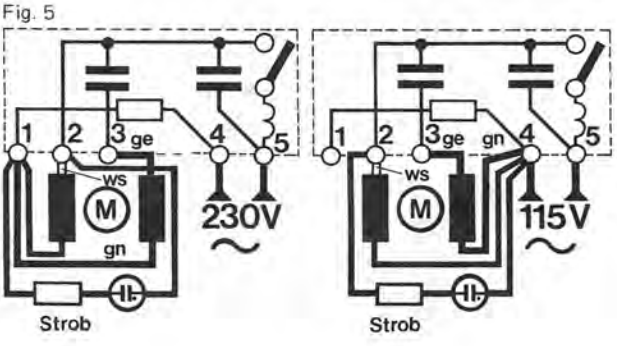


Fig. 6

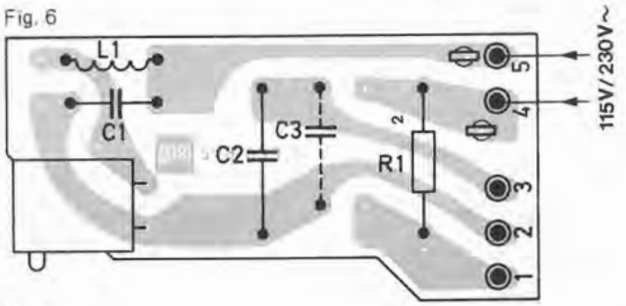


Fig. 7

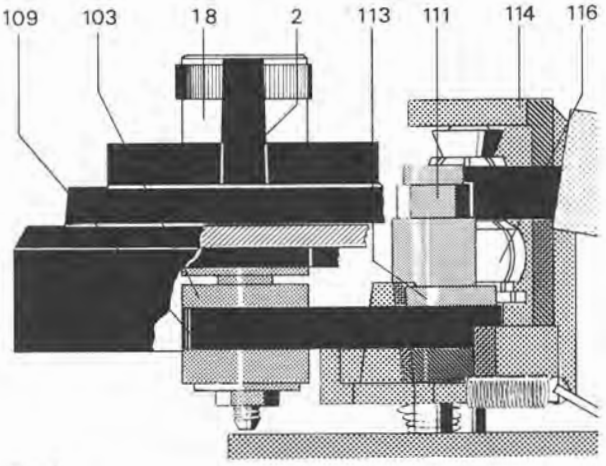


Fig. 8

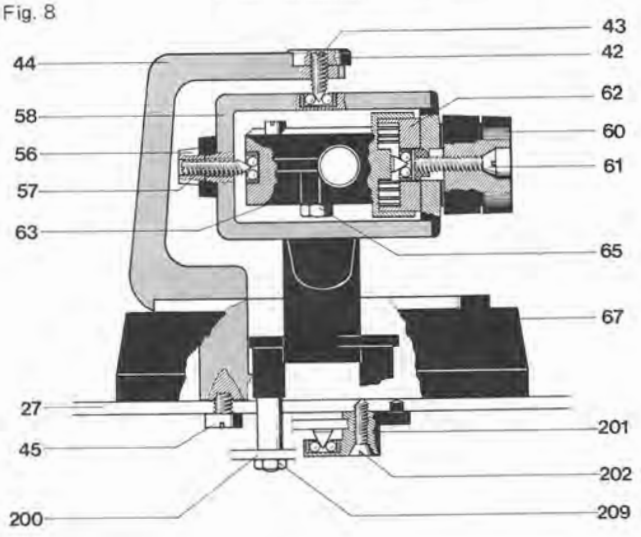
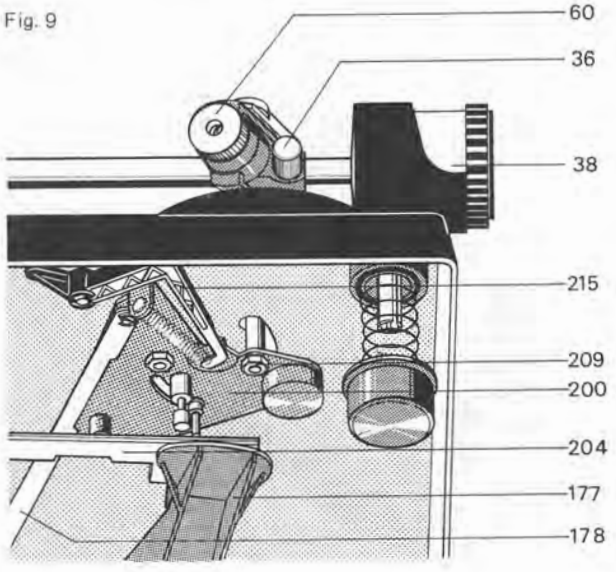


Fig. 9



Stroboscope

Even during the play mode the stroboscope can be used to check the accuracy of the turntable speed adjustment to 33 1/3 and 45 rpm.
Accurate adjustment is manifested by seemingly motionless bar marks of the stroboscope. If the marks run in the same direction as the turntable, the speed is too high and vice versa.
To vary the adjustment, operate the "pitch" knob **18**. The strobo marks on the turntable rim, have the following meanings (starting from the lowest row): 33 1/3 rpm at 60 Hz, 33 1/3 rpm at 50 Hz.
To exchange the glow lamp Gl **131**, remove the screws **234** and the strobo case.

Pitch Control

This feature is independent of the power and controls both turntable speed. The tuning range is max. 6 % or about one semitone.
When you rotate the knob **18**, you will move the belt pulley 2 **105**. This motion will be transferred by the toothed belt **109** to the belt pulley 1 **113**. As a result, the counter bearing **114** and taper sleeve of motor pulley **116** are shifted upwards or downwards, respectively. The taper sleeve of the motor pulley **116** causes the pulley diameter to be reduced or increased, which permits the variation of the rated speed within the said range of ± 3 %.

Tone Arm with Bearings

The light-weight torsion-resistant aluminum-tube tone arm has a universal gimbal bearing characterized by four hardened and lapped steel points located in high-precision ball bearings. The tone-arm bearing friction is thus reduced to a minimum, namely

less than 0,07 mN or 0,007 gr in vertical and
less than 0,15 mN or 0,015 gr in horizontal direction,

referred to the stylus point.

This ensures particularly satisfactory tracking conditions. Before adjusting the tracking force, which should comply with the pick-up system used, adjust the tone arm to its balanced position while the tracking-force scale indicates zero.
The tracking force is produced by tensioning the helical spring located in the spring case **62**. The rotary turn knob **60** has a scale with marks permitting exact adjustment of the tracking force within the range 0 – 30 mN (or 0 – 3 gr).

To Remove the tonearm complete with the tonearm bearing

We recommend the following procedure:

1. Secure the unit in a repair stand. Turn the rotary turn switch **60** to the zero position. Lock the tonearm **38**. Remove the counter-weight **55**.
2. Adjust record player to head position. Remove the shield **160**. Unsolder the tone-arm leads from muting switch.
3. Remove the main lever **177**. Remove the lock washer **242**. Rotate the set screw **26** until guide bearing **241** and setting ting bar **228** come free. Remove lock washer **228** and setting bar **204**.
4. Unlock the tension spring **212**, loosen the lock washer **216** and remove skating lever **215**.
5. Remove lock washer **202** from segment **200**.
6. Remove hex. nuts **209** and the screw **202**. Remove the bearing **201** and the segment **200**.
7. Grip the frame **44** and the tonearm **38**. Loosen the machine screw **45** and take off the tonearm and frame.

Reassembly of the tonearm involves the reverse procedure. Take care that the grub screw **43** is correctly seated in the bearing when when fastening the frame **44**.

To Remove the tonearm or the spring housing

1. Secure the unit in a repair stand. Turn the rotary turn switch **60** to the zero position. Lock the tonearm **38**. Remove the counterweight **55**.
2. Turn the unit cover. Remove the screening sheet **160** and solder off the tonearm connections at the muting switch. Turn the unit the right way up.
3. Remove the fillister head screw **61**. Remove the rotary turn switch **60** and the washer **59**.
4. Loosen the nut **56** and the grub screw **57**. Draw the tonearm **38** complete with bearing **63** from the bearing race **58**. The spring housing **62** or the tonearm **37** may now be changed.

Reassembly involves the reverse procedure.

To Adjust the Tone Arm Bearings

Exactly balance the tone arm. Both bearings should have a small, just perceptible backlash or play. Proper adjustment of the horizontal bearing is achieved if the tone arm can freely slide from the record inside to outside while the anti-skating adjustment is 0.5. Proper adjustment of the vertical bearing is achieved when the carefully kicked tone arm swings into balanced position. Adjust the backlash by grub screws **43** and **57** for the horizontal and vertical bearing, respectively.

Fitting a 1/2 inch cartridge

If a cartridge with 1/2 inch standard mount is to be fitted, the conversion kit Number 262 186 is necessary. The proper method of fitting is shown in fig.
Also the decorative cover should be removed from the counterweight **55** and should be fitted with the compensatory weight to be found in the conversion kit **41**.
Coarse adjustment is carried out by moving the weight with stem **38** subsequent fine adjustment by turning the front knurled ring on the weight.

Anti-Skating Device

To adjust the anti-skating force, operate the pointer scale provided on the cover **69**. Depending on this adjustment, the skating lever **215** will be deflected from the tonearm pivot point. The anti-skating force is transmitted by the tension spring **212** to the segment **200** and thus to the tonearm **37**.
The factory adjustment is optimal for any stylus having a spherical tip radius of 15 μm or elliptical of 5 – 6 and 18 – 22 μm.
These factory-adjusted values may be varied only in an authorized Dual service workshop using a Dual Skate-O-Meter and a test record.

Tone Arm Lift

When you move the lift control bar **218** to the LIFT position ▼, the tone arm will be lifted and in position LOWER ▼ it will be lowered through the lift cam **219** and the setting bar **204**. The tone arm lift has priority over the set-down mechanism. When the record player is started with the control bar **218** in the LIFT position ▼, the set-down mechanism will move the tonearm across the record in the auto mode. Lowering of the tonearm will take place only after you have adjusted the control bar **218** to the POWER position ▼.
The height of lift should be 3 to 5 mm; it can be adjusted by the setscrew **26**.

To Replace the Lift Plate 158

1. Remove the main lever **177** and the lock washer **242**. Rotate the setscrew **26** until guide bearing **241** and setting bar **204** are released. Remove lock washer **228** and setting bar **204**.
2. Unlook the tension spring **212**.
3. Remove lock washer **206** and disk **205**. Detach the shut-off bar **179** from segment **200**.
4. Remove hex. nuts **202** and the screw **202**. Remove the segment **200** and the bearing **201**.
5. Remove the screws **198** and the lift plate **199**.

To reassemble, proced in reversed order.

Fig. 10

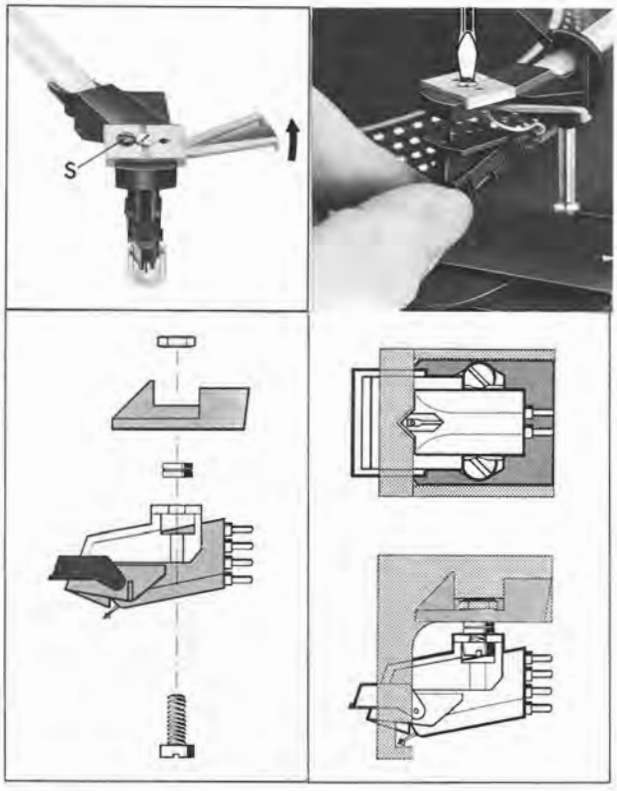
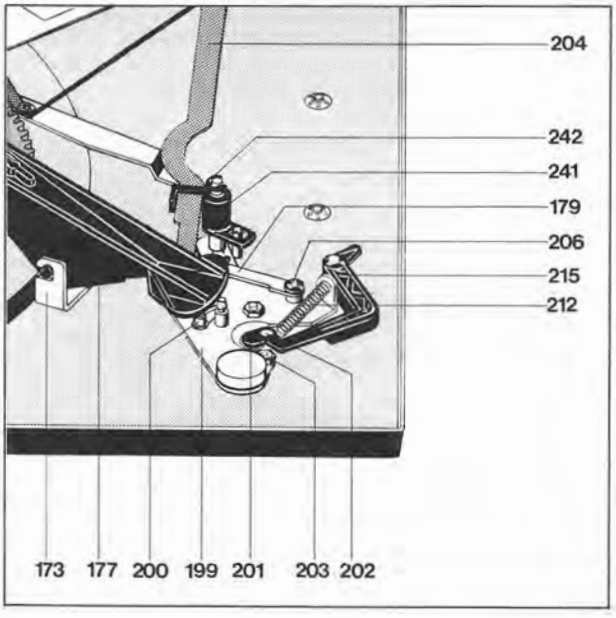


Fig. 11



Tone Arm Control

The tonearm motions for auto lowering and lifting are controlled by cams under the cam wheel **161** while the wheel rotates through 360°.
Lifting and lowering motions are controlled by the main lever **177** and lifting bolt while the horizontal motions of the tonearm are controlled by lever **177** with the segment **200**.
The lifting/lowering mechanism is active for 30 cm- and 17 cm-records, it is coupled to the turntable-speed change-over function.
The tonearm set-down points are determined by the spring pin of segment **200** abutting against the setting bar **204**. The horizontal motion is limited by the segment abutting against the setting bar **204** which is lifted only during the set-down operation by the main lever **177** and thus comes into the sluing range of the spring pin provided on the segment.

After the tonearm has been set down on the record, the setting bar **204** is released and returns to its normal position, thus escaping from the range of the spring pin. The tonearm is thus free to move in horizontal direction during the play-back.

The Starting Sequence

When you adjust the START/STOP lever to the START position, the turn-on lever **207** is rotated to the outside and will trigger the following functions:

a) The turn-on lever **207** rotates the shift links **189** seated on the riffled pins **183**. At the same time, the power switch is turned on **135** and both the motor **130** and turntable start rotating.
b) The shift link **189** enters the range of the reversing lever which is forced into its start position by the subsequent rotation of the cam wheel **161.**
c) Operation of the START/STOP lever **50** will also release the start angle **187** that is pulled towards the cam wheel by the tension spring **188**. The shut-off lever is thus brought into the range of dog M on the turntable pinion (PR) and the cam wheel is driven.

Manual Start

When the tonearm is guided towards the record manually, the pawl **236** coupled to the shift arm **165** will engage with the square bolt mounted in the deck plate and will keep the shift arm in this position. Coupled to the shift arm is the shut-off **lever 168** that will turn on the power switch and thus initiate the turntable rotation. When the run-out groove of the record played has been reached, the tonearm is restored and the record player is turned off by automatic means. If you lift the tonearm before the end of play and put it back onto its support, the bolt of segment **200** will release the engaged position of the pawl **236** so that the shift arm is returned to its initial position and the power switch will turn off.

Continuous Play

This mode is operative when you have adjusted the knob **66** to ∞ . The knob **66** will rotate the reversing angle **231** and the latter is forced into the starting postion by the turn-on lever **207** at the end of record, the tonearm is restored to its rest position on the support near the record rim. This procedure will be repeated until the START/STOP lever **50** is adjusted to STOP or the knob **66** is adjusted to no. 1 position.

Muting Switch

The muting switch is provided to avoid noisy lifting and lowering of the tonearm in the auto made. The contact springs of both channels are controlled by the cam wheel. The resulting short-circuiting of the pickup leads is ineffective in the rest state of the record player.

Adjustment

In the zero position of the cam wheel, a contact separation of about 0.5 mm should exist between the contact springs **(F)** and the shorting straps **(L)** in Fig. 14. If necessary, bend the shorting straps. Maintain contact springs in good state by a spraying agent.

Final Shutting-off

The shutting-off and stop functions are controlled by the reversing lever U. Lever U is brought into the stop position by the main lever **177** (longer leg of the reversing lever towards the cam wheel center). The shut-off bar **179** is dragged during the play in proportion to the motion of segment **200**. The shutting-off operation after the end of record is triggered by the dog **(M)** of the turntable **7** and by the shut-off lever **(A)**.

Fig. 12

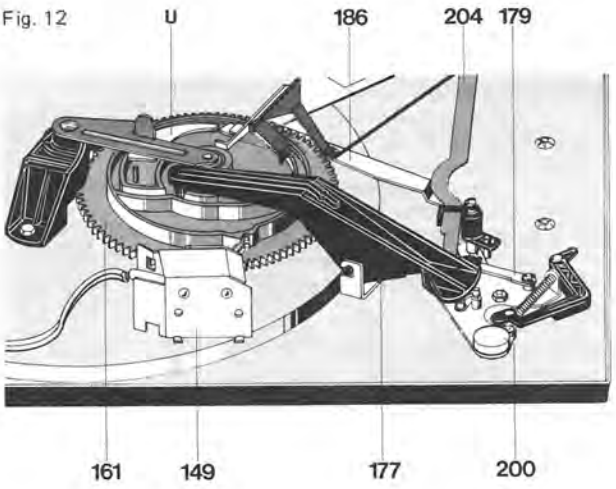


Fig. 13

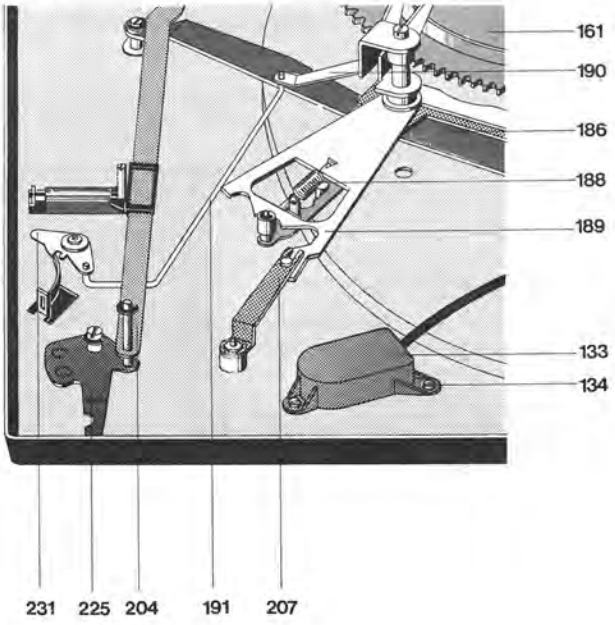
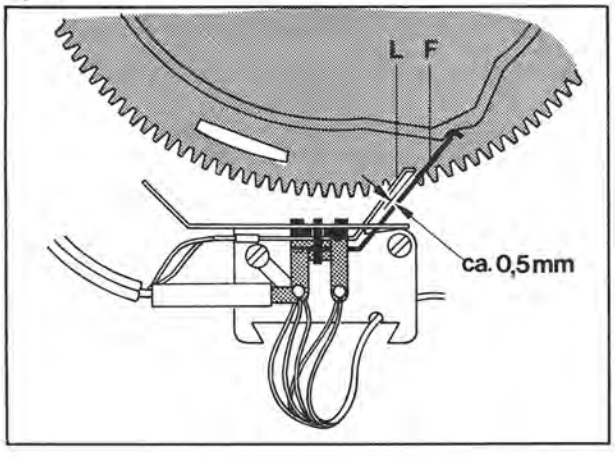


Fig. 14



In the shut-off range for records 116 – 122 mm in diameter, the shut-off lever **(A)** approaches the dog under control of the shut-off bar **179**. The dog **(M)** engages with lever **(A)**, which will displace the cam wheel **161** from its zero position and make it engage with the pinion **(PR)**. The main lever **177** returns the tonearm that can then lower itself on its support.
When the cam wheel runs up to its zero-engagement position, the nose **186** of the shift arm can run into the recess left in the cam wheel and operate the power switch **135**.

Stop Circuit

Wen you adjust the lever **50** to STOP, the start angle **187** is released and pulled towards the cam wheel by tension spring **188**. As a result, the shut-off lever is brought within the range of the dog **(M)** on the pinion **(PR)** of the turntable and the cam wheel **161** becomes driven. The reversing lever remains in its stop position.

Adjustments

Tone Arm Set-down Point

Slightly prey up the nameplate „Dual" at its lower left corner and swivel it outwards (Fig. 16). The now accessible opening will show one of the adjusting screws.

Set-down Point for 30-cm Records

Adjust the speed selector **20** to the "45" position and correct adjustment with a screwdriver. If the stylus sets down too far on the record inside, rotate the adjusting screw clockwise. If the stylus is lowered outside the 30 cm-record, rotate the screw counter-clockwise.

Set-down Point for 17-cm Records

Adjust the speed selector **20** to the "33" position and rotate the screw as above described for adjustment.

Shut-off Point

In the shutting-off range for records 116 – 122 mm in diameter, the excenter **(S)** on segment **200** can be used to vary the shut-off point.

Tone Arm Lift Height

This height of the auto mode can be adjusted with the aid of the setting sleeve **197**. Pull the mains plug. Disengage the tone arm. Rotate the cam wheel **161** out of its zero position until the tone arm has reached its greatest lift height.
The height above the tone arm support stop should be about 8 mm as shown in Fig. 18. If necessary, rotate the setting sleeve **197** clockwise or anticlockwise as required.

Fig. 15

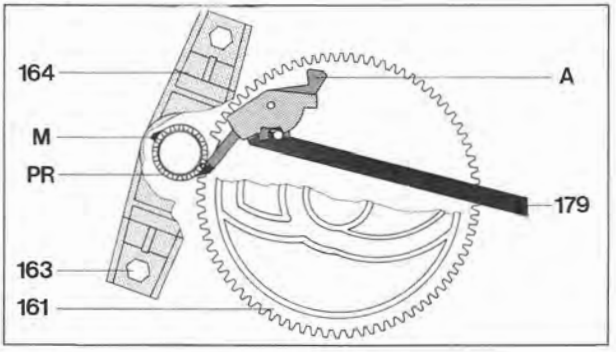


Fig. 16

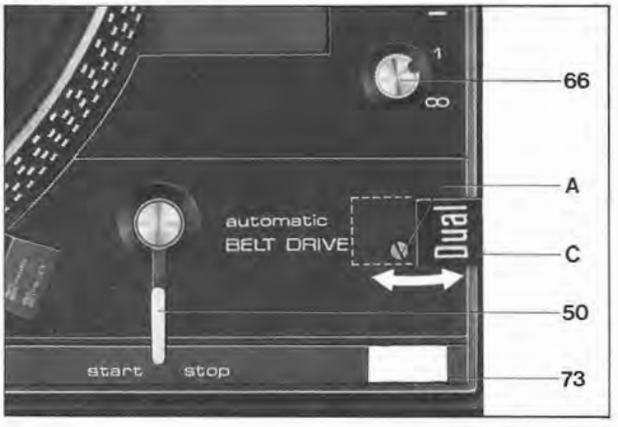


Fig. 17

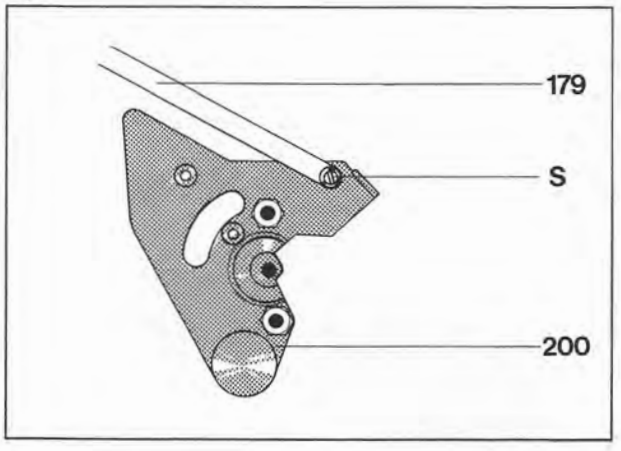
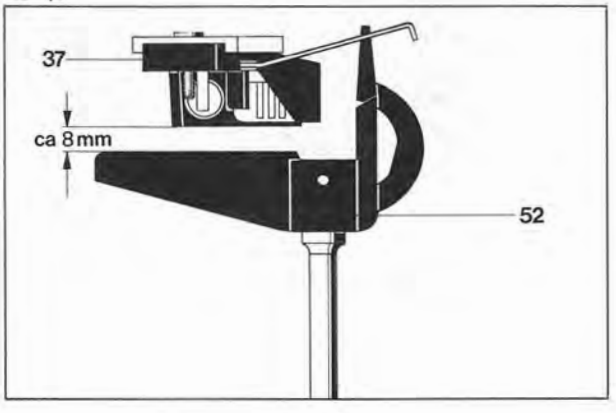


Fig. 18



Defect	Cause	Repair
Tone arm improperly lowered (too fast or not on record).	Shock-absorbing action of silicone oil in lift tube is excessive or insufficient.	Demount the lift plate **199**, remove the control stud **195**, lock washer **196**, and setting sleeve **197** with lock washer; remove lift bolt and pressure spring, clean lift tube and lift bolt. Evenly apply WACKER SILICONE OIL AK 500 000 to the lift bolt. Reassemble the parts.
Acoustic Feedback	a) Chassis parts (e.g. connecting leads) hit bench cutout.	a) Align cutout by installation instructions.
	b) Connecting leads are strained.	b) Loosen or extend the cables.
Rated speed borders pitch adjustment range.	Positioning of belt pulley is inaccurate.	Adjust knob **18** to mid position; adjust hex. nut **111** to rated speed (clockwise adjustment will increase the speed and vice versa).
Turntable does not start.	a) Belt is not in place.	a) Mount the belt.
	b) Motor is not powered.	b) Check switch base and mains plug.
	c) Motor pulley has come loose.	c) Tighten it.
Turntable speed unsatisfactory.	a) Motor pulley does not comply with mains frequency.	a) Exchange it.
	b) Belt slips on motor pulley or turntable.	b) Clean all contacting surfaces of belt and pulleys, if necessary replace the belt.
	c) Excessive bearing friction.	c) Clean and relubricate the bearings.

Replacement parts

Pos.	Part.-No.	Qty	Description
3	220 213	1	Centering piece
5	263 395	1	Lock washer complete
6	261 914	1	Mount complete
7	248 346	1	Pressure spring
8	261 916	1	Locking rail compl.
8	264 027	1	Locking rail compl.
9	249 171	1	Tension spring
10	248 347	1	Tension spring
11	260 157	1	Stop
12	263 396	1	Platter mat
13	248 893	1	Spring washer
14	263 398	1	Platter complete
15	200 543	1	Snap spring
16	263 399	1	Fly wheel rotor complete
17	261 921	1	Flat belt
18	260 461	1	Regulating knob
19	232 078	1	Bearing bush
20	260 297	1	Speed lever
21	263 378	1	Speed cover
22	213 260	4	Grooved drive stud
23	210 194	1	Grip ring
24	210 472	1	Machine screw
25	234 599	1	Reset cam
26	240 069	1	Adjusting screw
27	263 400	1	Mounting plate complete
30	237 228	3	Spring suspension
	234 433	1	Spring suspension (motor side)
31	230 529	1	Threaded coupling
32	236 712	3	Pressure spring
	232 843	1	Pressure spring (motor side)
33	200 723	4	Rubber absorber
34	200 722	4	Casing

Pos.	Part.-No.	Qty	Description
35	239 414	3	Transport lock
36	260 428	1	Clamping
37	263 262	1	Tonearm complete
38	263 401	1	Weight complete
39	263 259	1	Tonearm head complete
40	261 929	1	Tonearm lead
41	262 186	1	1/2 inch conversion kit complete
42	249 383	1	Counter nut
43	234 651	1	Grub screw
44	261 979	1	Frame complete
45	242 677	1	Machine screw M 4 x 8
48	236 069	1	Machine screw
49	248 979	1	Lifting plate
50	260 298	1	Switch lever
51	260 328	1	Stroboscope prism
52	263 408	1	Tonearm rest complete
56	246 884	1	Conter nut
57	234 634	1	Grub screw
58	261 981	1	Bearing race complete
59	261 798	1	Washer 5,2/10
60	248 989	1	Rotary knob
61	249 097	1	Raised countersunk head screw M 2,5 x 12
62	263 331	1	Spring housing complete
63	263 330	1	Bearing complete
64	210 597	1	Washer
65	262 294	1	Screw
66	260 334	1	Rotary knob
67	263 407	1	Rear cover
68	200 444	7	Spring washer
69	260 320	1	Cam disc
70	242 298	1	Washer
71	228 113	1	Washer 4,2/8/1

Fig. 19 Exploded view 1

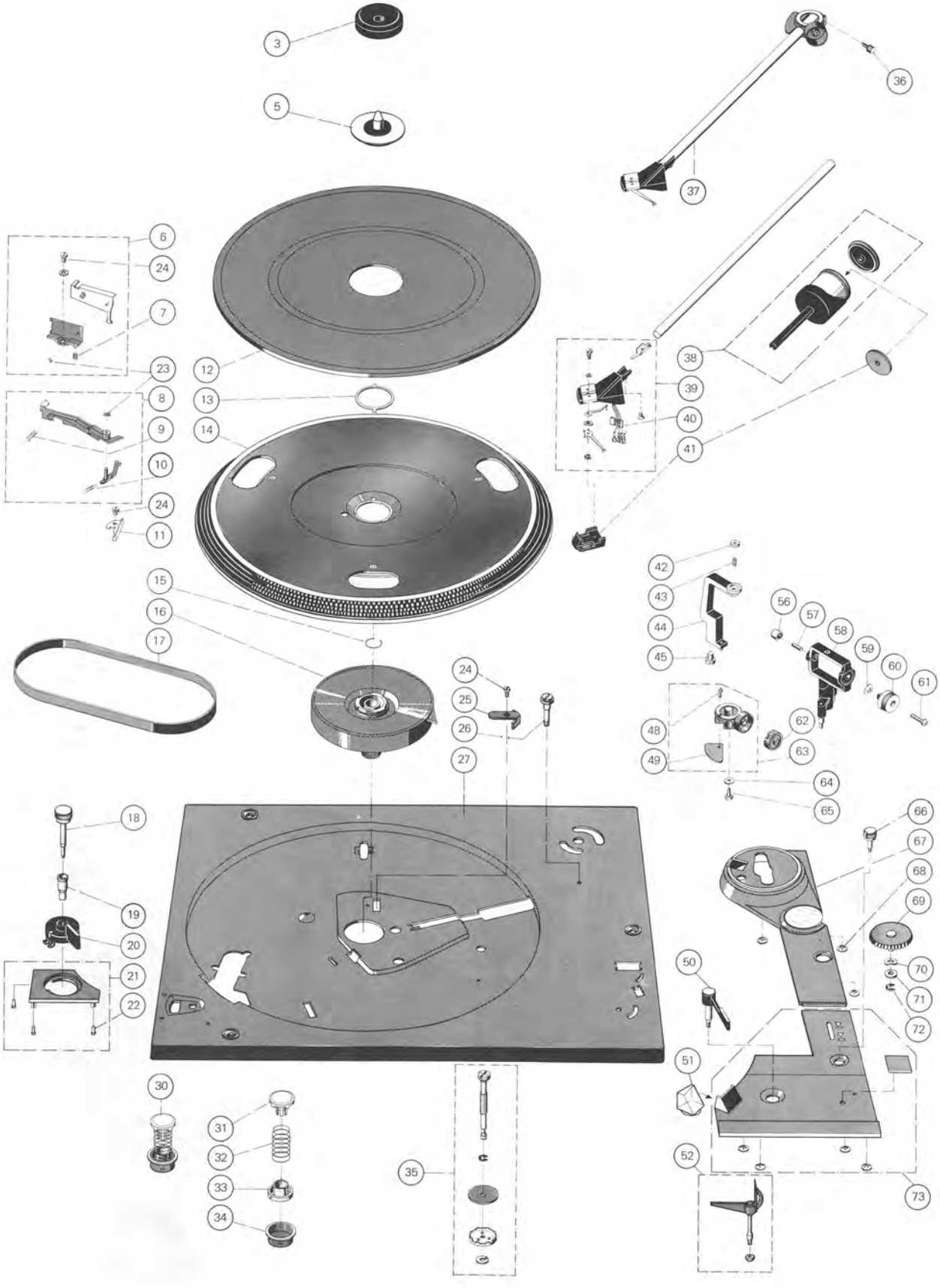
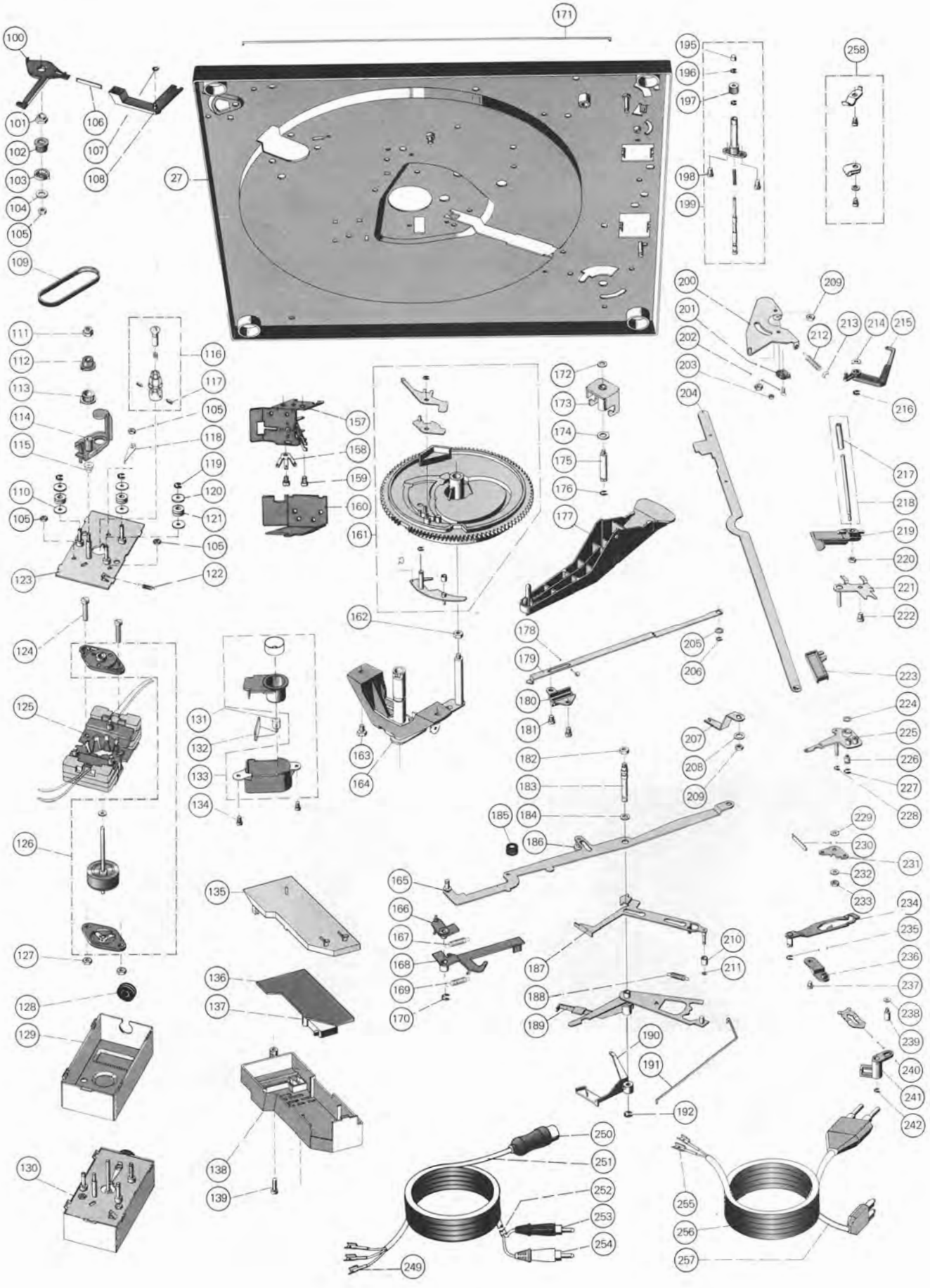


Fig. 20 Exploded view 2



Pos.	Part.-No.	Qty	Description
72	210 146	1	Lock washer 3,2
73	263 406	1	Font cover complete
100	260 537	1	Connection part
101	232 079	1	Shouldered nut
102	232 097	1	Belt wheel
103	240 035	1	Washer
104	210 607	1	Washer 3,2/10/0,5
105	210 362	1	Hex nut M 3
106	260 570	1	Clip spring
107	210 196	1	Grip ring
108	260 475	1	Switch lever
109	260 309	1	Toot hed belt
110	210 607	3	Washer 3,2/10/0,5
111	244 104	1	Hex nut
112	241 641	1	Control curve
113	241 642	1	Belt wheel 1
114	248 508	1	Conter bearing
115	232 615	1	Presure spring
116	261 938	1	Motor pulley 50 Hz
	261 939	1	Motor pulley 60 Hz
117	233 137	1	Grub screw
118	247 920	1	Earth bracket
119	210 145	3	Lock washer
120	210 609	3	Washer
121	249 182	3	Damping sleeve
122	233 777	1	Tension spring
123	261 121	1	Motor plate
124	248 335	2	Machine screw
125	261 944	1	Stator 110/200 V kpl.
	261 946	1	Stator 110/220 V kpl. UI/CSA
126	261 945	1	Armature with bearing complete
127	222 200	2	Hex nut M 3,5
128	209 939	1	Rubber bush
129	247 858	1	Screening plate
130	261 961	1	Motor SM 100-1 compl.
131	260 421	1	Glow lamp
132	249 092	1	Switch plate
133	263 336	1	Stroboscope housing complete
134	210 469	1	Machine screw
135	260 137	1	Housing
136	261 965	1	Switch plate
137	262 272	1	Power switch
C 1	241 646	1	10 nF/250 V/20 %
C 2	249 352	1	0,33 µF/250 V/10 %
C 3	230 355	1	68 nF/250 V/20 %
R 1	249 354	1	5,1 kΩ/5 W/5 %
L 1	242 822	1	RF cooke 47 µH
138	248 881	1	Cover
139	210 491	1	Machine screw
157	236 402	1	Muting switch
158	239 562	1	Soldering lug
159	210 472	2	Machine screw
160	232 084	1	Screen sheet
161	236 912	1	Cam wheel complete
162	210 366	1	Hex nut
163	218 155	2	Hex screw
164	263 405	1	Bearing bridge complete
165	234 542	1	Switch arm
166	248 878	1	Switch lever
167	260 363	1	Tension spring
168	260 387	1	Switch off lever
169	229 686	1	Tension spring
170	210 145	1	Lock washer 2,3
171	234 592	1	Connection rod
172	210 587	1	Washer 3,2/7/1
173	234 677	1	Bearing bracket
174	210 667	1	Washer 5,3/10/0,5
175	234 676	1	Screw bolt
176	210 147	1	Lock washer 4
177	236 914	1	Main lever
178	211 718	1	Ball § 3
179	234 668	1	Stop rail
180	234 558	2	Ball bed
181	210 472	2	Machine screw M 3 x 4

Pos.	Part.-No.	Qty	Description
182	210 362	1	Hex nut M 3
183	234 544	1	Groove bolt
184	210 586	1	Washer 3,2
185	236 950	1	Stop bush
186	239 931	1	Roller
187	234 545	1	Start angle
188	229 698	1	Tension spring
189	244 784	1	Switch crank
190	262 025	1	Switch over lever
191	234 598	1	Connection rod
192	210 146	1	Lock washer 3,2
195	216 844	1	Control nipple stud
196	210 143	3	Lock washer 1,5
197	218 318	1	Adjustable adapter
198	210 472	2	Machine screw M 3 x 4
199	263 402	1	Lift plate complete
200	263 403	1	Segment
201	242 615	1	Counter bearing
202	203 475	1	Counter sunk screw M 3 x 8
203	223 777	1	Control nipple stud
204	240 060	1	Slide rail
205	201 187	1	Sliding washer
206	210 145	4	Loch washer 2,3
207	244 709	1	Switch on lever
208	210 641	1	Washer 4,2/10/1
209	210 362	1	Hex nut M 3
210	234 548	1	Roller
211	210 143	3	Lock washer 1,5
212	218 591	1	Tension spring
213	201 184	1	Adjusting washer
214	242 298	1	Washer
215	244 331	1	Skating lever
216	210 146	1	Lock washer 3,2
217	237 543	1	Rubber bush
218	237 541	1	Grip rod complete
219	240 063	1	Lifting piece
220	210 353	1	Hex nut
221	240 066	1	Bearing plate
222	210 469	1	Machine screw
223	234 674	1	Brahing piece
224	210 587	1	Washer
225	234 588	1	Adjusting lever
226	230 087	1	Screw bolt
227	210 146	3	Lock washer 3,2
228	210 145	4	Lock washer 2,3
229	210 586	1	Washer
230	232 545	1	Leaf spring
231	234 593	1	Reversing angle
232	203 477	1	Washer
233	210 353	1	Hex nut
234	232 599	1	Latch
235	210 146	3	Lock washer
236	239 915	1	Square plate
237	210 472	1	Machine screw
238	210 586	1	Washer
239	245 247	1	Screw bolt
240	239 810	1	Locking spring
241	229 362	1	Guide bearing
242	210 145	4	Lock washer 2,3
249	209 436	3	Tab receptable
250	209 424	1	5-pole plug
251	207 303	1	Phono pick up cable complete
252	207 301	1	Phono pick up cable (cynch)
253	209 425	1	Cynch plug white
254	209 426	1	Cynch plug black
255	214 602	2	AMP-receptable
256	232 996	1	Mains lead Europe
257	232 995	1	Mains lead USA
258	231 079	1	Cable clamp
	261 952	1	CK 28 walnut console
	261 953	1	CK 28 agale black console
	261 954	1	CK 28 agale brown console
	227 986	1	CH 6 cover
	261 140	1	Operating instructions
	262 000	1	Operating instructions UAP
	260 491	1	Shipping carton CS

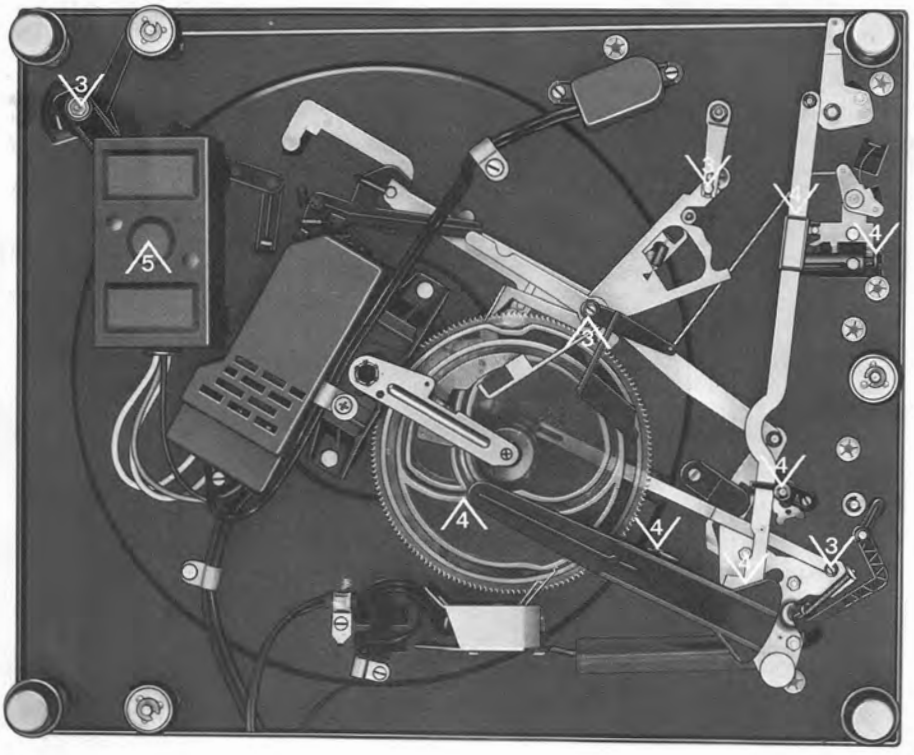
Subject to change!

Lubrication

Al 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.

Fig. 21

Fig. 22



1 Wacker Siliconeoil AK 300 000

2 Renotac adhesive oil No. 343

3 BP Super Viscostatic 10 W/40

4 Shell Alvania No. 2

5 Isoflex PDP 40

Dual Gebrüder Steidinger · 7742 St. Georgen/Schwarzwald

920 650-2 5.2/0180

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