



Service Manual

Dual Gebrüder Steidinger · 7742 St. Georgen/Schwarzwald



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Specification

Current Type AC 50, 60 Hz, selected by exchanging drive pulley Line Voltages 110 - 130 volts, 220 - 240 volts Motor and Drive 8-pole/synchronous motor with belt drive system **Power Consumption** approx, 10 watts with 220 V 50 Hz approx. 72 mA with 110 V 60 Hz approx. 135 mA **Current Consumption** Platter Non-magnetic, dynamically-balanced, detachable, 1,3 kg, 300 mm dia **Platter Speeds** 33 1/3 and 45 rpm Range of adjustment approx. 1 semitone (6 %) at 33 1/3 rpm **Pitch Control** Speed Check with light stroboscope for platter speeds of 33 1/3 rpm, for 50 and 60 Hz **Overall Speed Variation** (assessed in accordance with DIN 45 507) $< \pm 0.08$ Signal-to-Noise Ratio Rumble weighted signal-to-noise ratio > 63 dB (in accordance with DIN 45 500) Rumble unweighted signal-to-noise ratio > 42 dB Torsion resistant, tubular aluminum tonearm in universal four-point gimbal suspension Tonearm **Tonearm Bearing Friction** vertical < 0.007 p (related to stylus point) horizontal < 0.015 p Pick-up Head Detachable, suitable for all pick-up cartridges with Dual catch mounting and 1/2" mounting and a deadweight of 5.5 - 10 g (including mounting material) 0 - 3 p continuously variable, with 1/10 p calibration in the range from **Tracking Force** 0 - 1.5 p, reliable as from 0.5 p tracking force Weight approx. 4.3 kg For dimensions and cutout refer to Installation Instructions

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Motor and Pulley

The turntable platter and the gear are driven by an eight-pols, synchronous (132) 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 a function of line voltage, temperature and load variations. Speed is dependent on and proportional to line frequency. The motor is adapted to 5D or 6D Hz power line frequencies by the correct choice of motor pulley.

Pulley for 50 Hz Part.-No. 234 453 Pulley for 60 Hz Part.-No. 234 454

The drive is linked to a flywheel rotor beneath the platter by a precision-ground belt (11). When replacing the flat belt (11) be sure that the precision-ground surface of the belt (dull finish) closely contacts pulley (116) and the flywheel rotor.

Platter speeds of 33 1/3 and 45 rpm are adjusted by linking the flat belt (11) to the corresponding step of the drive pulley (116) (Fig. 3).

Corresponding to the actuation of the loft speed selector (14) the changeover lever is brought to the appropriate position of nominal speeds (33 or 45 rpm) via lever (101). When the unit is electrically shut off the changeover lever is blocked by locking bar (4). Consequently, the speed is only preselected. After switching on the unit and turning the platter (10) the disengages the changeover lever, thus guiding the flat belt (11) to appropriate step of the pulley (116).

Replacement of Motor Pulley

- Remove flat belt (11) from motor pulley (116) toothed belt (109) from toothed belt pulley II (105).
- Disengage tension spring (114) at shield (121).
- 3. Undo adjusting nut (110).
- Pull-off the counter bearing assembly consisting of the counter bearing, toothed belt pulley I (112), stop disk (111) and toothed belt (109).

Attention:

Do not remove stop disk (111) from toothed belt pulley I. For correct adjustment of stop disk proceed as follows: Turn toothed belt pulley I (112) with toothed belt (11) counterclockwise until it stops at the counter bearing (113). Then turn quarter to half turn clockwise. Place stop disk (111) such that the nose (N) touches the stop as shown in Fig. 114.

- Loosen set screws (114) and remove motor pulley (116).
- 6. Place complete replacement motor pulley on motor axle. Remove conical sleeve. Be careful with the interior distance bushing. Adjust motor pulley vertically (see Fig. 3) and tighten set screws (117) uniformly. Place conical sleeve into the Motor pulley (116).
- Mount the complete bearing assembly, and attach flat belt (11), toothed belt (109) and tension spring. Mount adjusting nut (110).

8. Setting of nominal speed

To bring stop disk (110) into center position turn adjustment knob (12) correspondingly. (The nose of the stop disk should show to the motor pulley center). Adjust nominal speed by turning adjusting nut (110) counterclockwise the speed is reduced. When turning it clockwise the speed is increased.

Stroboscope

Accurate setting of the platter speeds 33 1/3 rpm can be checked during play with the aid of the stroboscope device.

When the platter (10) is rotating at exactly 33 1/3 rpm the lines of the stroboscope appear to stand still. If the lines of the stroboscope move in the direction of rotation of the platter, the platter speed is too high. If the lines move backwards, the platter is rotating more slowly than the nominal speed.

Adjustment is carried out with the "pitch" knob (12).

Fixed tremen! Strobe markings for 50 or 60 Hz are provided on the platter rim.

Defect

After switching the unit on the glow lamp (202) of the stroboscope does not come on.

Cause

a) Glow lamp (202) defective b) Power supply interrupted

Remedy

- a) Renew glow lamp (202). In the case of glow lamps with red spot, ensure that the red spot (anode) faces the C 1 capacitor.
- b) Check connections at power pack, check components.

Fig. 5 Connection of field coils







Fig. 7 Stroboscope (wiring diagram)



Fig. 8 Complement (conductors side)





Defect

Nominal speed is at the edge of the control range of the pitch control.

Postition of toothed belt pulley I inaccurate.

Platter does not run a) Belt not properly after the line voltage cord of the unit has been plugged into the receptacle and c) Drive pulley the master operating switch moved to "start".

put on Power supply to ь) motor interrupted slackened

Platter does not come up to its required speed.

a) Drive pulley is not correct for local line frequency

- b) Slippage between flat belt and drive pulley or between flat belt and flywheel rotor
- c) Excessive friction in motor bearing or flywheel rotor bearing assembly

Fig. 10



Pitch Control

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

The toothed belt pulley I (112) is moved by turning adjustment knob (12). Turning movement is transmitted to belt pulley I (112)by means of the toothed belt (109) (Fig. 9) thus sliding the counter bearing (113) and the tapered bush of the drive pulley (116) downwards or upwards. The taper bush of the drive pulley (116) is designed to vary the diameter of the drive Pulley (116) thus var-ying the nominal speed with the tolerance of \pm 3 %.

Remedy

By turning fine speed adjustment knob (12) move stop disk (111) to its center position (The dog of the stop disk should face the center of the drive pulley). Using adjusting nut (110) adjust for nominal speed, The nominal speed is incrassed by turning the adjusting nut clockwise and decreased by turning the set screw counterclickwise.

- a) Install belt properly put on
- b) Check connection at switch plate and power supply plug. c) Retighten drive pulley
- a) Renew drive pulley
- b) Clean friction surfaces of flat belt, drive pulley and flywheel rotor. Renew flat belt if neccessary.
- c) Clean and oil bearings

Defect

Pick-up head not parallel to platter.

Cause

The pick-up head has been moved out of position on the tonearm tube during transport.

Remedy

Remove platter. Using a screwdriver slacken screw on the pick-up head through the hole provided for this purpose in the chassis plate. After aligning the pick-up head retighten screw.

The Dual 510 has a feather-light, extremely torsion-resistant all-metal 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 $\leq 0.07 \text{ mN} (0.007p)$ Bearing friction horizontal $\leq 0.16 \text{ mN} (0.016p)$ related to stylus point

As a result, it ensures extremely favourable pick-up concitions. The pick-up head is removable. Before adjusting the pick-up force to suit the built-in pick-up cartridge the tonearm is balanced with the scale set to O. Coarse adjustment is carried out by moving the stem (50), the subsequent fine adjustment by turning the knurled ring of the weight.

The balance weight is designed so that pickup cartridges with a deadweight of 5.5 10 g can be balanced. The pickup cartridges whose type of mounting conforms with the international standard 1/2 inch mounting and whose deadweight incl. mounting hardware does not exceed 10 g. The tracking force is adjusted by turning the graduated spring housing (62) and thus tensioning or releasing the coil spring mounted inside.

The scale is provided with markings (0 - 30 mN/O - 3 p) which allow precise setting of tracking force. One division corresponds to 1 mN (0.1 p) within the range of 2 - 15 mN (0.2 - 15 p). 15 - 30 mN (1.5 - 3 p), and 2.5 mN (0.25 p)

To change the tonearm complete with tonearm suspension we recommend preceeding as follows:

- 1. Secure unit in repair jig, set tracking force to D, and arrest tonearm.
- Move unit into head position and unsol-der tonearm leads at the connecting plate.
- Remove safety washer (197), washer (196), and bearing (195). Disengage tension spring (226). Undo safety washer (231), remove bar (194)
- 4. Disengage tension spring, undo safety washer (210) and remove skating lever (207). Be careful with compression spring (208) as it may drop out.
- After removing washer (216) and sliding washer (217), detach shut-off bar (215) from segment (211).
- 6. Undo hexagon nuts (213) and pull off segment (211).
- 7. Remove hexagon nut (206), then with draw tonearm complete with suspension.

When inserting the tonearm complete with suspension proceed in reserve order. Make sure that the segment (211) is properly adjusted when mounting it (refer to page 11). To remove the tonearm from the bearing race the tracking force scale should first be set to zero position after unsoldering the tonearm leads. Remove balance weight (50), tighten the two mounting screws (55) onto the stop of the tonearm tube.

Attention: Observe slide mounting. Slide tonearm rearwards and remove it from the bearing race (60). When inserting proceed in reverse order.

Adjustment of Tonearm Bearing

Both bearings must have slight, just perceptible play. Adjustment of the vertical bearing should only be carried out by means of the left mounting screw (grub screw 56), that of the horizontal bearing by means of grub screw (44). The horizontal tonearm bearing is correctly adjusted when at antiskating setting "0.5" (tonearm previously balanced exactly) the tonearm slides in without resistance.









Anti-Skating Device

The geometrical skating force acting on every tonearm is eliminated by means of a precision ant-skating device. The skating force is dependent on the geometry of the tonearm, on the tracking force and on the tip curvature of the stylus of the pick-up cartridge. The pull on the tonearm to the center of the platter caused by the skating effect leads not only to troublesome jumping of the tonearm when lowered manually, but also the uneven flank loading of the sound groove with the resultant effects which have to be eliminated on a hifi record player with the aid of the anti-skating device.

Turning the Knurled (63) of the anti-skating device on the mounting plate moves the asymmetrical plate cam (65). This plate cam has two different curves which, according to use of the red anti-skating scale for the different styli as well for CD 4 pick-up cartridges move the skating lever (207) from its neutral position and transmit the counter force to the tonearm by means of tension spring (214)

Optimum adjustment is carried out at the works for styli with a tip radius of 15 \pm 2 μm (conical) and 5/6 x 18/22 μm (elliptical) as well as for CD 4 pick-up cartridges. Alteration can only be carried out with the aid of the Dual Skate-O-Meter and test record L O96 and should only be done by an authorised service station.

Defect

Stylus slips out of playing groove

Cause

- a) Tonearm is not ba-
- b) Tonearm tracking force is too low
- c) Anti-skating set-
- ting incorrect d) Stylus tip worn or
- chipped e) Excessive bearing friction in tonearm bearing
- f) Steel ball (166) of shut-off bar missing
- a) Bearing friction excessive
- b) Lift pin (185) sticks in guide tube

Remedy

- a) Balance tonearm
- b) Check tonearm balance, adjust tracking force to the value stated by the cartridge manufacturer
- c) Correct anti-skating setting
- d) Renew stylus
- e) Check tonearm bearings. Both bearings must have slight, just perceptible play. The adjustment of the vertical bearing should only be carried out with the lefthand bearing screw (grub screw 56), that of the horizontal bearing by means of grub screw (44). The horizontal bearing is correctly adjusted when at anti-skating setting "0.5" (onearm previously) balanced exactly) the tonearm slides in without resistance.
- f) Renew steel ball (166)
- a) Eliminate friction by adjusting the bearing screw (grub screw 56) and check balance
- b) Remove lift tube assembly as described on page 10. Remove guide (181) on lift pin (185) Remove tension spring (184). Withdraw lift pin evenly with "Wacker Silicone Oil AK 500 000". Reassemble components. Clean parts from Silicone Oil, if cecessary.

Vertical tonearm movement shows resistance during setdown

Tonearm set-down Mechanism

When turning knob (68) to "V" position the recesses of slide bar (194) are positioned in the area of the spring pin (F) of seg--ment (211).

When moving slowly the tonearm with tonearm cue control in \mathbf{r} position the spring pin (F) is arrested in the recesses of slide bar (211) thus designing the set-down point of stylus for 30 cm and 17 cm recordings.

To enable set-down in the catching range of the arresting point of the appropriate setdown position, the tonearm set-down mechanism can be disengaged.

When repairing the unit observe the following adjustment:

The play between sliding bar (194) and the guide bush of the spring pin (F) should be 0.2 mm (Fig. 14). Bring lever (219) into **x** position. Adjust by turning spring pin (198).



Cue Control

The cue control permits gentle set-down of the tonearm at any desired point (outside the shut-off range) on the record.

By moving the lever (219) (moving forwards) lift cam (249) rotates. The slide bar (194) connected to it transmits this movement to the lift pin which then raises the tonearm. After moving the tonearm into the required position on the record, the lever is released by gently moving to the rear. As a result, slide bar (194) is released and the

tonearm lowers slowly. Lowering of the tonearm is damped by silicone oil in the lift pin.

The heigt of the stylus above the record can be varied by turning adjusting screw (181). The distance is increased by turning clockwise and the distance between record and stylus can be reduced by turning anticlockwise. The distance preset by the factory is approx. 8 mm.

Fig. 15 Tonearm lift



Fig. 16



Replacement of Lift Tube

- 1. Secure unit in repair jig, and lock tonearm.
- 2. Move unit into head position.
- 3. Remove lockwasher (197), washer (196), and bearing (195). Disengage tension spring (226), loosen lockwasher (231), and remove slide bar (194).
- Disengage tension spring (214), undo lock-washer (210), and remove skating lever (207). Be careful with compression spring (208) as it may drop out.
- 5. Remove lockwasher (216) and slide washer (217). Remove shut-off bar (215) from segment (211).
- 6. Undo hex nut (213). Remove segment (211).
- Remove lockwasher (188), remove washer (187), disengage catch (186).
- 8. Remove machine screw (183). Hold tonearm bearing. Unscrew hex nut (206) and remove lift tube assembly.
- 9. Secure tonearm against dropping out using hex nut (206).

For installation of the lift tube assembly (182) proceed in the reverse order.

Defect	Cause
Tonearm does not set down at the edge of the record.	a) Tonearm set-down point is incor- rectly set.
	b) Anti-skating set- ting is incor- rectly set.
Tonearm does not set down on record after operating cue control.	Excessive damping in the lift tube as a result of contamina- tion of the silicone oil.
Tonearm lowers onto	Damping insufficient

record too quickly when cue control is operated.

With tracking force and anti-skating in O position tonearm moves a) outwards b) inwards

Motor switches off when tonearm sets down on rest.

Acoustic feedback

nt as a result of unsuitable addition of lubricant to damping compound.

a) Anti-skating device maladjusted b) Tight tonearm leads produce a torque

Capacitor type suppressor (in power switch) defective (short circuit).

- a) Chassis components (e.g. connecting leads) rubbing on board cut out. b) Connecting leads
- to tight.

Remedy

- a) Readjust tonearm set-down point using adjusting screw (48). If the stylus sets down too far in, the adjusting screw should be turned counter-clockwise, if the stylus sets down too far out, the screw should be turned clockwise.
- b) Correct anti-skating setting

Remove lift tube as described above. Detach adjusting sleeve (181) and remove lift pin. Remove compression spring (184). Clean lift tube and lift pin, smear lift pin evenly with "Wacker Silicone Oil AK 500 000". Reassemble components. Wipe off excessive silicone oil after assembly.

Remove lift tube as described above. Detach adjusting sleeve (181) and remove lift pin (185). Remove compression spring (184). Clean lift tube and lift pin and smear even-ly with "Wacker Silicone Oil AK 500 000". Reassemble components. Wipe off excessive silicone oil after assembly.

- a) Adjust skating lever that the skating spring touches the pivot of the tonearm
- b) Slacken tonearm leads

Replace capacitor type suppressor in power switch.

a) Line up mounting board cut-out according to installation instructions.

b) Slacken or lengthen leads.

Starting and shut off

Turning the tonearm (49) rotates the segment (211) thus actuating the power switch (143) via catch (186) and shift arm (172) and starting motor (132) and platter (10) rotating.

The shut-off cycle after playing a record is initiated by the dog (M) of the platter (10) and shut-off lever (34). The shut-off lever (34) is guided onto the

dog by the movement of the tonearm when playing the record with the aid of the shutoff bar (215) proportionate to the groove lead. The eccentrically-mounted dog forces the shut-off lever (34) back with each revolution as long as the advance of the tonearm only amounts to the width of one groove (Fig. 17 b) Only the run-out groove with its increased lead guides the shut-off lever (34) onto the

Only the run-out groove with its increased lead guides the shut-off lever (34) onto the dog at a higher rate so that the shut off lever is picked up and moved along (Fig. 17 c)

As a result the shift arm is brought into its neutral position the power switch interrupting power supply. Simultaneously, the lift actuating lever (218) coupled to the shift arm (172) is actuated and the tonearm (49) lifted.





Horizontal tonearm mevement shows resistance. Catch (186) does not release segment (211).

Cause

- b) Incorrect position of segment (211).
- a) Catch setting (186) is out of adjustment

Remedy

- b) Move tonearm (49) inwards. By rotating eccenter (E) adjust setting for a play of 0.2 mm min. between the stop pin of shift arm (172) and the installation plate (180).
- a) Lock tonearm (49). Turn unit upside down. Undo hex nuts (213). Center hole (L) of segment (211) should be aligned to the frame (46) axis. Align for a play of 0.3 - 0.5 mm between catch (186) and stop (A). Tighten hex nuts.





Replacement parts

Pos.	PartNo.	Description	Qty.
1	220 213	Lentering piece	1
2	236 036	Washer	1
3	237 218	Platter mat compl	1
4	234 428	Support assembly	1
5	210 472	Machine screw AM 3 x 4	5
6	232 086	Tension spring	1
7	237 220	Locking bar	1
8	234 814	Tension spring	1
9	210 194	'C' clip 6 2 x 6	
10	237 221	Platter compl. with mat	1
11	234 435	Flat holt	1
12	234 912	Adjustment knob	
13	232 078	Regring buch	
14	234 910	Sneed control lever	
15	237 222	Speed control blind compl	
16	213 260		
17	214 210	Shipping sense some	0
20	210 1/6		5
20	201 632	LOCK Washer J,Z	3
21	237 117	RUDDer Wasner	3
22	237 118		3
25	237 116	Consist consu	3
25	237 223		3
20	231 223	Hondle	1
27	234 011	Ranute	
20	210 102		1
29	210 030		1
30	210 197	"L' CLIP 6 4 X 8	1
31	237 224	Ionarm nead compi	1
32	236 242	IK 24 cartridge mount	3
33	210 142	Lock washer 1.2	1
34	234 766	Shut-off lever	1
35	210 146	Lock washer 3.2	5
36	234 764	Friction plate	1
37	234 762	Support	1
38	237 225	Chassis compl	1
39	230 529	Threaded piece	4
40	236 710	Compression spring green (Motor side rear)	1
11 11 11	236 711	Compression spring withe (Motor side front)	1
	236 712	Compression spring blue (Tonearm side rear)	1
	236 713	Compression spring yellow (Tonearm side front)	1
41	237 226	Spring mount compl. (Motor side rear)	1
	237 227	Spring mount compl. (Motor side front)	1
	237 228	Spring mount compl. (Tonearm side rear)	1
	237 229	Spring mount compl. (Tonearm side front)	1
42	200 723	Rubber damping block	4
43	200 722	Steel cup	4
44	234 651	Grub screw	1
45	234 635	Lock nut	2
46	237 230	Frame compl	1
47	237 231	Cover rear compl	1
48	234 781	Adjustment screw	1
49	237 232	Tonearm compl	1
50	236 904	Weight compl	1
51	234 636	Needle	1
52	236 160	Supporting plate	2
53	237 233	Bearing rock	1
54	236 051	Clamp bolt	1
55	234 617	Fixing screw	2
56	234 634	Grub screw	1
57	234 635	Lock nut	2
50	236 049	Set screw	1
59	218 894	Bower Lock washer	1
61	237 234		
62	234 037	Gening Screw	1
67	230 907	Kaupled pipe	
64	216 967	Roven look weeken	
65	210 007	Curve uppher	
66	210 760	Her out DM 7	1
67	210 302		5
69	213 200		8
60	234 770	Turning KNOD	1
20	237 235	LOVER FRONT COMPL.	1
71	230 911	Her aut DM Z	1
11	210 362	nex nut 8M 3	5





з.	PartNo.	Description	Qty.
חח	210 145	Lack upshap 2.3	2
10	210 145	LOCK Washer 2.3	2
11	234 824	Switch lever	1
12	236 374	Yoke spring	1
13	232 094	Connecting part	1
14	232 079	Joining nut	1
05	232 097	Toothed belt pulley II	1
16	232 049	Stop disk	2
17	210 607	Washer 3.2/10/0.5 St	1
18	210 362	Hey put BM 3	5
10	232 076	Toothed helt	1
0	232 000	Adjustment put	1
	232 099		
11	232 049	Stop olsk	Z
12	232 098	loothed beltpulley 1	1
13	232 137	Counter bearing compl	1
14	233 777	Tension spring	1
15	232 615	Compression spring	1
16	234 453	Motor pulley 50 Hz with conical sleeve compl	1
	234 454	Motor pulley 50 Hz with conical sleeve compl.	1
17	233 137	Set screu M 2.5 x 3	1
0	210 766	Her put PM 4	2
0	210 300	Markies comput AM 7 v 6	2
9	210 480		
20	210 609	wasner 3.2/10/1	1
27	232 856	Screen plate compl	1
22	232 841	Rubber damping block	3
23	232 840	Inlayer compl	1
24	234 447	Top bearing compl	1
25	232 855	Spacer	2
26	200 030	Cable orommet	1
27	205 555	States 110/220 V compl	1
0	234 449	Machine conclut MM 2 E x 10	2
0	233 815	Machine screw AM 2.5 x 10	1
9	234 450	Armature compl	1
50	234 451	Bottom bearing bracket compl	1
51	232 851	Centering screw	2
32	234 452	8-pole Motor SM 840 compl	1
33 34 35		Connecting plate compl. with cover For spare parts Connecting plate compl of connecting Cover	
00		Machine screw M 5 X 55Jpage 17	
57	237 236	Support housing compl	1
38	236 759	Earth spring	1
59 10	210 515	Machine screw M 4 x 6 Slide	3
2		Switch plate compl Power plate compl	
4		Tension spring	
6		Snob spring	
0		Machine screu M 3 v 28	
0	074 000		
9	231 079	cable notoer compt	1
U	214 602	Amp-connector	4
1	232 996	Power lead Europe compl	1
2	232 995	Power lead US compl	1
	A CONTRACTOR AND A CONTRACTOR OF A	Pick-up lead compl. with cynch plug	1
3	226 817		
i3 i4	226 817 209 426	Cynch plug black	2
3 4 5	226 817 209 426 209 425	Cynch plug black	2
3 4 5	226 817 209 426 209 425 237 238	Cynch plug black Cynch plug white TA-connecting plate compl	2 2 1
3 4 5 6 7	226 817 209 426 209 425 237 238 210 480	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 × 6	2 2 1
3 4 5 6 7 8	226 817 209 426 209 425 237 238 210 480 236 080	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Sbield	2 2 1 1
3456780	226 817 209 426 209 425 237 238 210 480 236 080 210 472	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield	2 2 1 1
3 4 5 6 7 8 9 0	226 817 209 426 209 425 237 238 210 480 236 080 210 472	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cipch cocket plate compl	2 2 1 1 5
34567890	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl.	2 2 1 1 5 1
345678901	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug	2 2 1 1 5 1
345 67 890 12	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5	2 2 1 1 5 1 1 1
3 4 5 6 7 8 9 0 1 2 3	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield	2 2 1 1 5 1 1 1 1
3 4 5 6 6 7 8 9 0 1 2 3 4	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195 236 195 210 472	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4	2 2 1 1 5 1 1 1 5
3 4 5 6 6 7 8 9 0 1 2 3 4 5	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195 210 472 236 950	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop	2 2 1 1 5 1 1 1 1 5 1
345678901123456	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195 210 472 236 195 210 472 236 950 209 357	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2	2 2 1 1 5 1 1 1 1 5 1 1 5 1 1
345678901234567	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195 210 472 236 950 210 472 236 950 209 357 232 104	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead)	2 2 1 1 5 1 1 1 5 1 1 5 1 1 1
3456789012345678	226 817 209 426 209 425 237 238 210 480 236 080 210 472 236 219 209 975 210 475 236 195 210 472 236 950 209 357 209 357 232 104	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5	22111511511151113
34567890123456789	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5	221115115111511135
345678901234567899	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5 Hex nut BM 3 Hex nut BM 3	2 2 1 1 5 1 1 5 1 1 5 1 1 5 5 5
345678901234567890	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5 Hex nut BM 3 Washer 3.2/7/0.5 St	221115115111551113553
3456789012345678901	$\begin{array}{ccccccc} 226 & 817 \\ 209 & 426 \\ 209 & 425 \\ 237 & 238 \\ 210 & 480 \\ 236 & 080 \\ 210 & 472 \\ 236 & 219 \\ 209 & 975 \\ 210 & 472 \\ 236 & 195 \\ 210 & 475 \\ 236 & 195 \\ 210 & 472 \\ 236 & 950 \\ 209 & 357 \\ 232 & 104 \\ 210 & 469 \\ 210 & 586 \\ 234 & 759 \end{array}$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5 Hex nut BM 3 Washer 3.2/7/0.5 St Screw pin	22111511151113532
34567890123456789012	$\begin{array}{ccccccc} 226 & 817 \\ 209 & 426 \\ 209 & 425 \\ 237 & 238 \\ 210 & 480 \\ 236 & 080 \\ 210 & 472 \\ 236 & 219 \\ 209 & 975 \\ 210 & 475 \\ 236 & 195 \\ 210 & 475 \\ 236 & 195 \\ 210 & 475 \\ 236 & 950 \\ 209 & 357 \\ 232 & 104 \\ 210 & 469 \\ 210 & 586 \\ 234 & 759 \\ 234 & 756 \end{array}$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5 Hex nut BM 3 Washer 3.2/7/0.5 St Screw pin Shiftarm	221115111511135321
345678901234567890123	$\begin{array}{cccccccc} 226 & 817 \\ 209 & 426 \\ 209 & 425 \\ 237 & 238 \\ 210 & 480 \\ 236 & 080 \\ 210 & 472 \\ 236 & 219 \\ 209 & 975 \\ 210 & 475 \\ 236 & 195 \\ 210 & 475 \\ 236 & 950 \\ 209 & 357 \\ 232 & 104 \\ 210 & 469 \\ 210 & 586 \\ 234 & 759 \\ 234 & 756 \\ 210 & 146 \end{array}$	Cynch plug black Cynch plug white TA-connecting plate compl. Machine screw AM 3 x 6 Shield Machine screw AM 3 x 4 Cinch socket plate compl. Soldering lug Machine screw AM 3 x 5 Shield Machine screw AM 3 x 4 Stop Steel ball 3.2 Ball bearing (bead) Machine screw AM 3 x 5 Hex nut BM 3 Washer 3.2/7/0.5 St Screw pin Shiftarm Lock washer 3.2	2211151115111353215

175 224 790 Stop lever 1 177 227 785 Uis spring 1 177 227 785 Uis spring 1 178 217 85 Uis spring 1 179 227 785 Uis spring 1 181 234 600 Adjustent slave 1 182 227 725 Uis spring 1 182 227 725 Uis spring 1 182 227 725 Uis spring 1 184 227 725 Uis spring 1 185 224 785 Uis spring 1 186 234 785 Uis spring 1 186 234 785 Uis spring 1 186 234 785 Uis spring 1 187 232 727	Pos.	PartNo.	Description	Qty.	
177 227 795 Uirs spring 1 177 227 795 Uirs spring 1 180 237 795 Strom bolt 2 181 237 795 Strom bolt 2 182 237 795 Strom bolt 2 182 237 795 Strom bolt 1 182 237 795 Machine accew AM 3 x 4 5 183 210 472 Machine accew AM 3 x 4 5 184 237 795 Catch 1 187 210 462 Lack usenes 3.2 1 187 210 463 Lack usenes 3.2 1 187 210 464 Lack usenes 7.2 1 180 210 472 Lackwasher 7 1 181 Lackwasher 7 1 1 182 217 745 Strobaccepe laws 1 181 Lackwasher 7 1 1 182 210 426 Strobaccepe laws 3 182 224 792 Strobaccepe laws 1 182 224 792 Carboa resistor 22 kQ/0.25 k/5 k 1 <td>175</td> <td>234 760</td> <td>Stop lever</td> <td>1</td> <td></td>	175	234 760	Stop lever	1	
177 227 785 Wire spring 1 178 210 866 Weeker 3.27/70.5 St. 2 181 224 800 Adjustent lance compl. 1 182 237 225 Birse weeker 1 182 237 235 Birse compl. 1 182 237 235 Birse compl. 1 183 210 775 Actine screw AM 3 × 4 5 184 234 785 Lift plate compl. 1 185 234 785 Lifting bolt compl. 1 186 234 785 Lift weeker 4.2712/1 St. 1 187 210 465 Lockweeker 2.3 2 188 210 765 Lockweeker 3.2 1 189 210 765 Lockweeker 3.2 1 180 210 765 Lockweeker 3.2 1 196 210 765 Lockweeker 3.2 1 196 210 765 Lockweeker 3.2 1 196 210 765 Lockweeker 3.2 1 197 210 765 Lockweeker 3.2 1 198 224 775 <td< td=""><td>176</td><td>234 799</td><td>Tension spring</td><td>1</td><td></td></td<>	176	234 799	Tension spring	1	
177 210 566 Weather 3.2/7(0.5 St. 3 178 237 755 Strew ball 1 179 237 755 Strew ball 1 179 237 723 Lift plate compl. 1 179 237 723 Lift plate compl. 1 179 237 723 Lift plate compl. 1 179 236 766 Latch n 1 179 236 762 Latch samer 3.2 5 179 236 782 Lackwasher 3.2 5 179 236 782 Lackwasher 7 1 179 236 788 Lackwasher 7.2 5 179 210 566 Vasher 3.2 5 179 210 567 Vasher 3.2 5 180	177	237 785	Wire spring	1	
170 226 756 Screw balt 1 100 226 227 259 Lift plate compl. 1 111 111 111 111 111 120 227 259 Lift plate compl. 1 121 210 427 Rachine screw M 3 x 4 5 126 228 756 Lifting balt compl. 1 127 210 43 Washer 3.2 5 128 210 44 Lokesher 7 1 129 210 73 Slide bar 1 129 210 73 Slide bar 1 129 210 73 Slide bar 1 129 210 131 Lokesher 7 1 129 210 141 Lokesher 3.2 1 120 226 788 Bering 1 120 226 700 Slide bar 1 120 226 700 Slide bar 1 121 227 Foll capacitor 58 r/40	178	210 586	Washer 3.2/7/0.5 St	3	
101 224 266 Information place compl. 1 102 227 259 Lift plate compl. 1 103 226 726 Lift plate compl. 1 104 226 726 Lift plate compl. 1 105 226 726 Lift plate compl. 1 106 226 726 Lift plate compl. 1 107 226 726 Lift plate compl. 1 108 226 726 Lift plate compl. 1 109 226 726 Lockwasher 3.2 5 101 226 728 Lockwasher 7.3 1 102 226 728 Lockwasher 3.2 1 109 226 728 Lockwasher 3.2 1 101 226 728 Lockwasher 3.2 1 102 226 728 Baering 1 101 226 728 Baering 1 102 226 728 Baering 1 102 226 728 Baering 1 111 Lockwasher 3.2 1 Lockwasher 3.2 112 Lockwasher 3.2 1	179	234 759	Screw bolt	2	
111 111 plate compl. 1 112 2210 224 786 Campression spring 1 116 224 786 Campression spring 1 1 116 224 786 Campression spring 1 1 116 224 786 Catch 1 1 116 224 789 Post spring 1 1 117 224 782 Lockussher 1 1 118 210 713 Lasher 3.2/70.5 1 1 119 226 784 Basering 1 1 120 226 784 Basering 1 1 121 225 784 Basering 1 1 1 1222 226 797 Winnessevererererererererererererererererere	180	237 225	Installation plate compl.	1	
133 210 422 Pachine screw AN 3 x 4 5 134 224 795 Lifting bolt compl. 1 136 234 785 Cator a size (1) state (182	237 239	Adjustment sieeve	1	N
196 234 799 Campression spring 1 196 234 796 Catch 1 197 210 643 Waher 4.2/12/1 5t. 1 197 210 643 Waher 4.2/12/1 5t. 1 197 210 643 Waher 4.2/12/1 5t. 1 198 234 799 Dost upring 2 191 234 789 Discourse 2 191 236 782 Lockwaher 2.3 2 192 210 713 Waher 5.1/15/1 5t. 1 192 210 783 Waher 3.2/7/0.5 5t. 3 193 223 718 Siles bar. 3 194 236 718 Pin screw 1 195 236 718 Pin screw 1 194 236 718 Pin screw 1 194 236 216 Goulanp 1 195 237 216 Goulanp 1 194 236 216 Carlon resistor 22 Kg/0.25 W/2 % 1 195 232 401 Carlon resistor 22 Kg/0.25 W/2 % 1 191 223 401 Carlon resistor 22	183	210 472	Machine screw AM 3 x 4	5	
186 234 795 Lifting bolt compl. 1 187 210 643 Washer 4.2/12/1 St. 1 189 210 145 Lockwasher 2.2 5 190 234 785 Lockwasher 2.3 1 191 234 783 Silde bar 1 192 210 743 Masher 9.1/15/1 St. 1 192 210 743 Silde bar 1 192 210 743 Silde bar 1 193 210 743 Silde bar 1 194 Lockwasher 3.2 1 1 195 204 735 Silde bar 1 196 236 700 Strobacope late 1 201 236 310 Strobacope late 1 202 236 310 Strobacope late 1 203 236 917 Witing apair 2 Kalo 1 202 236 310 Strobacope late 1 203 232 401 Carbon resistor 2 Kalo 2 Kalo 1 204 236 917 With 3 X 3 3 3 205 210 463	184	234 798	Campression spring	1	
166 234 706 Catch 1 187 210 643 Lack washer 3.2 5 190 234 762 Lackwasher 3.2 5 191 234 762 Lackwasher 3.2 1 192 210 713 Washer 9.1/15/1 St. 1 192 210 713 Washer 9.1/15/1 St. 1 192 234 783 Blearing	185	234 795	Lifting bolt compl	1	
137 210 643 Washer 4.2/12/1 St. 1 138 210 146 Lock washer 3.2 1 139 210 743 Washer 9.1/15/1 St. 1 139 210 713 Lockwasher 7. 1 139 210 713 Lockwasher 3.2 1 139 210 715 Lockwasher 3.2 1 139 210 700 Strobscope late 1 210 223 710 Strobscope late 1 1 211 225 217 10 Logacitor 68 mf/400 V/10 % 1 1 212 224 001 Carbon resistor 22 k0/0.25 W/5 % 1 1 212 224 010 Carbon resistor 22 k0/0.25 W/5 % 1 1 212 224 010 Carbon resistor 22 k0/0.25 W/5 % 1 1 213 225 21 70 Logacitor 47 mf/250 V/20 % 1 1 214 225 401 Carbon resistor 22 k0/0.25 W/5 % 1 1 212 224 010 Compression spring 1 1 223 401 Carbon resistor 22 k	186	234 786	Catch	1	
189 210 146 Lock waher 3.2 5 190 230 786 Lockwaher 3.2 1 191 210 713 Waher 9.1/15/1 35. 1 192 210 151 Lockwaher 7. 1 193 210 151 Lockwaher 7. 1 194 224 783 Side bar 1 195 210 551 Lockwaher 7. 1 196 210 551 Lockwaher 7. 1 197 224 783 Beering 5 199 204 565 Socket for flat prong 4 201 234 700 Strobscope plate 1 202 225 321 Glow lamp: Af/A00 V/10 \$ 1 203 226 307 Wining baard compl. 1 204 226 310 Strobscope howsing 1 203 223 401 Carbon resistor 12 Ka/0.25 W/5 \$ 1 204 226 402 Carbon resistor 12 Ka/0.25 W/5 \$ 1 205 210 468 Kaking lever compl. 1 206 210 564 Baarn terre 3.4 3 3 3 207	187	210 643	Washer 4.2/12/1 St	1	
100 234 762 100 11 191 224 762 Uasher 9.1/15/1 3. 1 193 210 713 Uasher 7. 1 194 234 783 Slide bar 1 195 210 713 Uasher 3.2/7/0.5 St 1 196 210 464 Lockwasher 7. 1 197 210 464 Lockwasher 7. 1 198 210 464 Lockwasher 7. 1 199 210 445 Lockwasher 7. 1 199 210 446 Lockwasher 7. 1 199 210 446 Lockwasher 3.2 1 199 210 446 Lockwasher 3.2 1 199 210 446 Lockwasher 3.2 1 199 210 447 Lockwasher 7. 1 190 210 255 227 Lock By 183/500 1 101 225 247 Diode By 183/500 1 11 210 223 402 Carbon resistor 22 k0/2 % 1 210 226 493 Skeling lewer compl. 2 210 226 493 Skeling lewer compl	188	210 146	Lock washer 3.2	5	
191 224 792 Liockusher 7. 1 192 210 713 Liockusher 7. 1 193 210 511 Lockusher 7. 1 194 234 783 Slide bar 1 195 210 564 Wesher 3.2/70.5 54 3 197 210 564 Lockusher 3.2 5 197 210 565 Lockusher 3.2 5 199 236 316 Strobackor 5.2 1 201 236 316 Strobackor 5.2 1 2021 236 316 Strobackor 5.4 1 203 236 917 Ulring baard compl. 1 204 266 916 Cour temp. 1 205 224 010 Carbon resistor 22 kM/0.25 W/5 % 1 206 210 459 Machine screw AM 3 x 3 3 206 210 459 Machine screw AM 3 x 3 3 206 210 459 Machine screw AM 3 x 3 3 207 226 948 Gougent compl. 1 208 227 007 Compression spring 1 209 236 949 <td>109</td> <td>234 789</td> <td>Post spring</td> <td>1</td> <td></td>	109	234 789	Post spring	1	
192 210 713 Lusher 9.1/15/1 St. 1 193 210 151 Lockusaher 7 1 194 234 783 Slide bar 1 195 234 784 Beering 1 196 210 586 Useher 3.2/7/0.5 58 3 197 210 446 Lockusaher 7.2 5 198 224 700 Strobscope liste 1 200 226 316 Strobscope liste 1 201 236 316 Strobscope liste 1 202 225 521 Clou lamp 1 1 203 236 917 Wiring board compl. 1 1 204 225 227 Diode BY 183/300 1 1 204 226 491 Carbon resistor 12 kX/0.25 W/5 % 1 1 204 236 918 Cower 1 1 2 205 210 649 Machine screu AM 3 x 3 3 3 2 206 210 640 Machine screu AM 3 x 3 3 2 2 2 3 3 3	190	234 782	Lockwasher 2.3	2	
193 210 151 Lockussher 7 1 194 234 783 Silde bar 1 195 234 784 Bearing 1 196 210 164 Lockussher 3.2 3 197 210 146 Lockussher 3.2 5 197 210 146 Lockussher 70 14 ming 4 203 226 370 Strobesford 14 ming 1 201 226 321 Gloulanp 1 202 225 321 Gloulanp 1 203 226 977 Uting board compl. 1 204 700 resider 47 nF/250 V/20 \$ 1 1 21 225 224 001 Carbon resider 22 kg/0.25 U/5 \$ 1 226 226 918 Cover 1 1 207 226 948 Skaling laver compl. 1 1 208 227 077 Compression spring 1 1 209 226 948 Skaling laver compl. 1 1 209 226 949 Adjustment acruu 1 1 209 236 949 Adjustment acruu	192	210 713	Washer 9.1/15/1 St.	1	
194 234 783 Slide bar 1 196 234 784 Bearing 1 197 210 566 Useker 3.2/7/0.5 5t 5 197 210 146 Lockwasher 3.2 5 198 234 918 Pin screw 5 199 236 700 Strobscope plate 5 201 236 700 Strobscope plate 1 202 225 321 Giulo Jasp 1 101 225 247 Diode BY 183/300 1 11 122 224 866 Foil capacitor 4 nf/250 V/20 % 1 11 122 224 866 Foil capacitor 4 nf/250 V/20 % 1 12 122 224 866 Foil capacitor 4 nf/250 V/20 % 1 12 122 Carbor resistor 12 k0/0.125 W/5 % 1 1 12 224 864 Machine Br 4 3 x 3 3 3 206 210 56 Machine Br 4 3 x 3 3 3 207 Compression spring 1 1 1 210 210 461 Lock washer 5 1 <t< td=""><td>193</td><td>210 151</td><td>Lockwasher 7</td><td>1</td><td></td></t<>	193	210 151	Lockwasher 7	1	
196 224 784 Bearing 1 197 210 566 Wesher 3.2/7/0.5 5t 5 198 234 818 Pin screw 1 199 204 455 Socket for flat prong 4 200 235 316 Strobscope plate 1 201 236 316 Strobscope plate 1 202 236 316 Strobscope plate 1 203 236 516 Strobscope plate 1 203 236 517 Wiring board compl. 1 204 235 2402 Carbon resistor 22 KG/0.25 W/5 % 1 101 232 2402 Carbon resistor 22 KG/0.25 W/5 % 1 1204 236 918 Cover 1 205 210 469 Machine screw AM 3 x 3 2 206 210 564 Hax nut 8M 4 2 2 207 236 949 Adjustment screw 1 3 208 237 077 Compression spring 1 1 208 236 949 Adjustment screw 1 1 211 231 2404 Segeneric compl.	194	234 783	Slide bar	1	
Type LU Deb Wesher S.2//UL St. S 1997 210 146 Lockwasher S.2 5 1998 236 010 Pin screw 1 200 236 010 Barchar Cor Flat prong 4 201 236 010 Barchar Cor Flat prong 4 202 226 010 Barchar Cor Flat prong 1 203 236 010 Lagn mean 1 204 236 010 Lagn mean 1 202 226 011 Lagn mean 1 204 236 010 430 Schort Sc	195	234 784	Bearing	1	
100 210 140 LOCKWARNER 3.2 5 101 226 010 Socket for flat prong 1 101 226 321 Stobbecopide 1 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 1201 225 322 Foil capacitor 68 nF/400 V/10 % 1 11 125 247 10 128 240 121 225 427 10 128 247 1 121 225 427 11 128 240 1 121 225 427 11 128 23 11 121 225 427 126 491 129 24 236 491 128 492 1205 210 469 Machine acrew 4M 3 x 3 3 21 20 1205 210 469 Machine acrew 4M 3 x 3 3 21 20 12 12 12 12 12 12 12	196	210 586	Washer 3.2/7/0.5 St	3	
199 209 436 Sackst For flst prong. 4 201 236 700 Stroboscope housing. 1 202 226 316 Stroboscope housing. 1 203 236 917 Wiring board compl. 1 204 225 321 Foll capacitor 68 mF/400 V/10 % 1 205 224 086 Foll capacitor 48 mF/400 V/10 % 1 201 225 224 086 Foll capacitor 47 mF/250 V/20 % 1 204 226 224 086 Carbon resistor 22 kG/0.25 W/5 % 1 205 221 0460 Brachine screu AM 3 x 3 3 206 210 469 Machine screu AM 3 x 3 3 206 210 366 Hex nut BM 4 2 2 207 225 949 Coupression spring 1 1 208 227 077 Compression spring 1 1 210 210 446 Lock usaler 1 1 211 221 491 Gaing usaler 1 1 212 201 484 Adjustment screu 1 1 211 237 407 Siding usaler	197	236 818	Dip screu	5	
200 234 700 Strbboscops plate 1 201 225 321 Glou lamp 1 202 225 321 Glou lamp 1 203 236 917 Wiring board compl. 1 1 C1 225 322 Foil capacitor 68 nf/400 V/10 % 1 1 C2 224 886 Foil capacitor 68 nf/400 V/10 % 1 1 225 327 Diode BY 183/300 1 1 225 247 Diode BY 183/300 1 1 226 918 Carbon resistor 12 kG/0.25 W/5 % 1 205 210 469 Machine screu M 3 x 3 3 3 206 210 366 Hax nut BM 4 2 2 207 226 949 Adjustment screu 1 1 210 210 124 Lock useher 5 5 211 237 240 Segment compl. 1 1 212 201 184 Adjustment useher 1 1 213 210 326 Hax nut BM 3 5 5 214 21 33 4780 Lift actualing lever 1 1 215 234 607 Shut-off bar 1 1	199	209 436	Socket for flat group	4	
201 236 316 Strobescope housing 1 202 225 321 Glou lamp 1 1 225 322 Foil capacitor 68 mF/400 V/10 % 1 1 225 322 Foil capacitor 68 mF/400 V/10 % 1 1 225 322 Foil capacitor 47 mF/250 V/20 % 1 1 1 225 324 Didde BY 183/300 1 1 1 225 324 Didde BY 183/300 1 1 1 Carbon resistor 22 K0/0.25 U/5 % 1 1 206 210 366 Hex nut 8M 4 2 2 207 236 949 Machine screu AM 3 x 3 3 3 206 210 366 Hex nut 8M 4 2 2 210 210 146 Lock washer 1 1 210 210 146 Lock washer 5 1 211 2201 184 Adjutement screu 1 1 212 201 184 Adjutatment washer 1 1 213 213 213 213 213 213 214 Stut-off bar 1 1 214 218 391 Tenion spring 1 1	200	234 700	Stroboscope plate	1	
202 225 321 Glou Lamp 1 1 225 326 917 Wining board compl. 1 1 225 322 Foil capacitor 68 mF/400 V/10 % 1 1 225 322 Foil capacitor 47 mF/250 V/20 % 1 1 1 225 327 Didde 87 M35/300 1 1 1 225 327 Didde 87 M35/300 1 1 1 232 402 Carbon resistor 22 KG/0.25 W/5 % 1 1 236 918 Cover 1 1 204 236 940 Gover 1 1 205 210 469 Machine screw AM 3 × 3 3 3 206 210 366 Hex nut 8M 4 2 2 210 210 446 Lock washer 1 1 210 210 146 Lock washer 1 1 211 237 240 Segment compli 1 1 212 201 184 Adjustment washer 1 1 213 210 362 Hex nut 8M 3 5 1 214 215 144 16 20 1187 </td <td>201</td> <td>236 316</td> <td>Stroboscope housing</td> <td>1</td> <td></td>	201	236 316	Stroboscope housing	1	
223 236 917 Wiring board compl. 1 C 1 225 322 Foil capacitor 66 mf/400 V/10 % 1 D 1 225 224 886 Foil capacitor 47 mf/250 V/20 % 1 D 1 225 247 Didde BY 183/300 1 R 1 232 402 Carbon resistor 22 KG/0.25 W/5 % 1 R 2 232 401 Carbon resistor 12 KG/0.125 W/5 % 1 C40 236 918 Cover 1 C41 236 949 Machine screw 1 C42 236 917 Gompression spring 1 C41 277 237 240 Segment compl. 1 C41 273 240 Segment compl. 1 C41 274 248 891 Tenion spring 1 C42 234 807 Shut-off bar 1 C42 234 807 Shut-off bar 1 C42 234 779 </td <td>202</td> <td>225 321</td> <td>Glow lamp</td> <td>1</td> <td></td>	202	225 321	Glow lamp	1	
C 1 225 322 Foil capacitor 68 nF/400 V/10 % 1 T 2 224 666 foil capacitor 47 nF/250 V/20 % 1 T 1 225 247 Diade BY 183/300 1 R 1 232 401 Carbon resistor 22 k0/0.25 W/5 % 1 Z05 210 469 Machine screw AM 3 x 3 3 Z06 210 366 Hax nut BM 4 2 Z07 235 948 Skating lever compl. 2 Z08 Z07 077 Compression spring 1 Z09 236 949 Adjustment waher 1 Z11 237 240 Segment compl. 1 1 Z12 201 146 Lock waher 5 1 Z13 210 362 Hex nut BM 3 5 1 Z14 237 077 Compression spring 1 1 Z12 201 146 Lock waher 5 1 Z12 201 147 Sliding waher 1 1 Z14 215 24 407 Shut-off bar 1 Z14 216 211 ff arawe 1 1	203	236 917	Wiring board compl	1	
C 2 224 886 foil capacitor 47 nf/250 V/20 % 1 D 1 225 247 Diode BY 183/300 1 R 1 232 401 Carbon resistor 22 kG/0.25 V/5 % 1 Carbon resistor 12 kG/0.125 V/5 % 1 1 204 236 918 Cover 1 205 210 469 Machine screw AM 3 x 3 3 206 210 366 Hex nut BM 4 2 207 235 949 Adjustment screw 1 208 227 077 Compression spring 1 209 236 949 Adjustment screw 1 210 210 146 Lock washer 5 211 237 240 Sagment compl. 1 212 201 146 Lock washer 1 213 236 947 Tension spring 1 214 218 597 Tension spring 1 215 234 807 Shut-off bar 1 216 231 fit actuating lever 1 1 216 234 777 Lift campl. 1 224 778 Support bracket	C 1	225 322	Foil capacitor 68 nF/400 V/10 %	1	
D 1 225 247 Diode BY 183/300 1 R 1 232 401 Carbon resistor 22 kg/0.25 W/5 % 1 R 2 232 401 Carbon resistor 12 kg/0.125 W/5 % 1 204 236 913 Cover 1 205 210 469 Machine screw AM 3 x 3 2 206 210 366 Hex nut BM 4 2 207 236 948 Skating lever compl. 1 208 227 077 Compression spring 1 209 236 949 Adjustment acrew 1 210 10 464 Lock washer 1 211 237 240 Segment compl. 1 212 201 184 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 236 031 Lock washer 2.3 2 215 234 607 Shub-off bar 1 216 234 773 Torsion spring 1 217 210 145 Lock washer 2.3 2 2 218 234 780 Lift actuating lever 1 1 <	C 2	224 886	Foil capacitor 47 nF/250 V/20 %	1	
R 1 232.402 Carbon resistor 22 kQ/0.25 $\[msc]{s}$ 1 R 2 232.401 Carbon resistor 12 kQ/0.125 $\[msc]{s}$ 1 204 236 918 Cover 1 205 210 469 Machine screw AM 3 x 3 3 206 210 366 Hex nut BM 4 2 207 236 948 Skating lever compl. 2 208 227 077 Compression spring 1 209 236 949 Adjustment screw 1 210 210 146 Lock washer 1 211 237 240 Segment compl. 1 212 201 146 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 215 234 807 Shut-off bar 1 215 234 807 Shut-off bar 1 1 216 211 142 Lift actuating lever 1 1 217 210 145 Lock washer 2.3 1 1 218 234 779 Lift mawe 1 1 219 236 631	D 1	225 247	Diode By 183/300	1	
R 1 222 402 Larbon resistor 22 KU/0.25 U/5 * 1 204 236 918 Cover 1 205 210 469 Machine screu AM 3 x 3 1 206 210 366 Hex nut BM 4 2 207 236 948 Skating lever compl. 1 208 227 077 Compression spring 1 209 236 949 Adjustment screu 1 210 10 146 Lock ussher 1 210 210 10 146 Lock ussher 1 211 237 240 Segment compl. 1 212 201 184 Adjustment ussher 1 213 210 362 Hex nut BM 3 5 214 215 Tonsion spring 1 215 236 4807 Shut-off bar 1 216 211 forsion spring 1 1 217 210 145 Lock ussher 2.3 2 218 237 776 Lift cam 1 219 236 777 Lift cam 1 221 236 777 Lift cam <td< td=""><td>D</td><td>070 400</td><td></td><td></td><td></td></td<>	D	070 400			
204 236 918 Cover 1 205 210 469 Machine screw AM 3 x 3 1 206 210 366 Hex nut BM 4 2 207 236 948 Skating lewer compl. 1 209 236 949 Adjustment screw 1 209 236 949 Adjustment screw 1 210 10 146 Lock washer 1 211 237 240 Segment compl. 1 212 201 144 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 218 591 Tension spring 1 215 234 603 Sliding washer 1 216 211 107 Sliding washer 1 217 210 4187 Lift actuating lever 1 218 234 779 Lift mave 1 219 234 779 Lift mave 1 221 234 779 Lift cam 1 222 234 779 Torsion spring 1 224 234 779 Machine screw AM 3 x 4	R 2	232,402	Carbon resistor 12 kΩ/0.125 W/5 %	1	
205 210 409 Machine screw AM 3 x 3 3 206 210 366 Hex nut BM 4 2 207 236 948 Skating lever compl. 2 208 227 077 Compression spring 1 209 236 949 Adjustment screw 1 210 210 146 Lock washer 5 211 237 240 Segment compl. 1 212 201 184 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 147 Sliding washer 1 217 210 145 Lock washer 2.3 2 218 234 700 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 776 Torsion spring 1 221 234 776 Support bracket 1 222 210 353 Hex nut BM 2 1 224 234 776 Support bra	204	236 018	Fover	1	
206 210 366 Hex nut BM 4 2 207 236 948 Skating lever compl. 1 209 236 949 Adjustment screw 1 210 210 110 146 Lock washer 1 211 237 240 Segment compl. 1 212 201 144 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 117 Sliding washer 1 217 210 126 34 16 scatwaing lever 1 216 201 117 Sliding washer 1 217 210 116 Lock washer 2.3 2 218 234 778 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 779 Lift cam 1 221 234 778 Torsion spring 1 222 210 353 Hex nut BM 2 1 223 234 777 Lift cam	205	210 469	Machine screw AM 3 x 3	3	
207 236 948 Skating lever compl. 1 208 227 077 Compression spring 1 209 236 949 Adjustment screw 1 210 210 146 Lock washer 5 211 237 240 Segment compl. 1 212 201 184 Adjustment washer 1 213 210 210 184 Hax nut 8M 3 - 5 214 218 591 Tension spring 1 1 215 234 807 Shut-off bar 1 1 216 214 780 Lift actuating lever 1 1 217 210 145 Lock washer 2.3 2 1 218 234 780 Lift mave 1 1 1 219 236 031 Lever compl. 1 1 1 221 234 778 Torsion spring 1 1 1 222 210 353 Hex nut BM 2 1 1 1 224 234 777 Lift cam 1 1 1 226	206	210 366	Hex nut BM 4	2	
208 227 077 Compression spring 1 209 236 949 Adjustment screw 1 210 210 146 Lock washer 5 211 237 240 Segment compl. 1 212 201 184 Adjustment washer 1 213 210 362 Hex nut BM 3 5 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 187 Sliding washer 1 217 210 124 Lock washer 2.3 2 218 234 708 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 779 Lift mave 1 211 234 779 Lift mave 1 221 235 1 Hex nut BM 2 2 2 223 234 776 Support bracket 1 1 224 234 776 Support bracket 1 1 225 232 545 Laminated spring 1 1 226 <td>207</td> <td>236 948</td> <td>Skating lever compl</td> <td>1</td> <td></td>	207	236 948	Skating lever compl	1	
209 236 949 Adjustment screw 1 210 210 146 Lock washer 5 211 237 240 Segment compl. 1 212 201 184 Adjustment washer 1 213 210 362 Hex nut BM 3 1 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 187 Sliding washer 1 217 210 145 Lock washer 2.3 2 218 234 780 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 779 Lift mave 1 1 221 235 44777 Lift cam 1 222 210 353 Hex nut BM 2 1 224 234 776 Support bracket 1 225 232 545 Laminated spring 1 226 233 710 Tension spring 1 227 203 477 Washer 2.7/B/1 St 1 228 234 773 Rotary lever 1	208	227 077	Compression spring	1	
210 210 246 Lock washer 5 211 201 184 Adjustment washer 1 212 201 184 Hex nut BM 3 5 214 216 521 Tension spring 1 215 234 807 Shut-off bar 1 216 201 185 Lock washer 1 217 210 145 Lock washer 1 218 234 780 Lift actuating lever 1 219 236 051 Lever compl. 1 210 234 779 Lift mave 1 210 234 779 Lift mave 1 211 234 779 Lift cam 1 212 234 776 Topoins spring 1 211 234 777 Lift cam 1 222 210 353 Hex nut BM 2 1 224 234 773 Torsion spring 1 225 232 545 Laminated spring 1 226 233 710 Tension spring 1 228 244 773 Rotary Lever 1 <td>209</td> <td>236 949</td> <td>Adjustment screw</td> <td>1</td> <td></td>	209	236 949	Adjustment screw	1	
211 201 140 Adjustment uasher 1 212 201 362 Hex nut BM 3 5 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 187 Sliding washer 1 217 210 142 Lift actuating lever 1 216 201 187 Sliding washer 1 217 210 142 Lock washer 2.3 2 218 234 780 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 778 Torsion spring 1 221 234 778 Torsion spring 1 222 210 353 Hex nut BM 2 2 223 234 776 Support bracket 1 224 234 776 Support bracket 1 225 235 454 Laminated spring 1 226 233 710 Tension spring 1 227 210 472 Machine screw AM 3 x 4 5 228 234 773 Rotary le	210	210 146	Lock washer	5	
211 210 1362 Hex nut BM 3 1 214 218 591 Tension spring 1 215 234 807 Shut-off bar 1 216 201 187 Sliding washer 1 217 210 145 Lock washer 2.3 1 218 234 708 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 778 Lorsion spring 1 221 234 778 Torsion spring 1 222 210 353 Hex nut BM 2 2 223 234 776 Support bracket 1 224 234 776 Support bracket 1 225 235 455 Laminated spring 1 226 233 710 Tension spring 1 227 210 472 Machine screw AM 3 × 4 5 228 234 773 Rochine screw AM 3 × 4 5 229 203 477 Washer 2.7/8/1 St. 1 231 210 146 Lock washer 5 232 2	211	201 184	Adjustment weeker	1	
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215 234 807 Shut-off bar 1 216 201 187 Sliding washer 1 217 210 145 Lock washer 2.3 2 218 234 780 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 779 Lift mave 1 221 234 779 Lift mave 1 222 210 353 Hex nut BM 2 2 223 234 776 Support bracket 1 224 234 776 Support bracket 1 225 232 545 Laminated spring 1 226 233 710 Tension spring 1 226 233 710 Tension spring 1 228 234 773 Rotary lever 1 229 203 477 Washer 2.7/8/1 St. 1 230 210 353 Hex nut BM 2 2 231 210 146 Lock washer 5 232 209 424 Miniature plug 1 **** 236 186 Operating instruction <td< td=""><td>214</td><td>218 591</td><td>Tension spring</td><td>1</td><td></td></td<>	214	218 591	Tension spring	1	
216 201 187 Sliding washer	215	234 807	Shut-off bar	1	
217 210 145 Lock washer 2.3 2 218 234 780 Lift actuating lever 1 219 236 031 Lever compl. 1 210 234 779 Lift mave 1 211 234 778 Torsion spring 1 221 234 778 Torsion spring 1 222 210 353 Hex nut BM 2 2 223 234 777 Lift cam 1 224 234 776 Support bracket 1 225 232 545 Laminated spring 1 226 233 710 Tension spring 1 227 210 472 Machine screw AM 3 x 4 1 228 234 773 Rotary lever 1 229 203 477 Washer 2.7/8/1 St. 1 230 210 353 Hex nut BM 2 2 231 210 146 Lock washer 5 232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 **** 236 186	216	201 187	Sliding washer	1	
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220 233 710 Tension spring	225	232 545	Laminated spring	1	
228 234 773 Rotary lever 1 229 203 477 Washer 2.7/8/1 St. 1 230 210 353 Hex nut BM 2 2 231 210 146 Lock washer 5 232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting 1 *** 226 186 Operating instruction 1 *** 236 283 Mounting instructions 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions 1	220	233 /10	Machine screw AM 3 v A	5	
229 203 477 Washer 2.7/8/1 St. 1 230 210 353 Hex nut BM 2 2 231 210 146 Lock washer 5 232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting 1 *** 236 186 Operating instruction 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 251 Operating instructions 1 *** 236 251 Operating instructions 1	228	234 773	Rotary lever	1	
230 210 353 Hex nut BM 2 2 231 210 146 Lock washer 5 232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting 1 *** 236 186 Operating instruction 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions UAP 1	229	203 477	Washer 2.7/8/1 St.	1	47
231 210 146 Lock washer 5 232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting 1 *** 236 186 Operating instruction 1 *** 229 321 Shipping carton 510 compl. 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions UAP 1	230	210 353	Hex nut BM 2	2	×
232 209 424 Miniature plug 1 233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting 1 *** 236 186 Operating instruction 1 *** 236 920 Shipping carton S10 compl. 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions UAP 1	231	210 146	Lock washer	5	
233 207 303 Pick up lead with miniature and flat plug compl. 1 *** 214 120 Hardware for cartridge mounting	232	209 424	Miniature plug	1	
*** 214 120 Hardware for cartridge mounting 1 *** 236 186 Operating instruction 1 *** 229 321 Shipping carton 510 compl. 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 283 Mounting instructions 1 1 *** 236 251 Operating instructions 1	233	207 303	Pick up lead with miniature and flat plug compl.	1	
*** 236 186 Operating instruction 1 *** 229 321 Shipping carton 510 compl. 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions UAP 1	***	214 120	Hardware for cartridge mounting	1	
*** 229 321 Shipping carton 510 compl. 1 *** 236 920 Shipping carton CS 510 compl. 1 *** 236 283 Mounting instructions 1 *** 236 251 Operating instructions UAP 1	***	236 186	Operating instruction	1	
*** 236 283 Mounting instructions 1 *** 236 251 Operating instructions 1	***	229 321	Shipping carton 510 compl	1	
*** 236 251 Operating instructions UAP 1	***	236 920	Mounting carton to 510 compt	1	
	***	236 251	Deerating instructions WAP	1	

*** Not illustrated

al

Replacement parts

os.	PartNo.	Description	Qty.
		Connection plate	
1	210 501	Machine screy M 3 x 35	1
2	233 423	Dlug upipolar	2
2	217 072	AMD plug pookot	2
5	277 072	Cover	2
4	233 000		1
5	233 422		1
0	233 005	Connection place complete with cover	1
1	239 331	connection plate complete with cover (for plug,	2
		unipolar)	1
8	233 007	Connection plate complete	1
	1.1.1	Power switch	
1	210 498	Machine screw 3 x 28	1
2	217 072	AMD-plue socket	2
3	233 423	Divo unipolar	2
1	233 010	Cover (for direct connection)	2
5	233 011	Cover (for plate-connection)	1
6	233 121	Cover (for plue, upipelar)	1
7	200 505	Conscitor $10 \text{ prog}, 0.000 \text{ V/10 } \text{d}$	
6	209 303	Capacitor 10 $hr/1000$ $V/10$ $\%$	
6	230 333	Special capacitor bo my rob v/20 /	1
0	230 140	Juich Slide	
9	230 290	Consider Spring	1
10	219 200	Shap Spring	
11	233 012	Switch plate compi.	1
12	233 013	Switch plate up complete	1
10	236 605	Switch plate with specc. compl	1
14	236 335	5110e	
15	200 444	Spring Wasner	1
16	233 009	Power switch compl. (for direct connection)	1
17	236 607	Power switch with specc. compl.	- Sec. 1
		(for direct connection)	1
18	234 816	Power switch compl. (for plate connection)	1
19	233 008	Power switch UL compl. (for plate connection)	1
20	236 606	Power switch compl. with specc. (for plate con-	
		nection)	1
21	236 999	Power switch compl. (for plug, unipolar)	1
22	236 998	Power switch compl. with specc. (for plug,	
		unipolar)	1

Modification reserved!

Fig. 22 Power switch



Fig. 21 Connection plate



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.







Renotac No. 342 adhesive oil



BP Super Viscostatic 10 W/30



Shell Alvania No. 2



Isoflex PDP 40



Silicone oil AK 500 000



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