

# PHILIPS *Service*

## GRAMOPHONES

**22GC043/00S/01S/04S/64S/76S/00L/00M**



TGR2151



### SPECIFICATIONS

The 22GC043/00S/01S/04S/00L/00M is suitable for 110 - 127 - 220 - 240 V, 50 Hz

The 22GC043/64S/76S is suitable for 110 - 127 - 220 - 240 V, 60 Hz

Turntable speeds	: 16 $\frac{2}{3}$ - 33 $\frac{1}{3}$ - 45 - 78 r.p.m.
PU heads	: 22GP200 - 22GP300
Stylus pressure	: 6 $\pm$ 1 g (not adjustable)
Stacking height	: 18 mm (7 records)
Power consumption	: 6 W

Stylus : 22GP200,	4822 251 20001
22GP300	4822 251 20002

## LIST OF MECHANICAL PARTS

Item	Description	Code number	Item	Description	Code number
1	Circlip 9 mm	4822 530 70036	96	Ring	4822 532 10252
2	Circlip 4 mm	4822 530 70116	97	Ball	4822 520 40011
3	Tap screw 10Nx $\frac{1}{2}$ "	4822 502 30055	98	Ball race	4822 520 40022
4	Tap screw 4Nx $\frac{1}{2}$ "	4822 502 30001	99	Screw	4822 813 10213
5	Circlip 2 mm	4822 530 70114	100	Command disc	4822 528 30111
6	Ring 3.2 mm	4822 532 10332	101	Drive wheel	4822 528 70115
7	Circlip 2 mm	4822 530 70043	102	Spring	4822 492 40327
8	Ring 4.3 mm	4822 532 10333	103	Drive wheel bracket	4822 402 20043
9	Circlip 3 mm	4822 530 70115	104	Spring	4822 492 30694
10	Screw M2x4	4822 502 10004	105	Roller	4822 528 90043
11	Ring 5 mm	4822 532 10203	106	Bracket	4822 402 30042
12	Circlip 3.2 mm	4822 530 70123	107	Spring	4822 492 30695
13	Circlip 4 mm	4822 530 70124	108	Buffer	4822 325 80099
14	Circlip 1.9 mm	4822 530 70122	109	Ring	4822 532 50171
15	Grub screw M2.6x8	4822 502 10555	110	Spindle	4822 535 90599
16	Ring 4 mm	4822 532 10202	111	Motor 50 Hz	4822 361 70199
17	Tap screw 4Nx3/8"	4822 502 30062		Motor 60 Hz	4822 361 70201
18	Screw M3x8	4822 502 10689	112	Spring	4822 492 50432
19	Nut M3	4822 505 10408	113	Frame	4822 444 60164
20	Circlip 2 mm	4822 530 70043	114	Washer 4.3 mm	4822 532 50741
50	Ornamental segment/00L/00M	4822 460 20036	115	Speed fix	4822 492 61397
51	Ornamental ring	4822 460 20035	116	Changing pin	4822 535 60006
52	Mat	4822 466 50066	117	Centre pin	4822 535 90548
53	Turntable	4822 528 10198	118	Centre ring	4822 532 60027
54	Spring	4822 492 40325			
55	Mounting plate	4822 444 30123			
56	Spring	4822 492 50709			
57	Ring	4822 532 10001			
58	Ball race	4822 520 40023			
59	Ball	4822 520 40011			
60	Ring	4822 532 50392			
61	Spindle	4822 535 70302			
62	Clamping spring	4822 492 60424			
63	Ring	4822 532 50043			
64	Idler wheel	4822 528 70075			
65	Idler wheel bracket	4822 402 40022			
66	Button	4822 410 20817			
67	Button	4822 410 20818			
68	Button	4822 410 20819			
69	Spring	4822 492 30395			
70	Scanner	4822 402 30043			
71	Spring	4822 492 60834			
72	Clip	4822 402 60153			
73	Spring	4822 492 50707			
74	Bracket	4822 402 60259			
75	Spring	4822 492 30693			
76	Ring	4822 532 10139			
77	Spring	4822 492 30401			
78	Bracket	4822 402 50101			
79	Spring	4822 492 30399			
80	Idler bracket	4822 402 40021			
81	Bracket	4822 402 60262			
82	Spring	4822 492 50434			
83	Loading arm	4822 402 10017			
84	PU arm	4822 251 70106			
85	Pin 2x10 mm	4822 535 10029			
86	Spring	4822 492 50708			
87	Spring	4822 492 30697			
88	Bracket	4822 402 30041			
89	Spring	4822 492 30541			
90	Lift	4822 402 60261			
91	Spring	4822 492 30398			
92	Spring	4822 492 50433			
93	Mains switch	4822 276 10286			
94	Bracket	4822 402 60263			
95	Spring	4822 492 30696			

If the record changer is spring-mounted, such as in radio-gramophones, a special provision has been made (movable bracket) to restrict the vertical movement of the record changer.

With this construction the record changer can be removed by moving the above-mentioned bracket with the aid of a screw driver. The bracket is located at the front of the record changer, on the right.

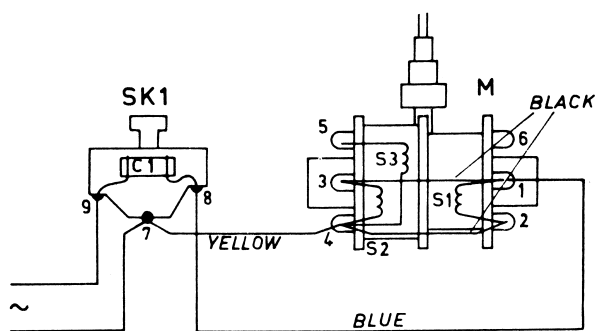


Fig. 5

TGR 2102

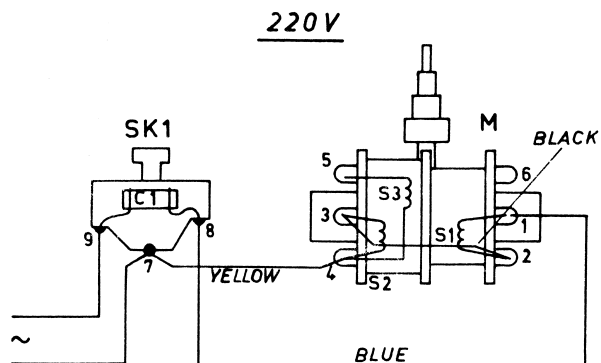


Fig. 6

TGR 2104

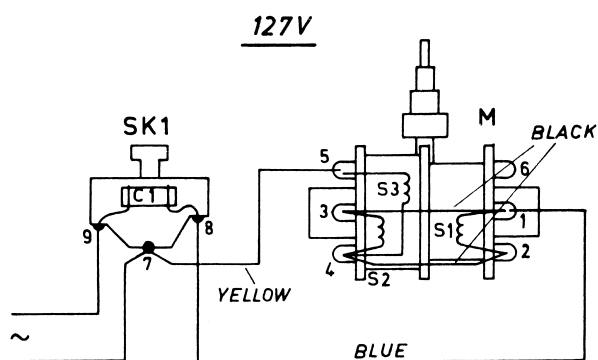


Fig. 7

TGR 2103

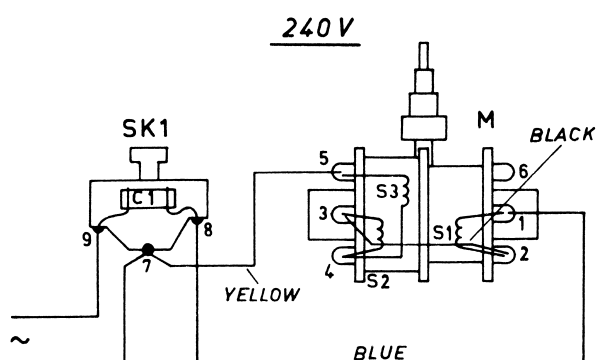


Fig. 8

TGR 2105



## WORKING PRINCIPLE

### Automatic system

When button "AUT." (item 67) is depressed, the mains switch and idler wheel item 64 are released. As a result the turntable starts rotating. Moreover, drive wheel item 101 is released via brackets item 81, 94 and 103, so that the drive wheel makes contact with the motor spindle. Command disc item 100 then also starts rotating.

Roller item 105 is cleared from the stop in the bottom of the command disc (Fig. 2, item H), so that plate item 103 turns anti-clockwise and drive wheel item 101 remains positioned against the motor spindle. The pick-up arm is now lifted by means of the cam on pick-up arm lift item 90, which is pulled against the bottom of the command disc by spring item 91. The pin of plate assy. item 88 runs in the upper side of the command disc and guides the pick-up arm so far inwards that the diameter scanner on the pick-up arm touches the edge of the record. Thus the cocking diameter for the various records is determined and the pin of plate assy. item 88 will run in one of the slots a, b or c (Fig. 1) of the command disc for 17.5, 25 or 30 cm records respectively.

Selection of the correct diameter is effected by means of bracket item 309 and spring item 89 which couple bracket item 309 to plate assy. item 88. A tag on bracket item 309 hits collar d (Fig. 1) on the command disc during the inward movement of the pick-up arm, so that bracket item 309 is pushed inwards. As a result spring item 89 will pull plate assy. item 88 and the pick-up arm mounted on it, further or less far inwards. When the pick-up arm is not retained the smallest diameter will always be selected.

At the end of slots a, b or c the pick-up arm is moved slightly further inwards for diameter correction, because the diameter scanner and the stylus point are not located at the same diameter (see Fig. 1, item F). Roller item 105 now engages the stop (Fig. 2 item H), so that rotary plate item 103 turns back and drive wheel item 101 is lifted off the motor spindle. The command disc is now stopped. The cam on bracket item 88 is also moved out of groove a, b or c, so that bracket item 88 with the pick-up arm can move freely. At the same time the cam on pick-up arm lift item 90 is pressed down by the bevelled edge on the command disc. The pick-up arm is lowered onto the record and the record player is in the position for playing (Fig. 1, item H).

At the end of the record, scanner item 70 is pressed aside by spring item 54, so that bracket item 103 is released via bracket item 94. Drive wheel item 101 is now again positioned against the motor spindle and drives the command disc, so that roller item 105 is released by the stop.

The pick-up arm is lifted by the collar on the command disc after which it is moved outwards (item B, Fig. 1).

The changing cycle is then repeated.

After changing the last record, pin item 85 from the loading arm drops onto tilting bracket item 304 and presses this bracket down. As a result pin item 303 of tilting bracket item 304 is pushed into track e (Fig. 1) at the top of the command disc. When this pin returns to point g (Fig. 1) bracket item 304 will press back bracket item 74. Bracket item 74 releases the idler and also switches off the mains switch. Simultaneously the command disc moves back to its stop position.

A lug on bracket item 300 ensures that strip item 74 remains blocked in its extreme position. The record changer is then in the stop position.

### Manual operation

When button "MAN" (item 68) is depressed, strip item 74 is released, so that the mains switch is closed and the idler wheel is released. The turntable will then rotate. The pick-up arm can then be manually lowered onto the record.

As the loading arm is in its lowest position, the record changer will be switched off in the same way as described for automatic operation.

### Stop button

When the stop button (item 66) is depressed, bracket item 103 is released, drive wheel item 101 starts rotating and the changing cycle is repeated.

However, by depressing the stop button, tilting bracket item 304 is also tilted, so that the record player is switched off as described for automatic operation.

## ADJUSTMENTS

### Drive mechanism

- The contact surface of idler item 64 should be at least 0.5 mm clear of the pulley edge. This can be adjusted by bending bracket item 65 (Fig. 3).  
Ensure that the idler spindle and the pulley remain parallel.
- In the switched-off condition the idler should have a clearance of at least 2 mm with respect to the pulley.  
Adjustment is possible by bending the tag on bracket item 74.

### Changing mechanism

- When drive wheel item 64 is positioned against the motor spindle, the distance between mounting plate item 305 and grub screw item 15 should be 0.5...0.7 mm.  
Adjustment is possible by turning grub screw item 15.
- When the stylus is at 60...65 mm from the turntable centre, spring item 54 should just touch the diameter scanner item 70.  
Adjustment can be effected by bending the tag of bracket item 307 which contacts the scanner.

### Lifting and turning system

- When the stylus is on a 17 mm record, the clearance between screw item 315 and lift item 90 should be at least 0.5 mm. Moreover, the stylus should be at least 0.2 mm underneath the turntable edge in the lowest position of the pick-up arm, while in the highest position, when the pick-up arm moves outwards, this distance should be 24 mm.  
Adjustment is possible by turning screw item 315 (accessible at the top of the pick-up arm).

- When the arm is lowered, the stylus should come into the lead-in groove of the record.  
Adjustment is possible by turning screw item 10.
- The stylus pressure should be 5...7 g.  
Adjust by replacing spring item 87.

### Start and stop mechanism

- When button "AUT." is depressed, bracket item 304 may not be stopped by clamping spring item 317. Bracket item 103 should be released.  
Adjust by bending the tag on bracket item 81 against which the "AUT." button presses.
- When the "STOP" button is depressed, bracket item 304 should be stopped by clamping spring item 317.  
Adjust by bending the tag on bracket item 316, which contacts bracket item 81. After this re-check that bracket item 304 is still retained when the "AUT." button is depressed (see a).

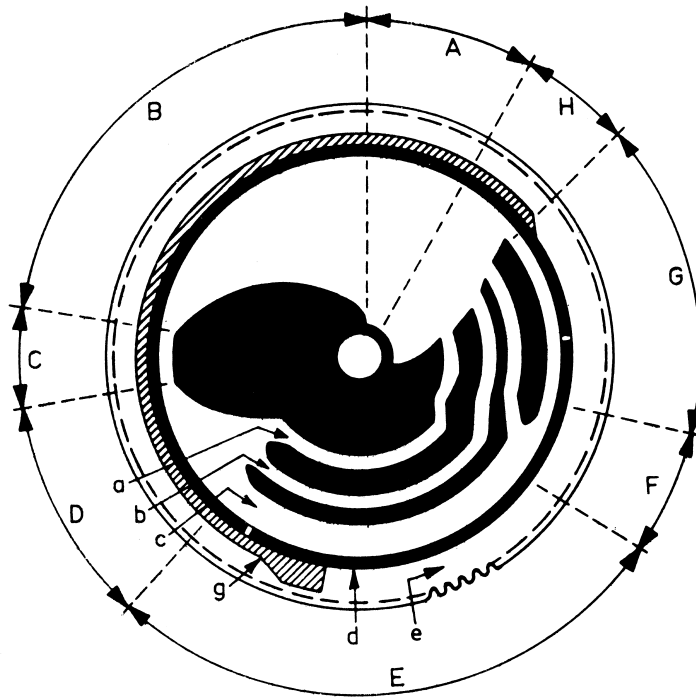


Fig. 1

TGR 1191

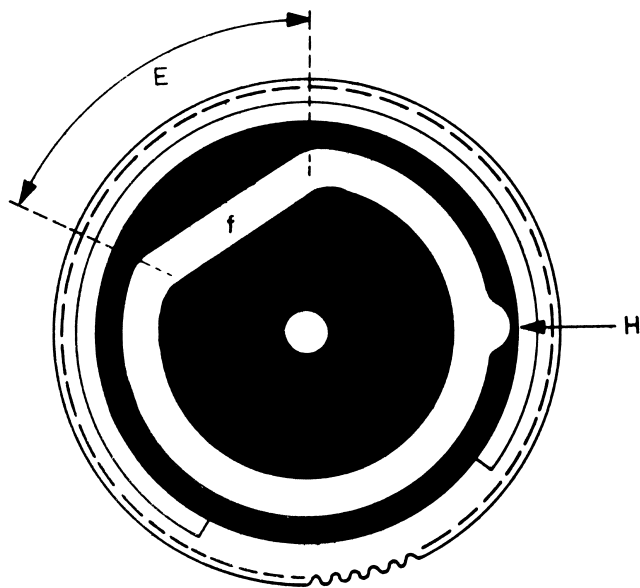
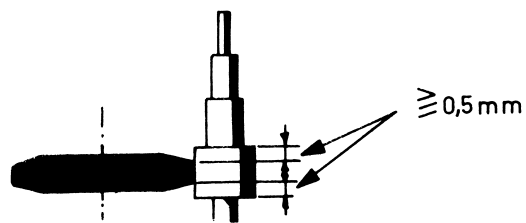


Fig. 2

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Fig. 3