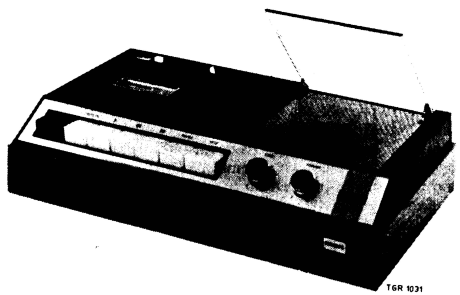
PHILIPS Service

RECORDERS

EL 3310A/00/15D/17D/19D



TECHNICAL DATA

Mains voltages	: 110, 127, 220 and 245 V
Mains frequency	: 50 c/s
Power consumption	: 15 W
Tape speed	: 4.75 cm/s (1 7/8"/s)
Number of tracks	: 2
Tape width	: 3.81 mm
Loudspeaker	: 1x AD3514SM (8 Ω)

SENSITIVITES

Microphone	: 0.25 mV/4.5 kΩ
Diode	: 0.25 mV/4.5 kΩ
Record-player	: 100 mV/1 MΩ

OUTPUT VOLTAGES

Diode	: 1 V/18 kΩ
Output power	: 1.8 W
Transistors	: 2x BC108, 2x BC109, 1x AC187/01 (AC175) 1x AC188/01 (AC117), 1x AC127, 1x AC126

It is recommended to clean the recorder after approx. 1000 hours and to lubricate the various points.

Clean with methyladed spirit or alcohol

Tape guides, erase head, recording/playback head, capstan, pressure roller, pulley grooves.

Lubricating diagram

See Fig. 21.

REPLACEMENT OF PARTS

Dismantling the apparatus, see Fig. 1

- Unscrew four screws, item 1.
- The upper part of the case, item 125, and wooden frame, item 126, can then be removed.
- If repairs have to be carried out under the mounting plate, four screws, item 1a, (Fig. 2) should also be unscrewed, and so should, if necessary, the two screws with which the potentiometer bracket has been secured.
- To remove the mains flex, two screws, item 15, should be unscrewed so that cover, item 135, can be removed.

Replacing the motor, see Fig. 2

- Unsolder the connection wires of the motor.
- Unscrew four screws, item 14.
- Remove the motor.
- Mounting is done in the reverse order.

Replacing the cassette container

- Remove springs, items 68 and 67, and loosen bracket, item 56.
- Next, pull the spindle out of the cassette container.
- The cassette container can then be removed.
- If necessary, bracket, item 25, and springs, item 27, can be replaced.
- Mounting is done in the reverse order.

Replacing the indicator lamp

- Turn the cassette container in an upward direction.
- Loosen bracket, item 56, so that the cassette container can be lifted higher. The lamp can then be replaced.

Replacing the flywheel

- Remove drive belt, item 19.
- Remove bracket, item 300.
- Pull the flywheel slightly up and remove drive belt, item 69.
- The flywheel can then be removed from the winding belt.
- The slip coupling can then also be removed.
- Mounting is done in the reverse order.

Replacing drive belt for fast winding/rewinding, item 69

- Remove the flywheel as described above.
- Next, remove pulley, item 37, with bracket, item 39. The belt can then be replaced.

Replacing the driving belt for the counter, item 57, see Fig. 2

- Take the belt from the counter wheel.
- Replace the apparatus in its normal position turn the cassette container in an upward direction by depressing the push-button.
- Loosen bracket, item 56, so that the cassette container can be lifted higher.
- Set the apparatus to position "Playback"; the brake bracket is consequently lifted from the reel disc, so that the belt, located between the reel disc, the brake bracket and pressure felt, item 53, can be removed.
- During the mounting process the belt is refitted round the pulley under the reel disc and passed between the brake bracket and the pressure felt.
- Replace the apparatus in its proper position. Pull the belt forwards with a pair of tweezers, pass it underneath spring, item 46, and refit it on the counter pulley.

Replacing the right-hand reel disc, Fig. 2

- Turn the cassette container in an upward direction.
- Loosen bracket, item 56, so that the container can be lifted higher.
- Successively remove cap, item 82, and ring, item 83.
- Depress the playback push-button so far that the reel disc can be pulled up past the switch plate, item 302.

Replacing the left-hand reel disc, Fig. 2

- Turn the cassette container in an upward direction.
- Remove bracket, item 56, so that the container can be lifted higher.
- Loosen pressure felt, item 53.
- Remove cap, item 82 and ring, item 83.
- Remove the reel disc.
- Mounting is done in the reverse order.

MECHANICAL ADJUSTMENTS

Adjusting the flywheel pivot, see Fig. 3

Between the lower side of the capstan and the pivot there should be a space of 0.5 mm. This distance can be adjusted by turning pivot screw, item 73, and securing it again with nut, item 10.

Adjusting the motor pulley, see Fig. 4

- First, check that the flywheel has been properly adjusted.
- Next, press the pulley against its pivot and adjust this pulley till the two grooves of the pulley and the flywheel are in line.
- Slide the motor shaft in the pulley in such a way that the distance between the stator packet and the lower side of the copper edge of the rotor is 1 mm.

List of parts of the cabinet

125	4822 212 00989	Case, upper part
126	4822 212 00993	Frame
127	4822 212 00994	Case, lower part
128	4822 212 00998	Cover
129	4822 212 00995	Foot
130	4822 212 00991	Flap
131	4822 413 30162	Knob
132	WT 850 03	Indicator
133	4822 212 00992	Ornamental strip
134	4822 175 01261	Spring for indicator
135	4822 212 00996	Cover
136	4822 212 00997	Cover
	4822 263 40019	Cover for voltage adaptor
	WT 260 69	Knob for voltage adaptor

Adjusting the capstan, see Fig. 5

- Remove cassette container.
- Unscrew fixing screw, item 1.
- Fit in a test cassette (with mirror) (code number of the test cassette 4822 397 30011).
- Adjust the capstan with screw A so that the tape runs along the tape guides of the erase head without distortions and that it runs symmetrically to the recording/playback head guide, see fig. 6.

Adjusting the push-button block, see Fig. 7a-b-c

- None of the push-buttons should be depressed.
- Bend lug A in such a way that the distance between the push-button for recording and bracket, item 93, is at least 0.5 mm, see Fig. 7a.

Check, see Fig. 7b

The distance between the released push-button and bracket, item 93, should be approx. 1.5 mm. By shifting stop, item 304, this distance can be adjusted, see Fig. 7b.

Stop push-button, see Fig. 7c

Depress the stop push-button. The distance between the push-button and lug B should be between 0.2 and 0.5 mm. By bending lug B, this distance can be adjusted.

Check,

Depress the button for the removal of the cassette. The distance between this push-button and the lug on bracket, item 93, should also lie between 0.2 and 0.5 mm.

Adjusting pulley, item 37, see Fig. 8

- None of the push-buttons should be depressed.
- Bolt A of bracket, item 39, should be over the marking in the mounting plate.
  This positioncan be reached by bending bracket, item 81. The pressure of pulley, item 37, should be > 100 g, measured as indicated in Fig. 9.

Check, see Fig. 9

Press idler wheel, item 90, against stop C.
The distance between pulley, item 37, and the idler wheel should then be approx. 0.2 mm. This distance can be adjusted by bending bracket, item 39, see Fig.8.
When the fast winding or rewinding push-buttons are depressed, brackets, items 70 and 71 should be pressed upwards an equal distance so that this bracket is free in two directions.

Adjusting brake bracket, item 89, see Fig. 9

- Remove cassette container.
- Depress the playback push-button.
- The distance between the brake bracket and the reel disc should then be at least 1 mm.
  This distance can be adjusted by bending lugs A and B on the operation bracket.

Check

The distance between the brake bracket and the reel disc should be at least 0.5 mm in case of fast winding and rewinding. This distance can be adjusted by bending lug A for fast winding and lug B for fast rewinding.

Adjusting the fast-stop button, see Fig. 10

- Remove the print plate on which the mains part has been mounted.
- Loosen bracket, item 306, and move it so that the distance between the stop on the push-button and switch bracket, item 121, is approx. 0.5 mm.
  Depress the push-buttons for playback and interval.
  The distance between the capstan and the pressure roller should be approx. 0.5 mm.
  This distance can be adjusted by bending A lon bracket, item 106, see Fig. 11.

Check, see Fig. 11

Depress only the playback push-button. Bracket C should be free. If the push-button for interval is depressed, idler wheel, item 110, and the pressure roller should be removed simultaneously. This can be adjusted by bending lug B on bracket, item 106.

Adjusting brake, item 53, see Fig. 12

- None of the push-buttons should be depressed.
- The distance between the brake felt and the reel disc should be approx. 1 mm.
  This distance can be adjusted by bending lug A.
  The force of the brake should be 30-40 gr.

Check

When adjusting the playback, the brake bracket should be free.

Adjusting the hindmost supporting point of the cassette (bracket, item 58), see Fig. 13

This bracket should be bent so that the distance between the mounting plate and the top of the bracket is approx. 9.2 mm.

Adjusting the recording/playback head to perpendicular position, see Fig. 14

- Place the test cassette (10 kc/s) (code number 4822 218 00199) in position.
- Set the apparatus to the playback position.
- Then adjust the head with screw A so that a maximal signal is measured.

Pressure roller, item 98, see Fig. 11

- Depress playback push-button.
- The power with which the pressure roller presses against the capstan should be approx. 320 g, measured as shown in Fig. 11, in the direction of the capstan. This can be obtained by adjusting spring, item 97.

Recording-lock, see Fig. 15

When a loaded cassette (a cassette in which the two cams have been broken of) is applied, the recording push-button should be locked. If this push-button can then still be depressed, bracket, item 63, should be bent down slightly.

SWITCH ADJUSTMENTS

SK2, winding switch, see Fig. 16

Depress the playback push-button.
The switch should then be in the position indicated in Fig. 16.
This canf be effected by bending bracket, item 44.

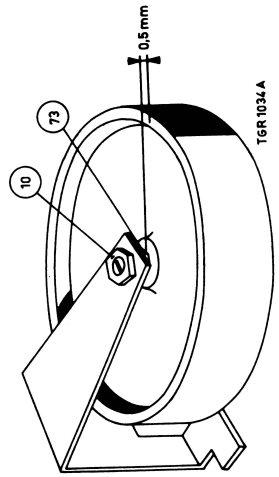


Fig. 3

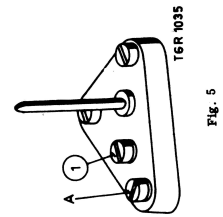


Fig. 5

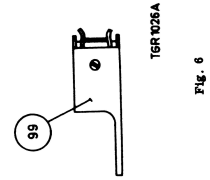


Fig. 6

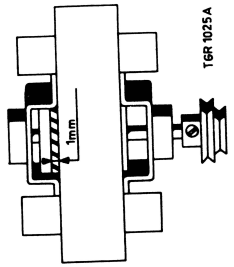


Fig. 4

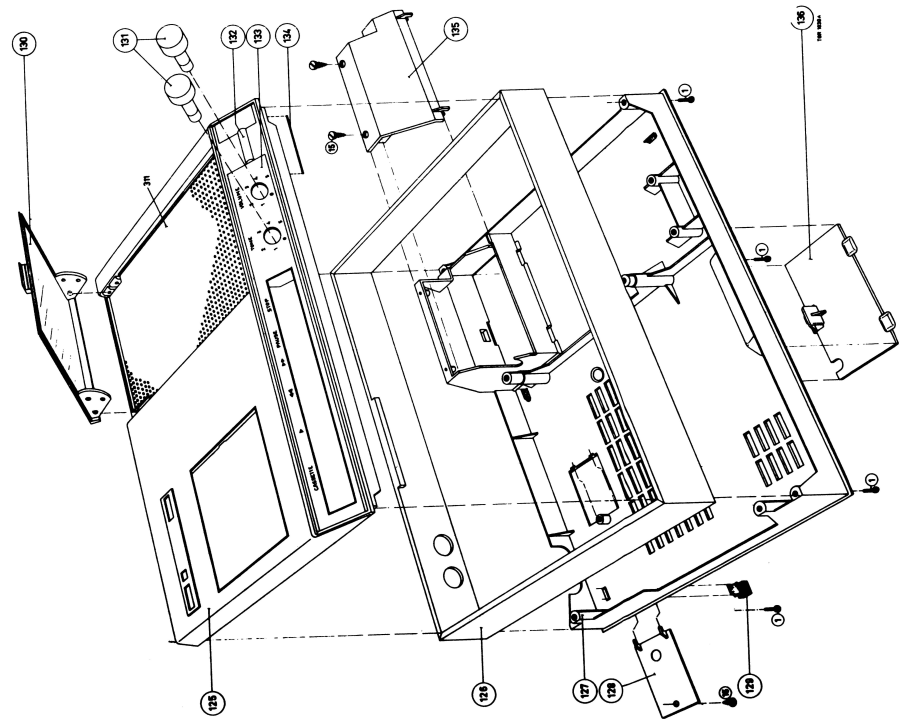


Fig. 1

P3-2. PHILIPS MODEL EL3310A

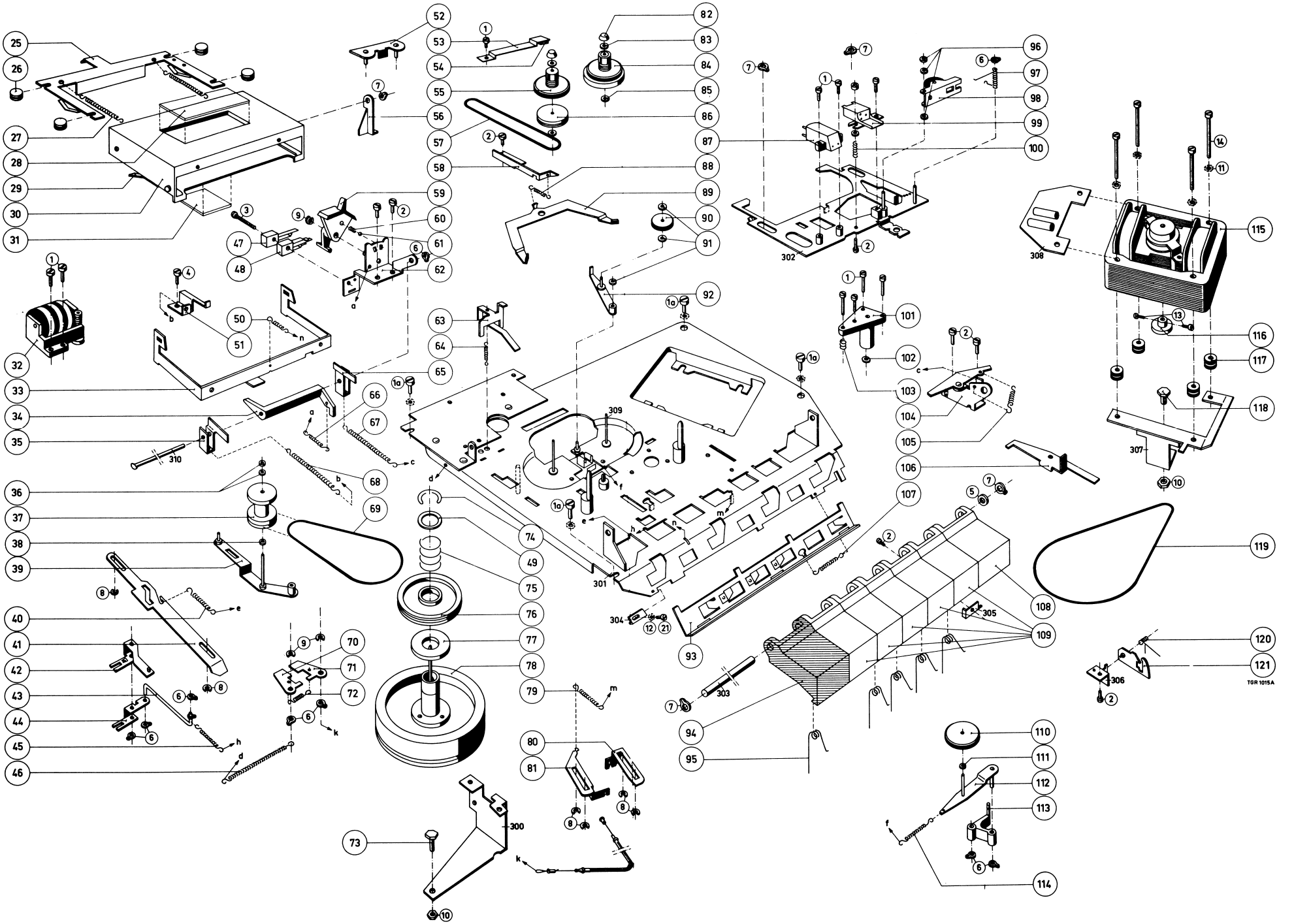


Fig. 2

TROUBLE SHOOTING

Fault	Cause and remedy
Noise of belt (swinging)	Align the grooves of the flywheel mass and the motor pulley.
The cassette container is not lifted.	a. Grease the contact pins and the centring pin with Molycote A. b. The sides of the cassettes are clamped in the cassette container. Bend bracket, item 62.
The recording push-button can be depressed with a loaded cassette. (Cam in cassette broken)	Check the adjustment of the recording lock.
Recording push-button cannot be depressed.	a. Occurs with a closed cassette container without cassette. b. With loaded Music cassette (is blocked). c. With cassette for private recordings (with cam). Check the recording lock.
Difficult winding.	a. Auxiliary brake near the left-hand reel disc does not fall within the recess of the cassette container and is additionally pressed by this container. b. The adjustment is not correct.
Shortly after the apparatus has been switched on, the playback signal disappears (tape shifts).	a. Pressure of the pressure roller is too small. b. Capstan is greasy. c. Counter-friction brake power too small. d. Capstan adjustment is not correct.

If one of the fuses is blown, the apparatus continues to play with increased output.

LIST OF MECHANICAL PARTS

Pos.	Code number	Description
1-1a	999/2,6x8	Screw
2	999/3x10	Screw
3	999/2,6x15	Screw
4	999/3x10	Screw
5	988/5	Screw
6	984/3	Retaining ring
7	984/5	Retaining ring
8	985/2,3	Retaining ring
9	985/1,9	Retaining ring
10	993/M4	Nut
11	987/4	Lock washer
12	987/3	Lock washer
13	999/2x5	Screw
14	999/4x50	Screw
15	B070 AD/4Nx5/16	Screw
25	4822 403 20003	Bracket
26	4822 212 01015	Roller
27	4822 492 30379	Spring
28	4822 212 01004	Window
29	4822 492 60714	Leaf spring
30	4822 212 01003	Cassette holder
31	4822 212 01005	Window
32	4822 212 00999	Counter
33	4822 403 10052	Bracket
34	4822 403 10058	Locking bracket
35	4822 403 20009	Bracket
36	4822 175 00968	Ring
37	4822 212 01011	Pulley
38	4822 175 00968	Ring
39	4822 403 40015	Bracket
40	4822 492 30378	Spring
41	4822 403 10057	Bracket
42	4822 403 30043	Bracket
43	4822 212 01017	Rod
44	4822 403 30014	Bracket
45	4822 492 30382	Spring
46	4822 492 30377	Spring
47	WY 849 09	Switch SK3b
48	WY 849 09	Switch SK3a
49	4822 212 01008	Ring
50	4822 492 30368	Spring
51	4822 403 50359	Bracket
52	4822 403 20002	Bracket
53	4822 492 60713	Brake bracket
54	4822 466 40041	Felt
55	4822 175 00964	Reel disc
56	4822 403 10059	Bracket
57	4822 358 30052	Driving belt for counter
58	4822 403 10054	Bracket
59	4822 411 50063	Knob
60	4822 492 50401	Spring
61	89 205 02	Ball
62	4822 403 30039	Bracket
63	4822 403 10055	Locking bracket
64	4822 492 30372	Spring
65	4822 403 20011	Bracket
66	4822 492 30381	Spring
67	WT 741 66	Spring
68	WT 741 66	Spring
69	4822 358 30057	Belt
70	4822 403 20004	Bracket
71	4822 403 20005	Bracket
72	4822 492 30373	Spring
73	4822 502 10531	Pivot
74	4822 492 60712	Retaining ring
75	4822 492 50402	Spring
76	4822 212 01007	Friction disc
77	4822 508 40091	Felt
78	4822 212 01006	Flywheel
79	4822 492 30376	Spring
80	4822 403 20006	Bracket
81	4822 403 20007	Bracket
82	4822 163 00918	Cap
83	AE 017 48	Ring
84	4822 212 01001	Reel disc assy
85	4822 175 00968	Ring
86	4822 212 01002	Pulley
87	4822 175 01526	Erase head
88	4822 492 30374	Spring
89	4822 403 10051	Brake bracket
90	4822 212 01009	Idler wheel
91	4822 175 00968	Ring
92	4822 403 40014	Bracket
93	4822 403 10049	Locking bracket
94	4822 411 50061	Red button
95	4822 492 40183	Spring
96	AE 017 48	Ring
97	4822 175 00958	Spring
98	4822 175 00957	Pressure roller
99	4822 249 10025	Rec./playback head
100	4822 175 00955	Spring
101	4822 212 01016	Bearing for flywheel
102	4822 175 01055	Ring
103	4822 492 50399	Spring
104	4822 403 20001	Ass. bracket
105	4822 492 30369	Spring
106	4822 403 10053	Bracket
107	4822 492 30367	Spring
108	4822 411 50062	Stop, button
109	4822 411 50059	Button, white
110	4822 212 01012	Idler wheel
111	4822 175 00968	Ring
112	4822 403 30041	Bracket
113	4822 403 30042	Lever
114	4822 492 30375	Spring
115	4822 361 70081	Motor
116	4822 212 01013	Pulley
117	975/5,5x4	Grommet
118	4822 502 10531	Pivot
119	4822 358 30051	Driving belt
120	4822 492 40184	Spring
121	4822 403 10056	Bracket
122	4822 175 01327	Pin for switch See Fig. 18

LIST OF ELECTRICAL PARTS

L.A	4822 212 01018 (16 V - 30 mA)
L1	4822 157 50019
L2	4822 157 50021
SK1	4822 277 30246
SK2	4822 277 30247
SK3a	WY 849 09
SK3b	WY 849 09
C2	909/W10
C4-C15	909/C12,5
C5	909/C1,6
C6	909/U16
C7-C12	4822 069 01105
C8	909/X16
C9	909/A100
C10	904/P150E
C11	4822 069 01095
C13	4822 069 01124
C27	4822 069 01096
C201-C204	4822 069 01101
C203	4822 069 01098
C14	4822 069 00988
C17	909/Z0,64
C22-C23-C18	4822 069 01105
C19	909/A50
C20	4822 069 01097
C21	909/X4
C24	909/W250
C25	909/C50
R30	4822 071 00642
R36	4822 017 + 916/01
R44	4822 116 30059
R47, R48	901/W2E2
R49	4822 101 10071
R50	901/15E
R301	4822 070 00331
R302	E 001 AC/A100E
R303	E 001 AC/A390E

EL 1973/00

Versions

The EL 1973/00 is an electrodynamic cardiode microphone with capsule EL 6092/10.

General Information

The microphone is suitable for speech and music. The capsule EL 6092/10 has been suspended in foam plastich which makes it vibration- and shock-proof.

Sensitivity

At 1000 c/s the sensitivity is 0.38 mV/μBar.

Impedance

At 1000 c/s the impedance is 500 Ω.

Connections

Pin 1 of the DIN-plug is connected to the grey core of the flex (sensitive side).
Pin 2 is connected to the screening of the flex. The screening is connected to one side of the coil and to the housing of the capsule. Pin three is not used.

Replacing the capsule

- Unscrew the screws at the rear of the housing and the front of the, lid.
- Remove the spring-mounted strips.
- Pull capsule forwards.
- Unsolder the three wire connections to the old capsule and solder them to the new capsule.
- Mounting takes place in the reverse order.

List of parts

Item	Code number	Description
1	4822 169 00638	Housing
3	4822 169 00643	Cover assy.
4	EL 6092/10	Capsule, 500 Ω
5a	4822 076 00251	Flex
5b	978/3x180	Plug
6	4822 169 00641	Relief plate
7	4822 169 00639	Ring
11	4822 169 00642	Plate

ELECTRICAL ADJUSTMENTS

Sensitivities of the recording amplifiers

Record-player (BU1, 5-3)

- Depress the recording push-button.
- Set the apparatus to position "manual".
- Turn the recording control clockwise.
- Supply a signal of 1 kc/s with the aid of a signal generator so that the voltage at the measuring point is 7 mV.
  The voltage supplied by the signal generator should be 100 mV ± 2 dB.

Setting to "Automatic"

- Depress the recording push-button.
- Supply a voltage of 3 V to the record-player input (BU1, 5-3). The instrument should not show full deflection.
- Then supply 300 mV.
  The time required to reach complete modulation should be approx. 60 sec.

Microphone input

- Depress the recording push-button.
- Set the apparatus to position "Manual".
- Turn the recording volume-control clockwise.
- Supply a signal of 1 kc/s with a signal generator across a circuit indicated in Fig. 19. The voltage at the measuring point should be 7 mV. The voltage supplied by the signal generator, should be 220 mV ± 2 dB.

Oscillator voltage

- Depress recording and playback push-buttons.
  The oscillator voltage should be between 18 and 13 V at 57 kc/s ± 10 %, measured at the erase head.

Adjusting the H.F.-pre-magnetisation

- Depress the recording and the playback push-buttons.
  The voltage at the measuring point should then be approx. 32 mV. This voltage can be obtained by moving the core of coil L2 in or out.

Playback sensitivity at 250 c/s

- Depress the playback push-button.
- Set the recording control arbitrarily.
- Turn the volume control anti-clockwise.
- A signal of 250 c/s - 380 mV should be supplied to the measuring point across a resistor of 100 kΩ.
  The voltage at the diode output should be 1 V ± 1.5 dB.

Frequency response curve of the playback amplifier

- Depress the playback push-button.
- Set the recording control arbitrarily.
- Turn the volume control anti-clockwise.
- Supply a signal of 1 kc/s to the measuring point with the signal generator across a resistor of 100 kΩ.
  Next, adjust the voltage of the signal generator so that the voltage at the diode output is 85 mV.
  Then set the signal generator to the frequencies given below and measure the corresponding voltages on the diode output.

Frequency	Voltage measured on the diode output
60 Hz	270 mV
250 Hz	170 mV
1000 Hz	85 mV
10000 Hz	58 mV

In opened position of the apparatus, the recording push-button can be locked by means of a bracket, item 93.

Frequency range recording amplifier

- Depress the recording push-button.
- Set the apparatus to position "Manual".
- Turn the recording control clockwise.
- Set the tape to speed 4.75 cm/sec.
- Supply a signal of 1 kc/s with the aid of a signal generator so that the voltage at the measuring point is 1.4 mV.

The voltage supplied by the signal generator should be approx. 20 mV. Next, set the signal generator to 10000 c/s. Adjust L1 so that the voltage at the measuring point is 14 mV. At 60 c/s the voltage at the measuring point should be 2.9 mV.

Adjusting the output transistors

These are adjusted with R49 so that half the voltage of point A is present between R47 and R48.

Frequency response curve (overall)

- Set the apparatus to position "Manual".
- Depress the recording and playback push-buttons.
- Turn the recording control clockwise.
- Turn the volume control anti-clockwise.
- Connect the signal generator to the record-palyer input (BU1, 5-3) with a voltage of 5 mV.
- Next, record frequencies between 60 and 10000 c/s.
- Set the apparatus again to position "Playback" and measure the recorder frequencies.
  The voltage at the diode output should be within a range of 6 dB.

Step amplifications (guide values)

- Depress recording push-button.
- Turn the recording volume control clockwise.
- Set the apparatus to position "Manual".

Next, connect the signal generator (points 3,5 of BU1) and adjust it to a frequency of 1 kc/s at 100 mV. Furthermore, the following voltages should be measured with a valve voltmeter across a resistor of 10 kΩ.

Measure at:	Voltage
Base TS1	0.25 mV
Collector TS1	7.5 mV
Base TS2	7 mV
Collector TS2	9.5 mV
Collector TS3	1600
Measuring point	7 mV

Playback

- Depress playback push-button.
- Turn tone colour control clockwise.
- Set the apparatus to position "Manual".

Connect the signal generator to the measuring point across a resistor of 100 kΩ. Then measure the below voltages with a valve voltmeter across a resistor of 10 kΩ.

Measure at	Voltage
Base TS1	0.2 mV
Collector TS1	10 mV
Base TS2	10 mV
Collector TS2	4 mV
Collector TS3	650 mV
Measuring point	0.2 mV
Base TS4	30 mV
Collector TS4	5.0 mV
Contact 19	3700 mV
Diode output	630 mV

SK1, recording switch, see Fig. 17

Depress the recording and the playback push-buttons. The switch should then be in the position indicated in Fig. 17.
This can be effected by bending bracket, item 42.

SK3a - 3b "Automatic/Manual" switch, see Fig. 18

In position "automatic", the distance between lever, item 59, and contact SK3b should be 0.2...0.5 mm, while the distance between this lever and SK3a should exceed that distance. This can be adjuste by bending the bracket on which the switch has been mounted.

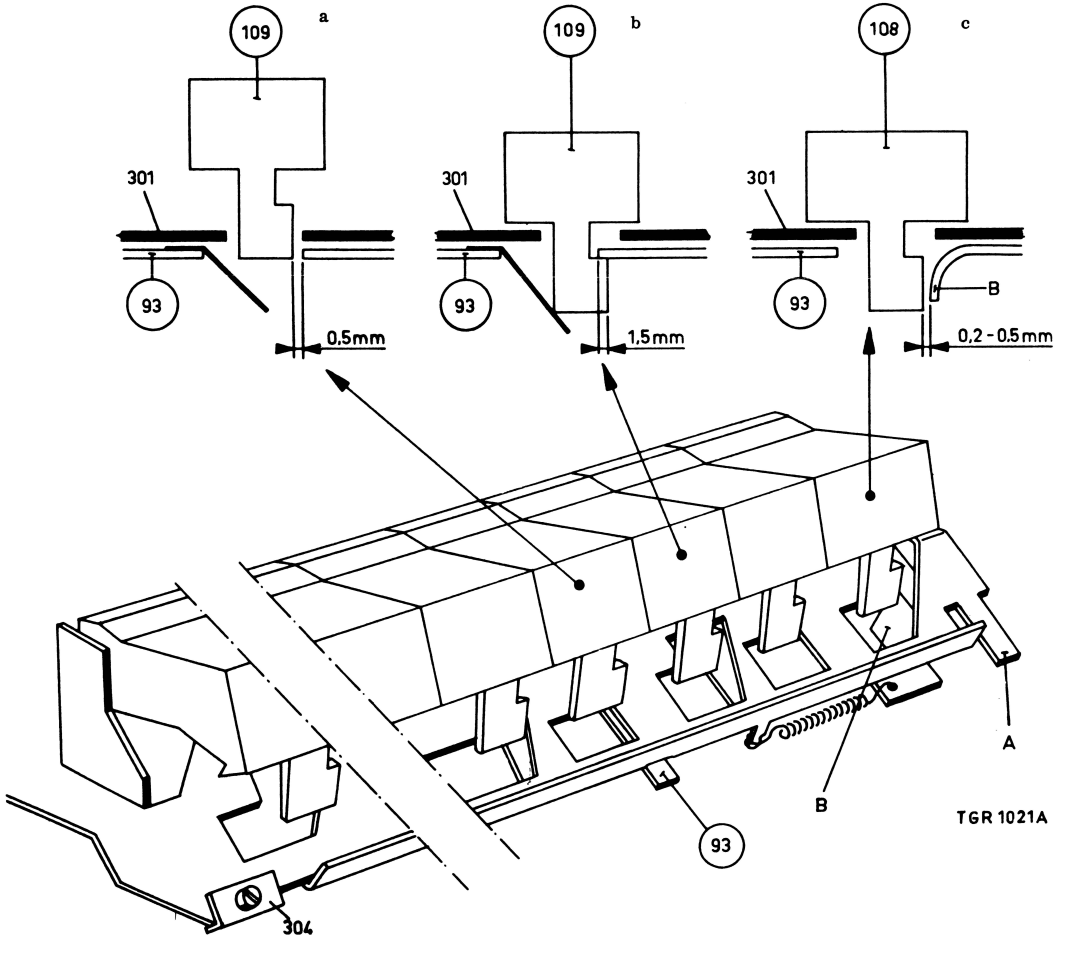


Fig. 7

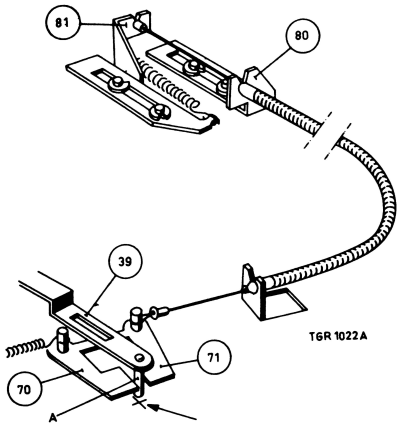


Fig. 8

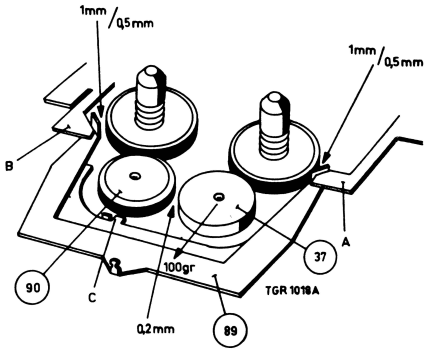


Fig. 9

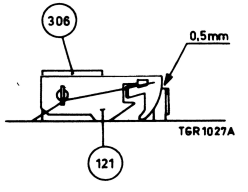


Fig. 10

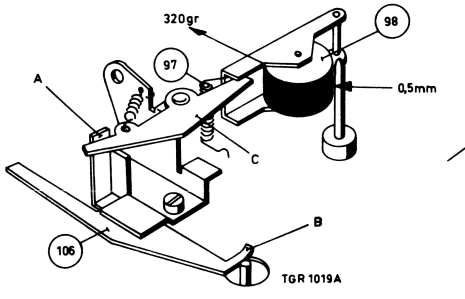


Fig. 11

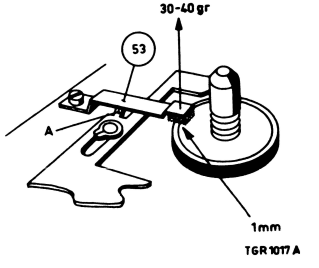


Fig. 12

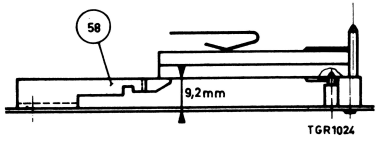


Fig. 13

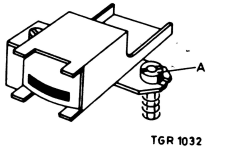


Fig. 14

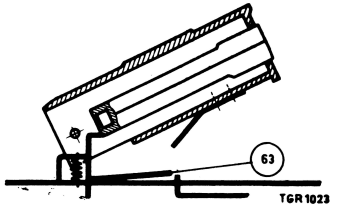


Fig. 15

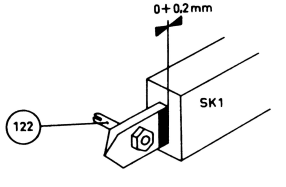


Fig. 16

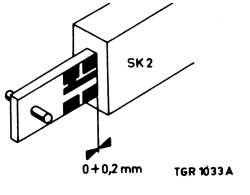


Fig. 17

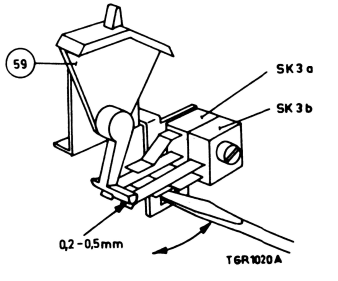
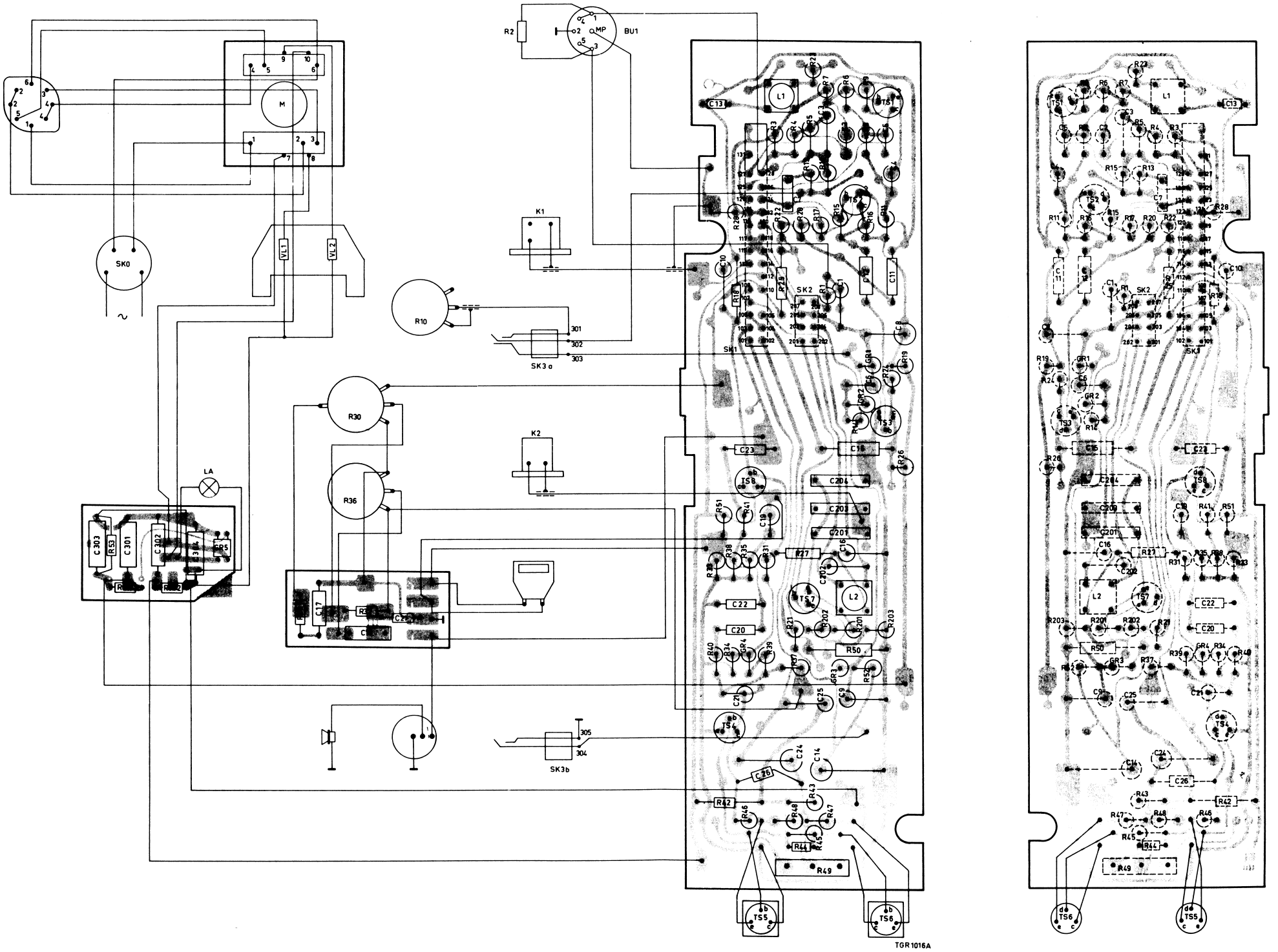
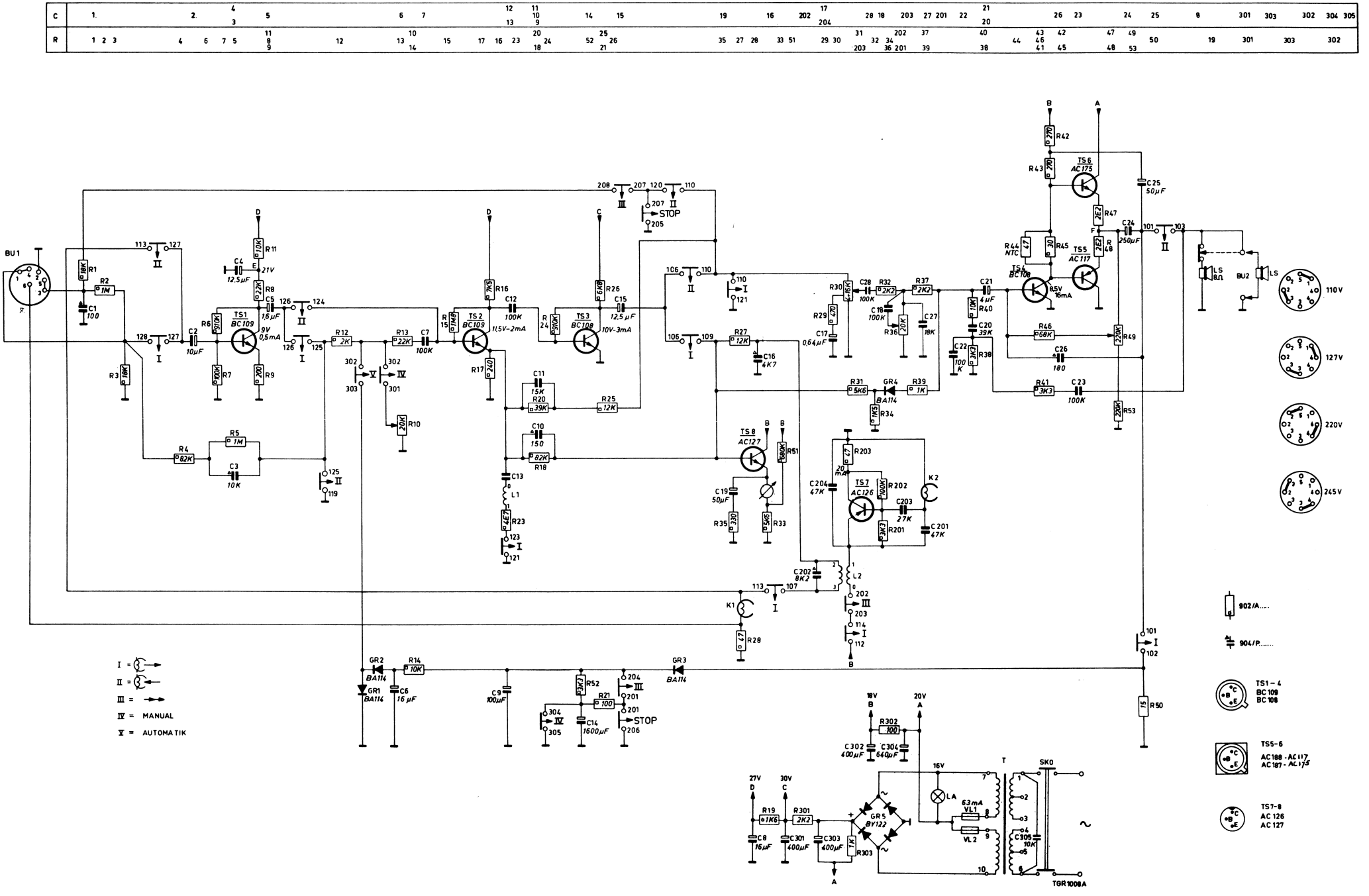


Fig. 18

P3-6. PHILIPS MODEL EL3310A




C 1. 2. 4 3 5 6 7 12 13 11 10 9 14 15 19 16 202 17 204 28 18 203 27 201 22 21 20 26 23 24 25 8 301 303 302 304 305
R 1 2 3 4 6 7 5 11 8 9 12 13 10 14 15 17 16 23 20 18 24 52 25 21 26 35 27 28 33 51 29. 30 31 32 34 203 36 202 201 37 39 40 38 44 43 46 41 42 45 47 48 49 53 50 19 301 303 302
BU1
R1 1M
R2 1M
C1 100
R3 18K
R4 82K
R5 1M
C3 10K
C2 10µF
R6 510K
R7 100K
TS1 BC109 9V 0,5mA
R8 2K2
C4 12,5µF 21V
R11 10K
C5 16µF
R9 200
R12 2K
R13 22K
C7 100K
R10 20K
TS2 BC109 11,5V-2mA
R16 7K5
C12 100K
R17 240
TS3 BC108 10V-3mA
R26 6K8
C15 12,5µF
C11 15K
R20 39K
C10 150
R18 82K
C13
L1
R23 4E7
R25 12K
R27 12K
C16 4K7
R30 1K6
C28 100K
R32 2K2
R37 2K2
R29 470
C17 0,64µF
C18 100K
R36 20K
C27 18K
C21 4µF
R40 10K
C20 39K
C22 100K
R38 3K3
TS4 BC108 8,5V 16mA
TS6 AC175
R43 270
R42 270
C25 50µF
R47 2E2
C24 250µF
R44 NTC 47
R45 30
R48 2E2
TS5 AC117
R46 68K
C26 180
R49 220K
R41 3K3
C23 100K
R53 220K
LS 8Ω
BU2
110V
127V
220V
245V
R31 5K6
GR4 BA114
R39 1K
R34 1K5
TS8 AC127
R51 680K
C19 50µF
R35 330
R33 5K6
R203 47
20 mA
C204 47K
TS7 AC126
R202 100K
C203 27K
R201 3K3
C201 47K
K2
C202 8K2
L2
K1
R28 47
GR2 BA114
GR1 BA114
R14 10K
C6 16µF
C9 100µF
R52 3K3
R21 100
C14 1600µF
GR3 BA114
STOP
R50 15
R302 100
C302 400µF
C304 640µF
18V B
20V A
16V
27V D
30V C
R19 1K6
C8 16µF
R301 2K2
C301 400µF
C303 400µF
GR5 BY122
R303 1K
LA 63mA
VL1
VL2
T
SK0
TGR1008A
I = II = III = IV = MANUAL V = AUTOMATIK
902/A....
904/P.....
TS1 – 4 BC109 BC108
TS5-6 AC188 - AC117 AC187 - AC175
TS7-8 AC126 AC127

PHILIPS Service INFORMATION

RECORDERS

2-9-1966	EL 3310	Bc 673

As from WR03 23/66 the motor and pulley of the EL 3310 are modified. The motor is provided with a longer shaft and the pulley is suitable for both 50 and 60 c/s. Conversion from 50 to 60 c/s is effected by reversing the pulley. The largest groove diameter is for 50 c/s and the smallest for 60 c/s. The pulley should be adjusted so that the grooves of the pulley and the flywheel are in line.
The new motor and pulley combinations can be applied in versions preceding WR03.
Code number new pulley: 4822 361 70145
Code number new motor: 4822 528 80249
The old type motor and pulley remain available as long as stock lasts, after which the latest type will be delivered.
As from WR04 29/66 BA100 diodes are employed for GR1-2-3-4 instead of BA114.
As from WR04 38/66 clamping ring item 7 of bracket item 56 is cancelled. It is replaced by a spring which is fixed on spindle 310, thus pressing against bracket item 56.
Code number spring: 4822 492 40233.

Please add to the list of electrical parts.

C301 - C302 - C303	4822 069 00903
C304	4822 069 00995
VL1 - VL2	974/V63

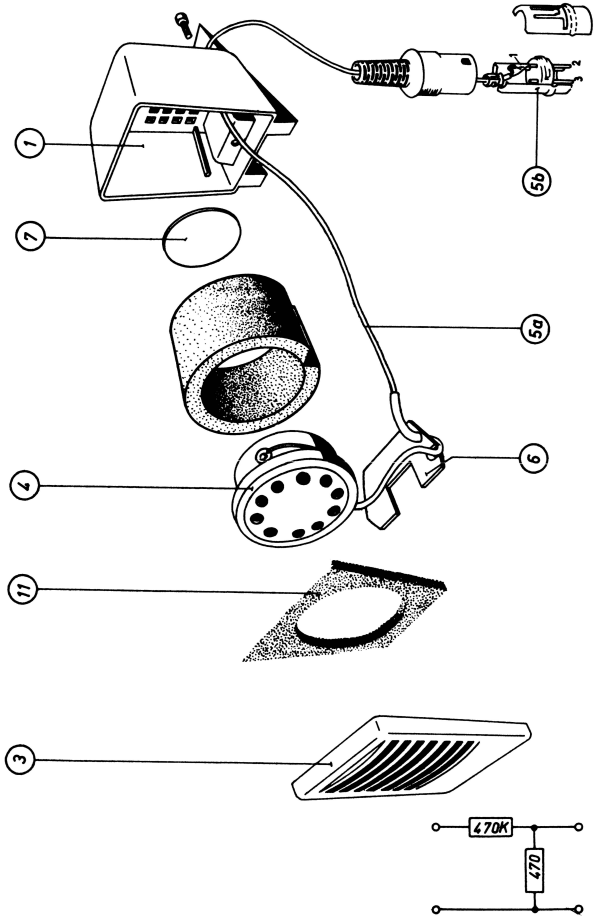
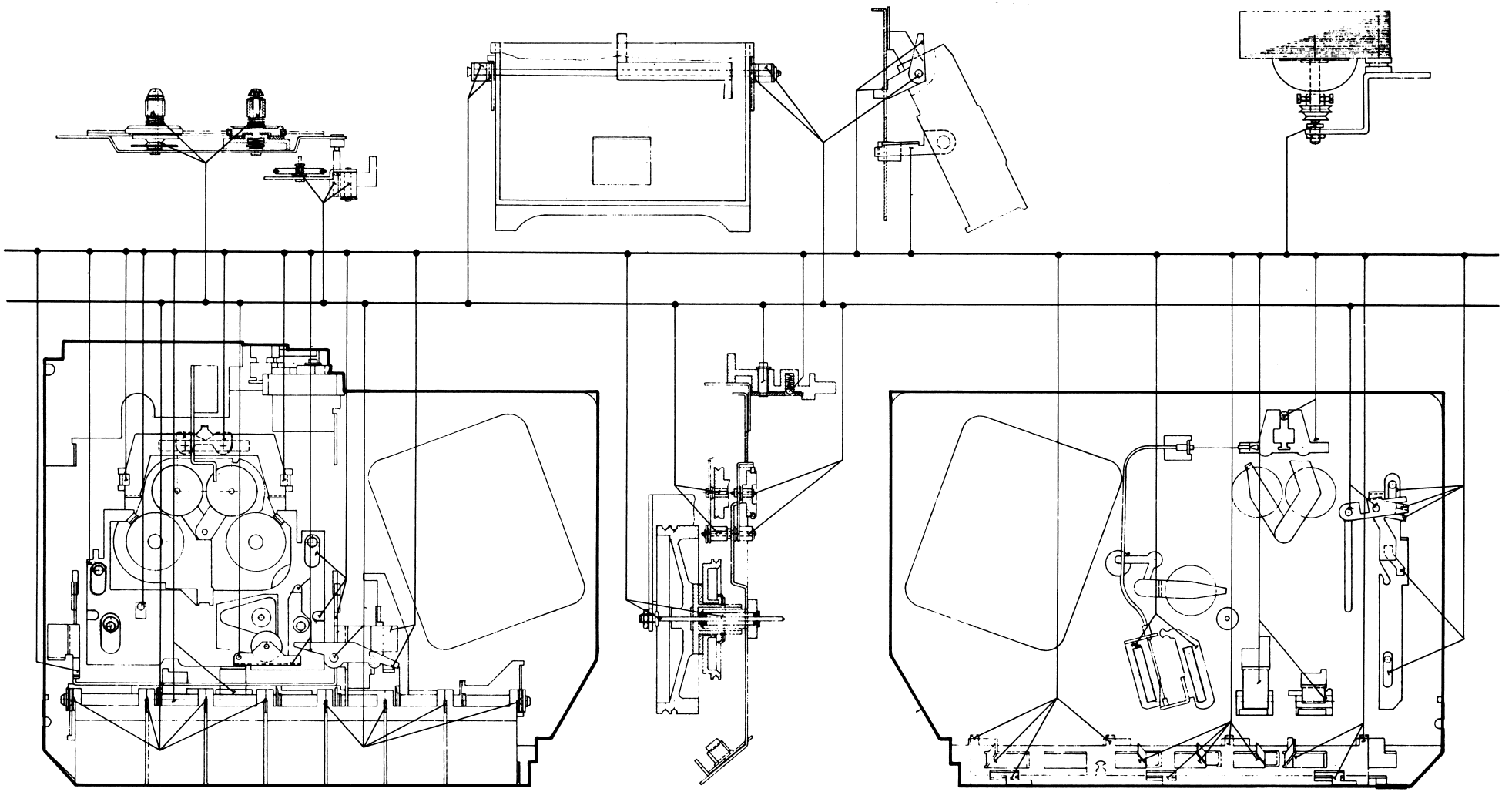


Fig. 19

SHELL ALVANIA
A9 881 22/P 50

TELLUS 33
4822 077 00104



TGR 1029