

PHILIPS *Service*

RECORDERS

EL 3300/00



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This Service Notes consist of the sheets ME 005E - ME 010E
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SERVICE INFORMATION										
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Technical data

Tape speed	: 4.75 cm/sec. (1 7/8"/sec.)
Supply voltage	: 7.5 V (5x1.5 V)
Output power	: 250 mW
Loudspeaker	: 940/AE 370 09
Life of batteries	: approx. 20 hours with "long life" cells
Microphone with start/ stop switch	: EL 3797/00
Dimensions	: 196 x 113 x 56 mm
Weight	: 1.35 kg, with batteries
Input sensitivity	: 0.3 mV over 2 k Ω
Current consumption	: $\pm$ 100 mA
Frequency range	: 120 - 6000 Hz $\pm$ 3 dB
Cassette with tape	: EL 1903
Tape width	: 3.8 mm
Number of tracks	: 2.
Track width	: 1.5 mm
Playing time of cassette	: 2x30 min.
Transistors	: TS1 AC125
	TS2 AC125
	TS3 AC125
	TS4 AC126
	TS5) 2AC128
	TS6)
	TS7 AC125

Hints for repair

Taking the apparatus out of the case

- . Remove the tape cassette.
- . Remove the control knob from the apparatus.
- . Loosen the battery cover.
- . Remove the batteries.
- . Loosen the two screws of the bottom plate.
- . Remove the bottom plate.
- . Loosen the four screws by means of which the mounting plate is fitted.
- . Loosen the screw between the two turntables.
- . Take the apparatus out of the case.
- . Encasing is done in the reverse order.

Replacement of the drive belt

- . Loosen the three screws by means of which the lower bearing bracket of the flywheel is fitted to the mounting plate.
- . Remove this bearing bracket.
- . Loosen the screw by means of which the bottom plate of the motor is fitted to the screening bush.
- . Remove the bottom plate.
- . The drive belt can now be removed.
- . Mounting is done in the reverse order.

Note: When fitting the lower bearing bracket of the flywheel, make sure that the cord groove of the flywheel and that of the winding friction are aligned. The height of the flywheel can be adjusted as shown in fig. 1, by means of a screwdriver via the triangular opening in bearing bracket 67.

Replacement of flywheel and winding friction

- . Loosen the three screws by means of which the lower bearing bracket of the flywheel is fitted to the mounting plate.
- . Remove this bearing bracket.
- . Release the drive belt at the side of the flywheel.
- . Remove the nylon clamping ring from the bracket of the winding friction.
- . Remove the nylon cap 59 from the flywheel shaft.
- . The flywheel and the winding friction must now be simultaneously removed.
- . Mounting is done in the reverse order.

Note: When mounting make sure that the lip of the winding friction bracket engages the hook of the wire spring.

After the flywheel bearing has been fitted, the cord groove of the flywheel and that of the winding friction must be aligned. The height of the flywheel can be adjusted as shown in fig. 1 by means of a screwdriver via the triangular opening in bearing bracket 67.

Replacement of the motor

- . Loosen the screw by means of which the bottom plate of the motor is fitted to the screening bush.
- . Remove the bottom plate.
- . The motor can now be taken out of the screening bush.
- . Unsolder the connection wires of the motor from the anti-interference coils S3 and S4.
- . Mounting is done in the reverse order.

Replacement of the winding roller lever

- . Remove the nylon clamping ring from the winding roller lever.
- . The lever can be removed from the shaft when the idler wheel is pushed slightly backwards.

Replacement of turntables

- . Loosen the cap of the turntable.
- . After this the turntable can be directly removed.

Mechanical adjustments

Recording/playback head

The air gap of the recording/playback head can be adjusted as follows:

- . Place a cassette with a test tape of 5000 c/s (code number 281 00199) into the apparatus.
- . Switch the apparatus to position "playback".
- . Connect a valve voltmeter to the points 2 and 3 of BU1.
- . Adjust for maximum output voltage with screw A (fig. 1A).
- . After the adjustment, seal the screw with cellulose lacquer.

Pressure roller lever

- . Switch the apparatus into position "playback".
- . The force needed for pulling the pressure roller clear of the capstan, must be between 155-175 gr. fig. 1A.
- . This force can be adjusted by slightly repositioning the torsion spring.

Winding friction

- . Switch the apparatus into position "playback".
- . The pressure of the pulley of the friction against the right-hand turntable must be between 120 and 150 gr. fig. 1A.
- . This pressure can be adjusted by bending the wire spring under the winding friction lever.

Winding roller lever

In position "recording" or "playback" the spring on the winding roller lever must be free from stop D on the lever fig. 2.
In position "winding" this spring must be free from the spacer E on the mounting plate and positioned against stop D on the winding roller lever.

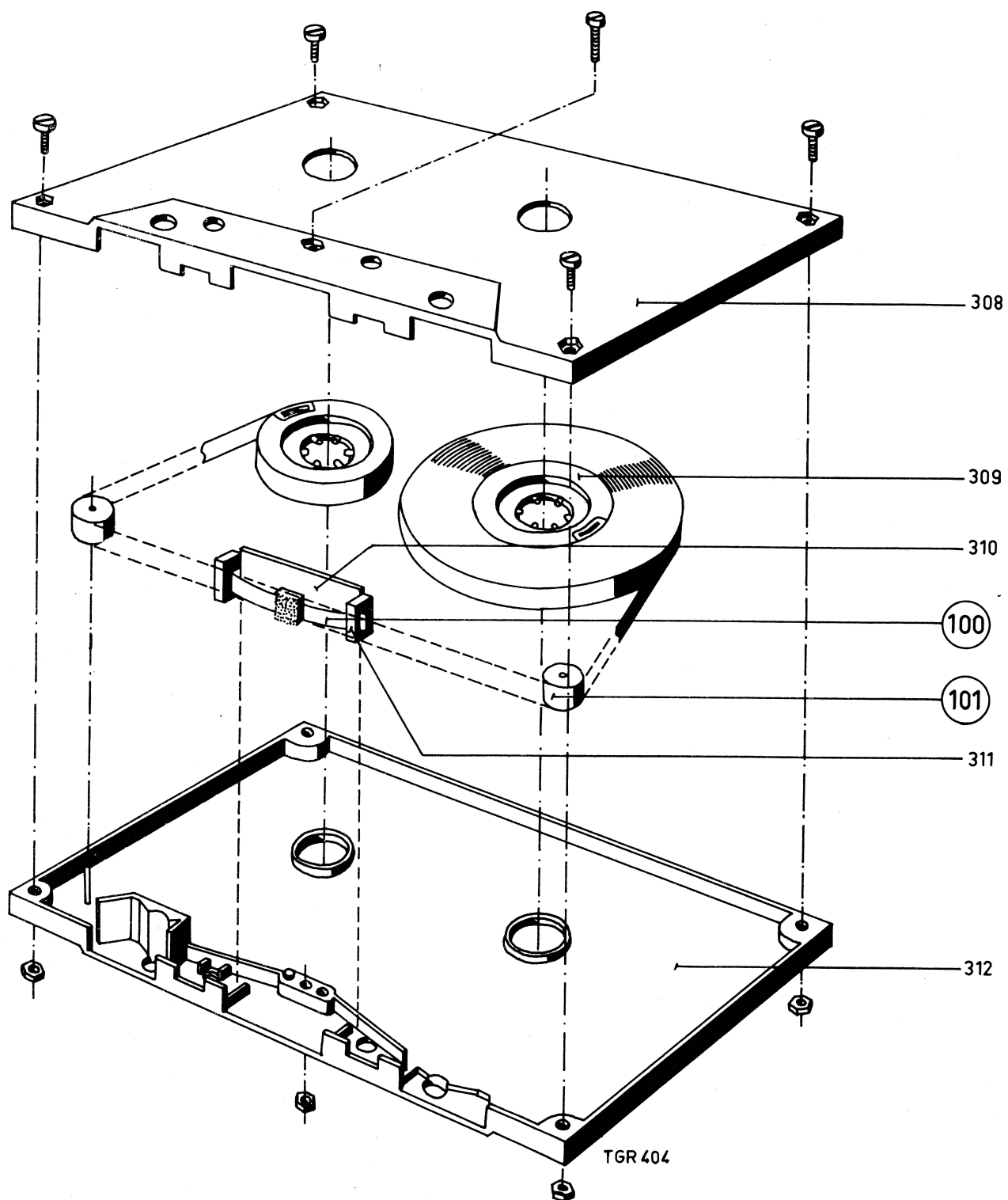


Fig. 9

Р	1	6	2, 3	4, 5	7	8	9	10, 11	12	13, 14, 15	16	17, 18, 19	20	21	22, 23, 24	25	26, 27, 28, 29, 30	31	32, 33, 34	35	36	37	38, 39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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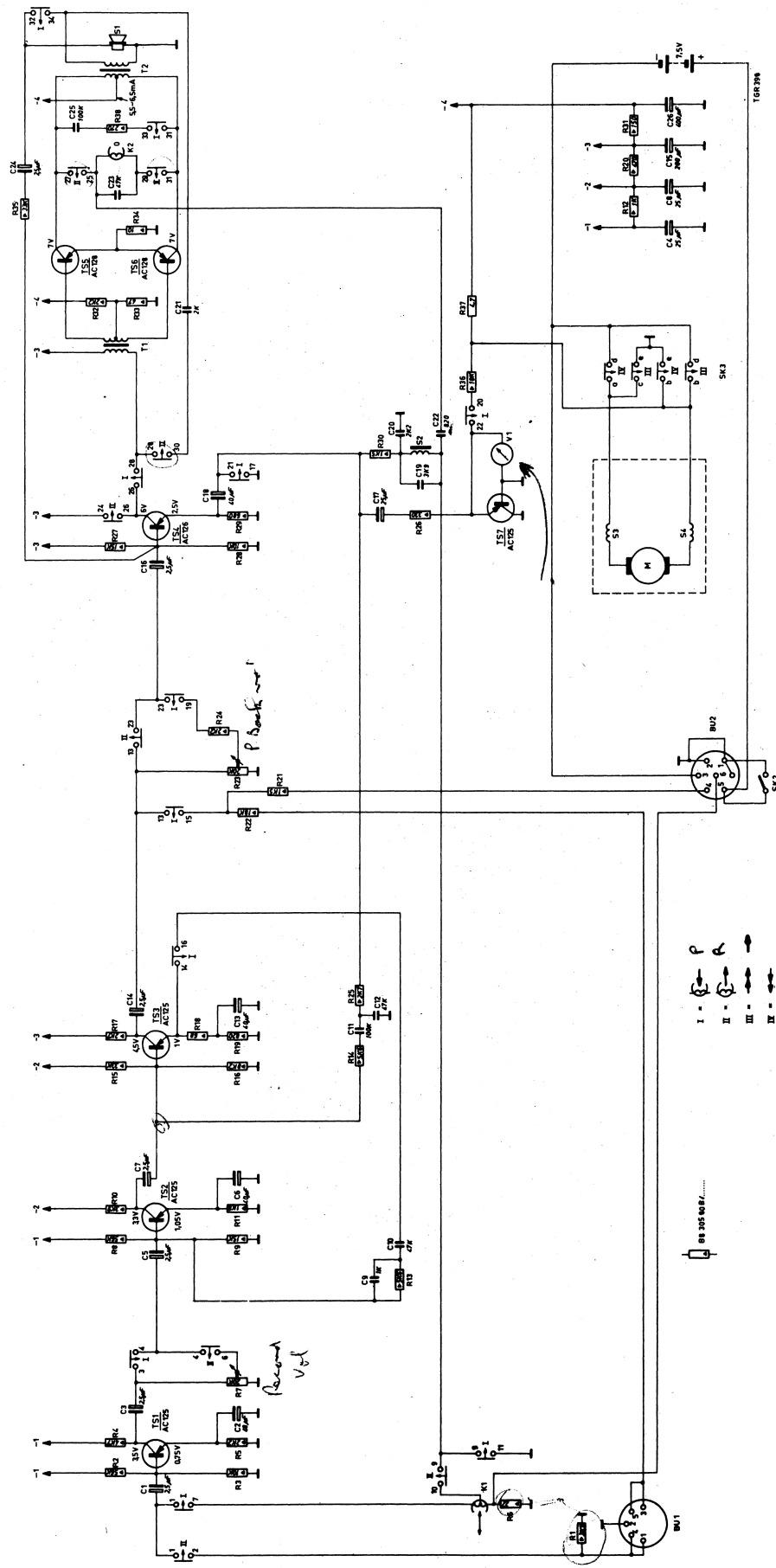


Fig. 8

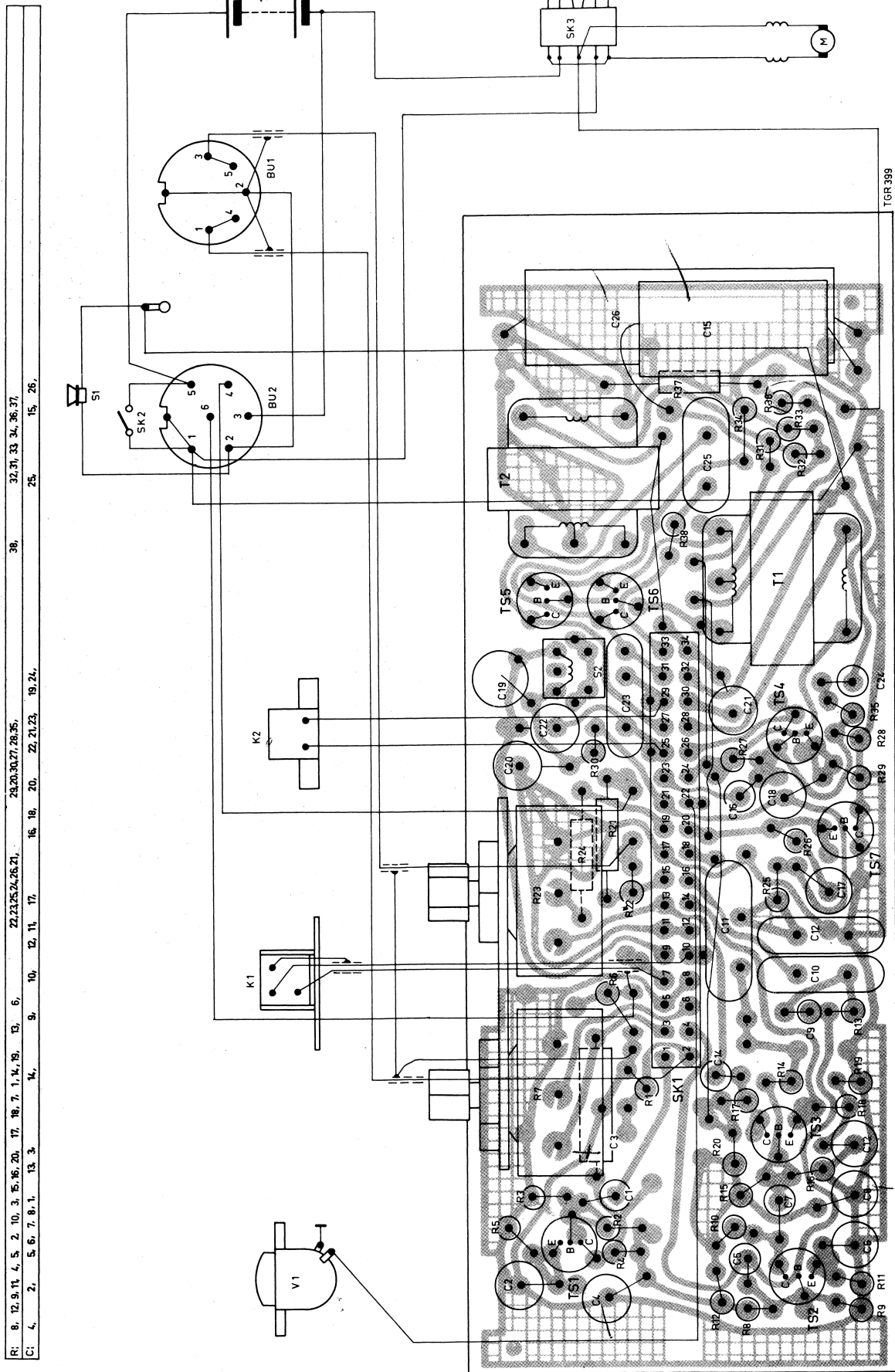


Fig.7

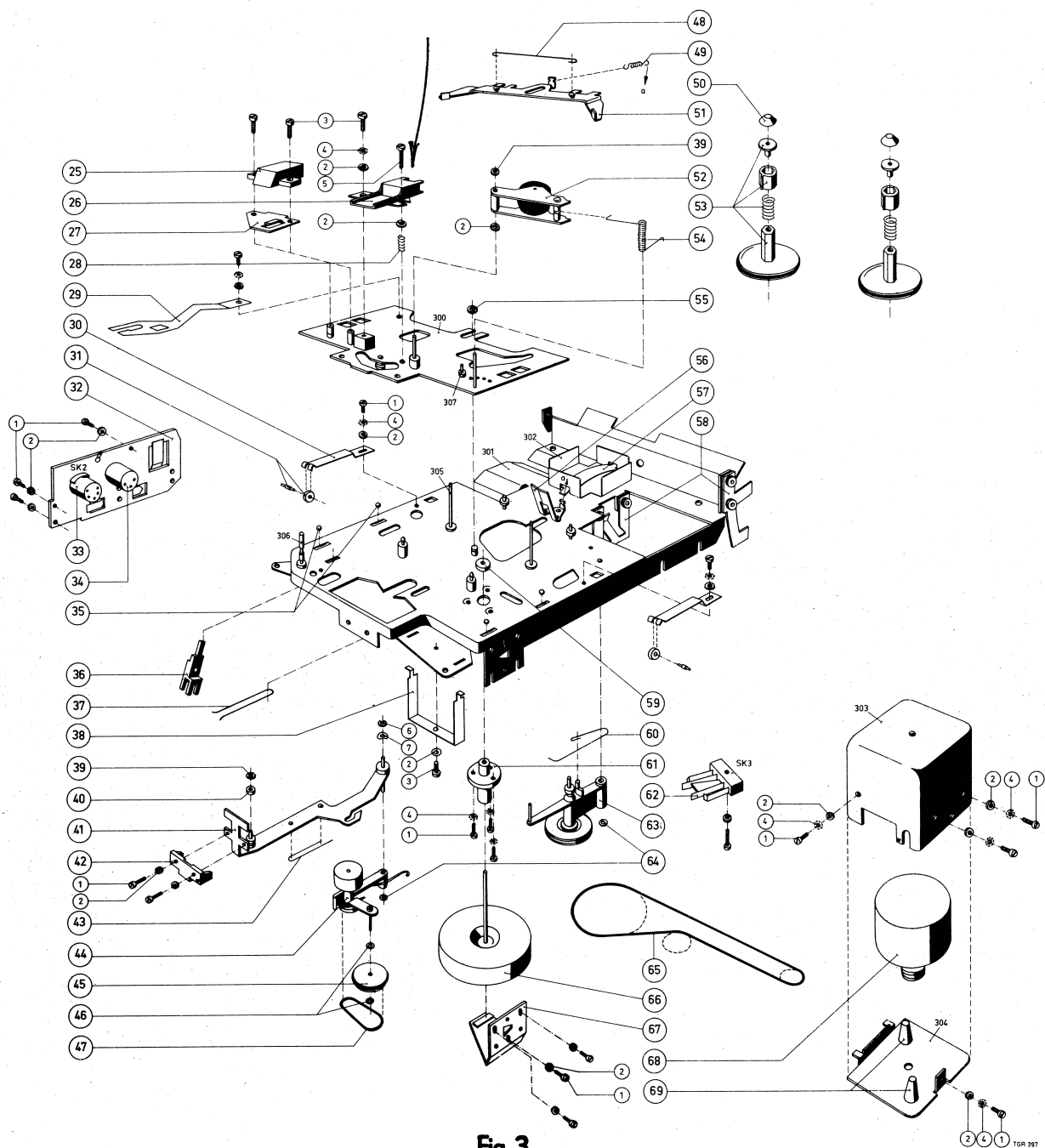


Fig. 3

List of mechanical parts

<u>Pos.</u>	<u>Code number</u>	<u>Description</u>
1	999/2x5	Screw with cylindrical head
2	988/2	Washer
3	999/2x8	Screw with cylindrical head
4	987/3	Toothed spring washer
5	999/2x12	Screw with cylindrical head
6	985/1.9	Retaining ring
7	986/3	Pressure washer
25	4822 175 00953	Erase head
26	4822 175 00954	Recording/playback head
27	4822 175 00952	Plate under erase head

<u>Pos.</u>	<u>Code number</u>	<u>Description</u>
28	4822 175 00955	Pressure spring under recording/ playback head.
29	4822 175 00956	Leaf spring under recording head
30	4822 175 00961	Stop spring
31	4822 175 00962	Stop roller assy.
32	4822 175 00995	Connection plate assy. without female plugs
33	4822 175 00976	6-pole female plug with switch
34	979/5x180	5-pole female plug
35	89 205 01	Ball under slide
36	4822 163 00922	Switch lever
37	4822 175 00965	Spring of control bracket
38	4822 175 00947	Leaf spring of meter
39	TD 300 49	Ring
40	4822 175 00985	Roller
41	4822 175 00982	Lever assy.
42	4822 163 00914	Guide piece
43	4822 175 00984	Spring under lever
44	4822 175 00966	Winding roller lever assy.
45	4822 175 00967	Pulley assy.
46	4822 175 00968	Ring under pulley
47	4822 163 00915	Belt
48	4822 175 00944	Spring of brake bracket
49	4822 175 00945	Tension spring on brake bracket
50	4822 163 00918	Cap above reel disc
51	4822 175 00943	Brack bracket
52	4822 175 00957	Pressure roller lever assy.
53	4822 175 00964	Reel disc assy.
54	4822 175 00958	Spring on pressure roller lever
55	4822 175 00986	Ring of brake bracket
56	4822 175 00978	Leaf spring for cassette
57	4822 175 00979	Leaf spring under loudspeaker
58	4822 175 00981	Set of contact springs
59	4822 163 00916	Cap for flywheel shaft
60	4822 175 00974	Spring
61	4822 175 00969	Upper bearing of flywheel
62	4822 175 00963	Switch SK3
63	4822 175 00951	Winding friction assy.
64	4822 175 01055	Ring
65	4822 163 00917	Drive belt
66	4822 175 00971	Flywheel assy.
67	4822 175 00972	Bearing bracket of flywheel
68	4822 194 00176	Motor assy.
69	4822 163 00919	Pressure stud

BN/MC

ME 008E

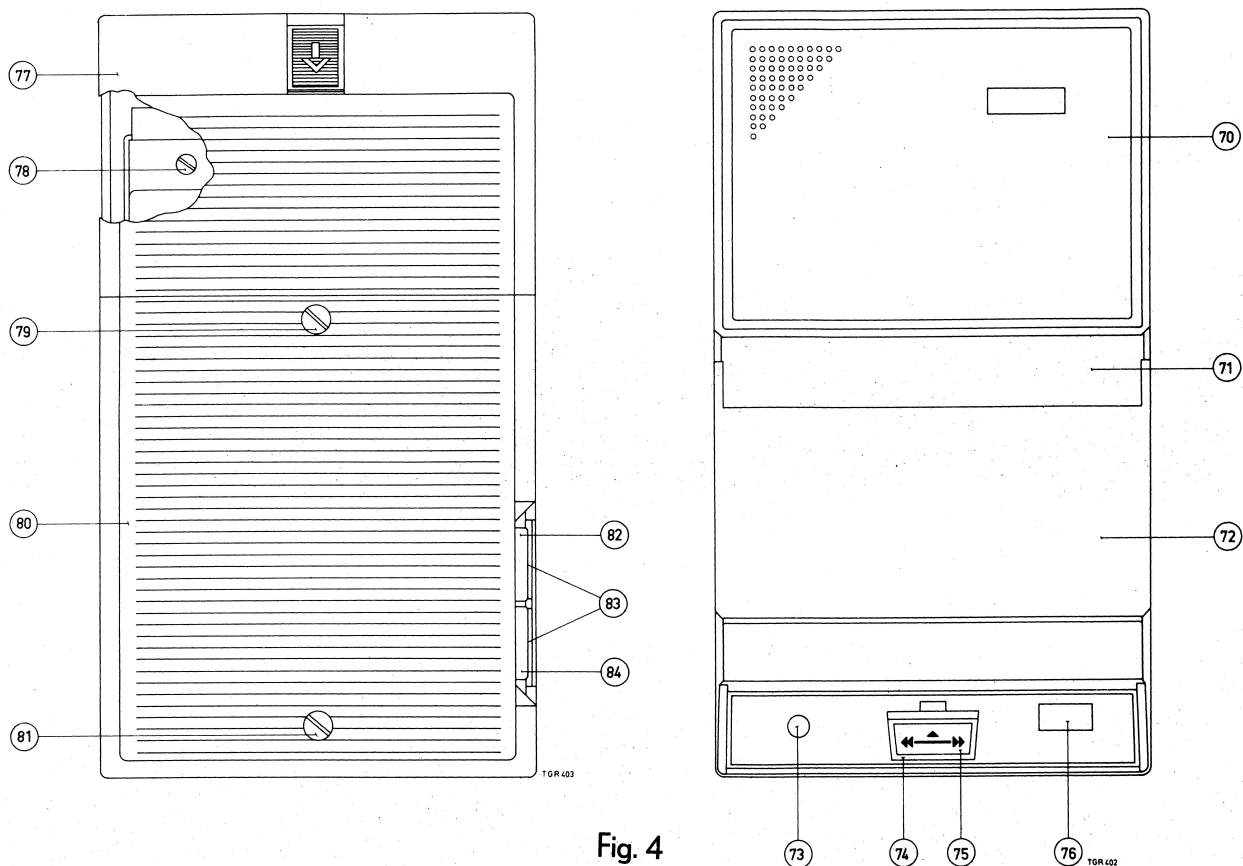


Fig. 4

List of parts of the case

<u>Pos.</u>	<u>Code number</u>	<u>Description</u>
70	4822 175 00988	Ornamental grille
71	4822 175 00987	Case assy.
72	4822 163 00912	Flap
73	4822 163 00908	Recording knob
74	4822 163 00911	Control knob
75	4822 175 00994	Ornamental plate for control knob
76	4822 175 00935	Indicator
77	4822 175 00993	Battery cover assy.
78	4822 068 00668	Screw
79/81	4822 175 00991	Screw for bottom plate
80	4822 163 00909	Bottom plate
82/84	4822 163 00907	Knob for volume control
83	4822 175 00989	Indication plate for knob

Electrical measurements

New batteries should be used to power the apparatus.

Playback sensitivity

- Replace the loudspeaker by a load resistor of $3\ \Omega$.
- Volume control at maximum.
- Apply a signal of 1000 c/s to the measuring point (point 6 of BU2) via a resistor of $22\ k\Omega$.
- Adjust the signal so that a voltage of 390 mV is measured across the load resistor of $3\ \Omega$.
- The input voltage must be.
- The voltage at the line output (point 3 of BU1) must amount to $40\ mV \pm 2\ dB$.

Recording sensitivity

- Connect a resistor of $470\ \Omega$ to the points 1 and 2 of BU1.
- Apply a signal of 1000 c/s to point 1 of BU1 via a resistor of $470\ k\Omega$.
- Connect a valve voltmeter to the measuring point (point 6 of BU2).
- Volume control at maximum.
- Adjust the voltage at the measuring point (point 6 of BU2) to $4\ mV$ with the aid of the signal generator.
- The value of the signal applied must amount to $20\ mV \pm 2\ dB$.

Indication meter

- New batteries should be used to power the apparatus.
- Switch the apparatus into position "playback".
- The pointer of the indication meter must deflect in the right-hand part of the green sector.

Premagnetizing current

This current must be adjusted so that the voltage at the measuring point (point 6 of BU2) amounts to $20\ mV$. This can be adjusted by turning the core of S2.