

P22-1

PHILIPS MODEL EL3556A

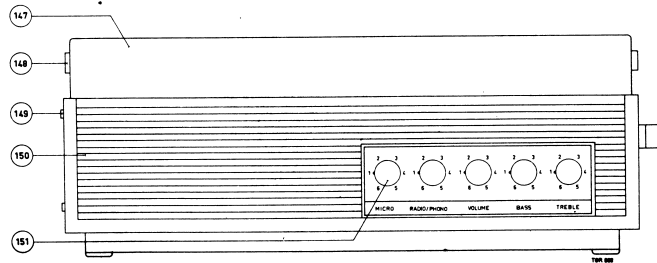
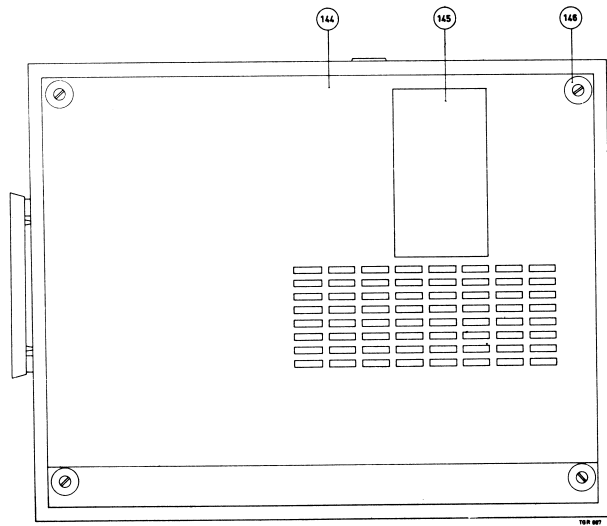
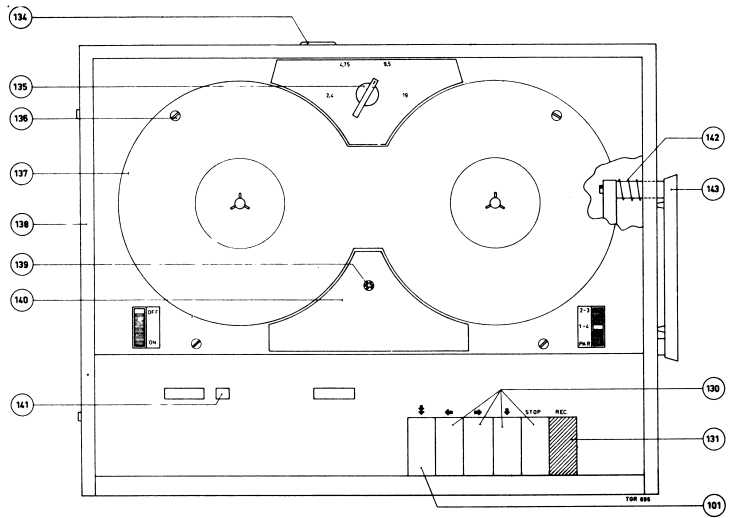
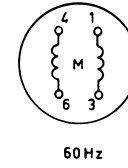
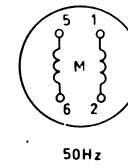


Fig.1



TGR 736

Fig. 2

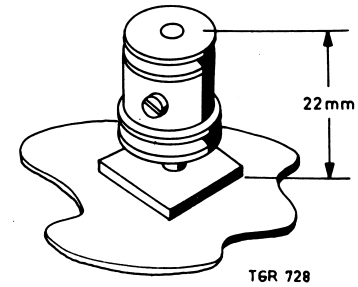


Fig. 3

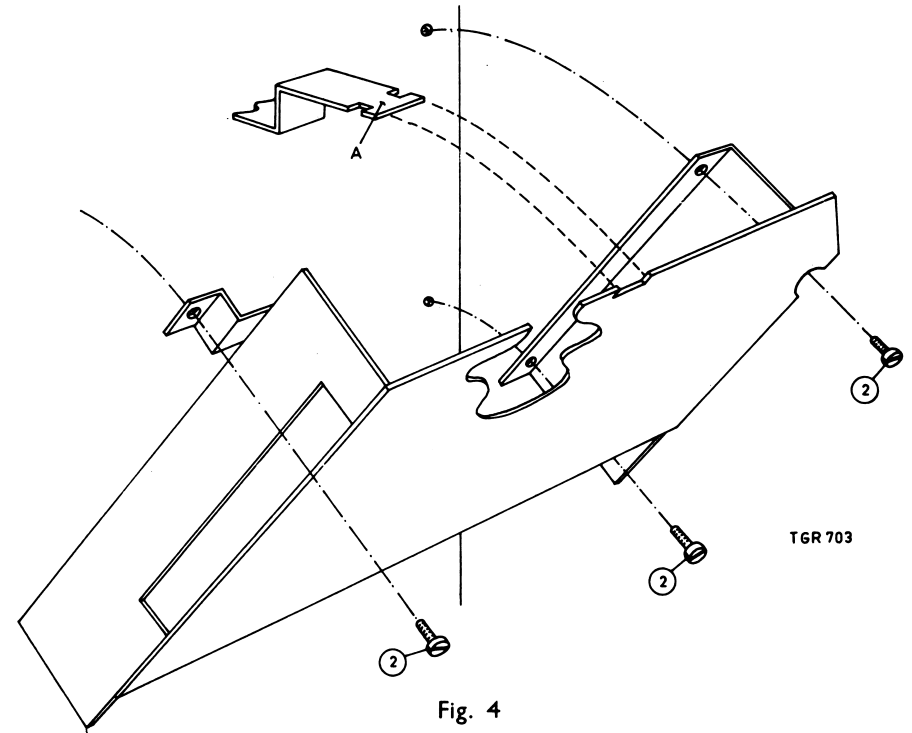


Fig. 4

PHILIPS *Service*

RECORDERS

EL3556A/00/01



TGR744



TECHNICAL DATA

Mains voltage	: 110, 127, 220 and 245 V
Frequency	: 50 - 60 c/s
Power consumption	: 60 W
Tape speeds	: 2.4 cm/sec., 4.75 cm/sec., 9.5 cm/sec., 19 cm/sec.
Reel diameter	: Max. 18 cm (7")
Loudspeaker	: 1x AD357GM

Sensitivities

Microphone	: 0.25 mV across 2 kΩ
Diode	: 2 mV across 20 kΩ
P.U.	: 100 mV across 0.5 MΩ

Output voltages

Diode	: 1 V across 50 kΩ
Headphone	: 200 mV across 15 kΩ
Power output	: 3.5 W across 5.6 Ω

Valves

: 1x ECC83
: 2x EL95
: 1x EM87

Transistors

: 1x AC125
: 2x AC126
: 3x AC172

Diode

: 1x OA70

Connection cable for radio

: EL 3768A/00

Microphone

: EL 3782

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It is recommended to clean the apparatus and to lubricate the various points after about 1000 hours of operation.

Clean only with regular or refined alcohol

Tape guides, erase head, record/play-back head, capstan, pressure roller, motor pulley, flywheel, cord-grooves of the pulleys.

Removing the cabinet, see Fig. 1

Remove knob, item 135, and the screws items 136 and 139.
Unscrew the bottom plate by means of the four screws in the rubber feet, item 146.
In most cases it will not be necessary to remove the entire cabinet for repairs. If this should be necessary, remove the four screws in the corners of the mounting plate and the knobs, item 151. Furthermore, pull out the grip and unsolder the loudspeaker.

Replacing the motor

- Loosen the nut of cord-protection bracket B, see Fig. 12.
- Remove the drive cord, item 68.
- Unsolder the motor connections.
- Loosen the screws, item 33.
- The motor can then be removed.

Mounting is effected in reverse order.

Converting 50 to 60 c/s and vice versa

- Detach the motor pulley, item 52, and turn it 180°.
- Adjust according to Fig. 3.
- Rewire the motor connections as in fig. 2. Fig. 2 is correspondend with the transformer connections.

Replacing the drive cord, item 68

- Remove both springs, item 116 and 124.
- Before cord can then be removed.
- For inserting the cord, de-grease all parts over which the cord runs.
- The gap between the ends of bracket B should be approx. 2 mm.

Note : The cord should run across both pulleys and the drive wheel, with its bevelled side pointing outward, see Fig. 12.

Replacing Car, item 26

- Remove the screw, item 25.
- The cap can then be pulled from the reel.

Mounting is effected in reverse order.

Disassembling the push-button unit

- Remove the springs, item 104.
- Loosen the screws, item 4.
- The entire unit can then be removed from the mounting plate.

Replacing push-buttons

Remove the clamping ring, item 10, and the spring, item 104.
The rod passing through all push-buttons can then be slid out to the left.
Consequently, all push-buttons are freed.
If necessary, replace one of the push-buttons and reinsert the rod.
Next, proceed in reverse order.

Note : The "pause" button should be at the extreme left; it contains a metal pin which should be positioned below item 103.

LIST OF CABINET PARTS

Item	Code number	Description
134	4822 212 00653	Ring
135	4822 212 00645	Knob
	994/03	Spring in knob
136	4822 212 00604	Screw
137	4822 212 00641	Cover plate
138	4822 212 00635	Case
139	4822 212 00605	Screw
140	4822 212 00644	Cover
141	4822 212 00764	Knob
142	4822 212 00753	Spring
143	4822 212 00637	Grip
144	4822 212 00649	Bottom plate
145	4822 212 00651	Lid
146	4822 212 00652	Foot
147	4822 212 00647	Lid
148	4822 125 00431	Lock
149	4822 212 00639	Foot
150	4822 212 00636	Ornamental grille
151	4822 212 00646	Knob
152	WT 824 25	Clamp for EM87

Swinging out the print, see Fig. 4

- No buttons depressed.
- Remove the knobs, item 151.
- Place the apparatus on its left side.
- Loosen the three screws, item 2.
- Push tag A upward.
- The print can then be swung forward.

Replacing the friction ring, item 29

- Remove the reel from the mounting plate.
- Consecutively remove items 36, 35, 34 and 30.
- The ring can then be pulled from the reel and replaced.

Mounting is effected in reverse order.

Note : When assembling, everything should be de-greased.

Start and stop friction

The friction force of both reels should be 125-250 gr, measured with full 7" reel.

Replacing the flywheel, item 84

- Swing out the print.
- Loosen the screws, item 5, and remove the bearing bracket.
- If necessary, the pivot, item 85, can then also be replaced.

- The flywheel can then be slid out off the bearing.

Mounting is effected in reverse order.

Note : After mounting the capstan must be degreased.

Run-out time of flywheel and pressure roller

- Switch the apparatus to "19 cm/sec."
- Depress the "play-back" button.
- Allow the apparatus to obtain its speed.
- Keep the "play-back" button depressed and switch off the apparatus.
- The run-out time then should be at least 4 seconds.
- If this time is too short, lubricate or replace bearing, item 74.

TROUBLE SHOOTING

Adjusting the brake bracket, item 122, see Fig. 6

- Loosen both screws, item 4.
 - Hold the brake bracket perpendicularly on the mounting plate.
 - Distance C should be 1.5 mm.
 - Make sure that the brake shoes are positioned as shown in Fig. 6.
 - Tighten the screws, item 4.
 - Next, bend tag D so that distance at C is 1.5 mm.
 - Depress the "play-back" button so that the pressure roller just touches the capstan. Then, bend tag A so that the brake shoe, item 121, just releases the right-side reel.
 - Switch on the apparatus and slowly depress the "play-back" button.
- The intermediate wheel, item 117, should start driving the friction wheel, item 37, just before the brake bracket releases the right-side reel

Adjusting the "pause" button, see Fig. 7

Depress the "pause" button and the "play-back" button; the distance between capstan and pressure roller should then be approximately 0.5 mm. This can be adjusted by bending tag A.

Check : Release the "pause" button; the distance between tag A and the pressure bracket should be at least 1 mm.

When depressing the "pause" button, the brake should become operative at the same time the pressure roller is released. Adjust by bending tag B, see Fig. 8.

Adjusting the push-button unit

Roller, item 114, should be in the centre between the "wind" and "rewind" buttons. If necessary, adjust by slightly bending the bracket, item 93.

Depress the "play-back" button; the distance between tag C and bracket, item 100, should be about 0.5 mm, see Fig. 9.

Adjust by slightly bending tag C.

Adjusting the brake brackets of the friction discs

Left brake, see Fig. 10

No buttons depressed; the distance at tag A should then be 0.5 mm. This can be adjusted by bending tag A.

Check : Depress the "rewind" button; the distance between friction disc and brake then also should be 0.5 mm.

Right-side brake, see Fig. 11

When the "play-back" button is depressed, the distance between the brake and the friction wheel should be at least 2 mm. If necessary, slightly bend the brake.

When depressing the "rewind" button, the friction wheel of the right-side reel should be blocked.

Adjustments at rewinding, see Fig. 12

Depress the "rewind" button; adjust tag A so that the distance to the control bracket is 0.5 mm.

Check : Set the apparatus to "stop"; the distance between reel and drive wheel, item 70, should be about 1 mm.

Adjustments at winding, see Fig. 13

Depress the "wind" button; the distance at A should then be about 0.5 mm.

Check : When the apparatus is in operation, the reel should not go up. If this does happen, however, the shaft of the drive-wheel, item 125, should be bent slightly in the direction of the cut-out relay.

Friction of the reels at rewinding, see Fig. 14

The friction between the friction discs and the reels should be 30 gr. \pm 20 %, measured with a empty 7" reel.

If the tape also runs along the tape guides and head, the force should be about 50 gr.

Fault

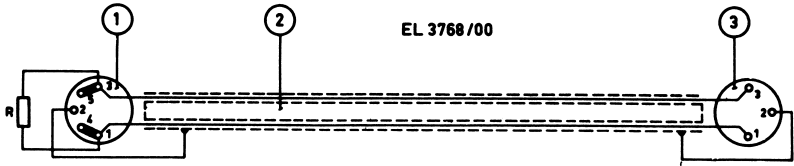
1. Apparatus does not operate.
2. Apparatus does not record or play back.
3. No fast winding.
4. No fast rewinding.
5. Right reel disc is lifted.
6. Apparatus brakes poorly or not at all.
7. Apparatus wows.
8. Apparatus produces a rattling sound.
9. Apparatus does not record.
10. Tape spilling after switching on.
11. Apparatus hums during play-back.
12. Distortion during recording.
13. Tape is not wound tightly enough.
14. Flutter during play-back.
15. Tape is erased poorly or not at all.
16. No high notes in pre-recorded tapes
17. Both recorded tracks are intermingled.

Cause

1. a. Fuse blown.
2. a. One of the switches improperly adjusted.
3. a. Coupling in the right reel slips.
b. Drive cord is greasy.
4. a. Coupling in the left reel slips.
b. Drive cord is greasy.
5. a. Shaft of intermediate wheel item 125 is misaligned.
6. a. Brake bracket misaligned.
b. Brake shoe is greasy.
7. a. Left brake friction item 37 engages irregularly.
b. Tension of pressure roller insufficient.
c. Capstan is slanted so that the flywheel rubs thus producing loud knocks in the apparatus.
d. Motor runs irregularly.
e. Drive-cord greasy.
8. a. Dent in intermediate wheel, item 82.
9. a. Fault in the amplifier.
b. Recording/play-back head with short-circuited turn.
c. Pre-magnetising current too large.
10. a. Winding friction, item 37 of the right reel, does not engage properly.
11. a. Fault in amplifier.
b. Recording/play-back head magnetised.
12. a. Tape is not pressed against the recording/play-back head properly.
b. Pre-magnetising current too small.
c. Fault in amplifier.
13. a. Insufficient friction of the right or left reel respectively.
14. a. Pressure felt worn.
b. Tape dirty.
c. Recording/play-back head dirty or worn.
15. a. Erasing head dirty.
b. Erasing head defective.
c. Oscillator defective.
16. a. Recording/play-back head is slanted.
17. a. Lace-up incorrect.

Remedy

1. a. Locate fault and replace fuse.
2. a. Adjust the switch (see text).
3. a. Remove the reel and de-grease it.
b. Replace the cord.
4. a. Remove the reel and de-grease it.
b. Replace the cord.
5. a. Adjust the shaft (see text).
6. a. Adjust the brake bracket (see text).
b. De-grease with white spirits or replace it.
7. a. Clean the friction.
b. Replace pressure roller or spring, item 99.
c. Adjust the capstan.
d. Lubricate or replace the motor.
e. De-grease the cord.
8. a. Replace the intermediate wheel.
9. a. Locate the fault and repair it.
b. Replace the head.
c. Re-adjust the pre-magnetising current.
10. a. De-grease the reel.
11. a. Locate the fault (transistor) and repair it.
b. Switch the apparatus on and off a few times in position "recording".
12. a. Check the pressure felt.
b. Re-adjust the pre-magnetising current.
c. Locate the fault and repair it.
13. a. Clean the reel.
14. a. Replace the pressure felt and check the pressure.
b. Replace the tape.
c. Clean or replace the head.
15. a. Clean the head with white spirits or alcohol.
b. Replace the head.
c. Locate the fault.
16. a. Adjust the head.
17. a. Adjust the capstan, see text.



Pos.	Code number	Description
1	978/5x180	Five pole plug
2	R 365 KN/04HP10	Flex per meter
3	978/3x180	Three pole plug
R	B8 305 80A/470K	

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PHILIPS MODEL EL3556A

LIST OF MECHANICAL PARTS

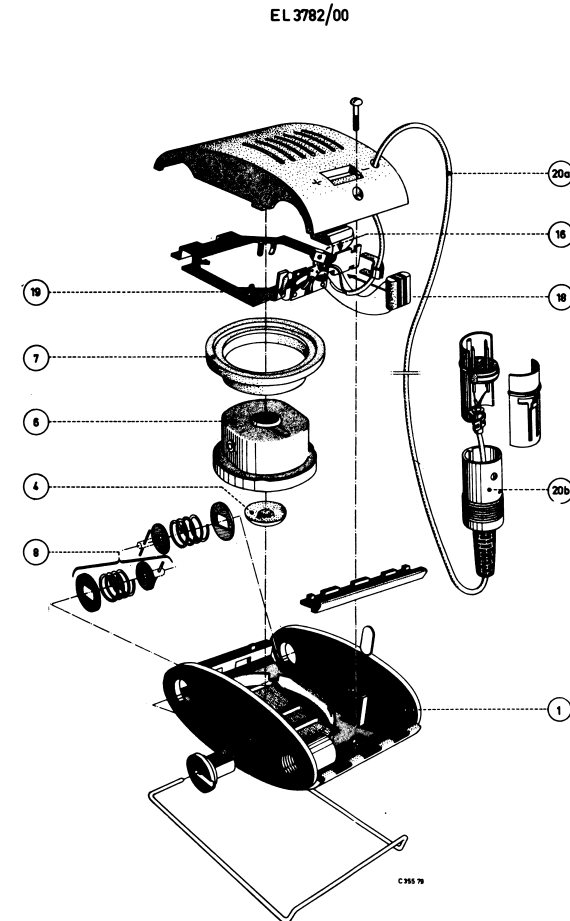
Item	Code number	Description	Item	Code number	Description
1	999/4x8	Screw	73	4822 212 00774	Bracket
2	999/3x15	Screw	74	4822 212 00814	Bearing
3	999/3x10	Screw	75	4822 212 00775	Bracket
4	999/4x6	Screw	76	4822 212 00706	Pulley
5	999/4x50	Screw	77	4822 220 00349	Ring
6	988/5	Ring	78	4822 212 00657	Bearing
7	988/6	Ring	79	4822 212 00776	Bracket
8	988/4	Ring	80	4822 212 00722	Pressure spring
9	988/3	Ring	81	4822 212 00777	Leaf spring
10	984/3	Clamping ring	82	4822 212 00665	Intermediate wheel
11	984/5	Clamping ring	83	4822 212 00721	Bracket
12	984/2	Clamping ring	84	4822 212 00716	Flywheel and shaft
13	984/4	Clamping ring	84a	4822 213 00511	Felt ring
14	B 045 BF/13	Clamping ring	85	4822 212 00717	Upper bearing
25	4822 220 00369	Screw	86	4822 212 00778	Bracket
26	4822 212 00713	Cover	87	4822 212 00723	Pinion
27	4822 212 00712	Reel	88	4822 212 00674	Pressure spring
28	4822 163 01073	Cord	89	A3 646 90	Pressure spring
29	4822 212 00765	Ring	90	4822 212 00779	Bracket
30	4822 212 00711	Drive-wheel	91	4822 212 00673	Socket
31	4822 212 00727	Counter	92	4822 212 00672	Spring
32	4822 194 00213	Motor	93	4822 212 00667	Switch bracket
33	4822 212 00724	Screw	94	4822 212 00663	Brake bracket
34	4822 212 00709	Leaf spring	95	4822 212 00662	Tension spring
35	4822 212 00766	Ring	96	4822 212 00664	Bracket
36	4822 212 00708	Clamping ring	97	4822 212 00661	Nut
37	4822 212 00707	Friction disc	98	4822 212 00755	Tension spring
38	4822 194 00225	Grommet	99	4822 212 00759	Tension spring
39	4822 213 00436	Shaft	100	4822 212 00687	Bracket
40	4822 212 00812	Pressure-roller lever	101	4822 212 00678	"Stand-by" button
40a	4822 212 00793	Pressure felt	102	4822 212 00677	Spring
41	WT 857 19	Erase head	103	4822 212 00676	Bracket
42	WT 730 47	Pressure spring	104	4822 212 00682	Pressure spring
43	WT 924 52	Nut	105	4822 212 00719	Switch socket
44	4822 213 00439	Tape guide, left	106	4822 212 00754	Tension spring
45	4822 212 00767	Bracket	107	4822 212 00781	Bracket
46	4822 212 00696	Spring	108	WT 740 86	Tension spring
47	WT 820 38	Pressure felt	109	4822 212 00782	Bracket
48	4822 212 00695	Bracket	110	4822 212 00685	Intermediate-wheel bracket
49	4822 220 00348	Screw	111	4822 212 00675	Tension spring
50	4822 212 00692	Bracket	112	4822 212 00669	Bracket
51	4822 212 00693	Plate	113	4822 212 00783	Bracket
52	4822 212 00725	Motor pulley	114	4822 212 00668	Nylon roller
53	4822 068 00754	Screw	115	4822 212 00701	Bracket
54	4822 212 00761	Spring	116	4822 212 00757	Tension spring
55	4822 212 00714	Mains switch bracket	117	4822 212 00686	Intermediate wheel
56	4822 212 00715	Knob	118	4822 212 00683	Tension spring
57	4822 212 00768	Switch	119	4822 212 00784	Bracket
58	WT 881 66	Pressure roller	120	4822 212 00702	Knob
59	4822 212 00688	Flywheel bearing	121	4822 213 00506	Brake shoe
59a	4822 212 00798	Ring	122	4822 212 00771	Brake bracket
60	WT 730 47	Spring	123	4822 212 00704	Leaf spring
61	4822 212 00728	Record/play-back head	124	WT 741 39	Tension spring
62	4822 212 00769	Nut	125	4822 212 00684	Intermediate wheel
63	4822 212 00772	Tape guide	126	4822 212 00697	Bracket
64	4822 212 00691	Tension spring	127	4822 212 00699	Tension spring
65	WT 924 58	Nut	128	4822 212 00659	Tension spring
65a	990/3,5x35	Bush	129	4822 212 00698	Bracket
66	WT 575 06	Isolating piece	130	4822 212 00678	Push-button(white)
67	WT 924 52	Nut	131	4822 212 00681	Push-button (red)
67	4822 213 00438	Tape guide (right)	132	4822 212 00786	Bracket
68	4822 212 00726	Drive cord	133	4822 212 00787	Bracket
69	4822 208 00289	Cover			
70	4822 212 00773	Intermediate wheel			
71	4822 212 00756	Tension spring			
72	4822 212 00758	Tension spring			

Pin A for switches, see Fig. 21.
4822 212 00796

LIST OF ELECTRICAL PARTS

R34	E 097 AC/100K
R54	916/6L4K+16K+916/01
R57	916/6E1M+916/01
C36	AC 5407/50+50+50
T1	4822 211 01029
T2	4822 211 01031
L1	4822 211 01032
L2	4822 211 01033
GR1	0A70
GR2	B 250 C 100TD

GR3	B 30 C 50
SK0	F 071 AA/01
SK1	4822 212 00788
SK2	4822 212 00789
SK3	4822 212 00791
SK4	4822 212 00792
BU3	979/6
BU6	978/2x4
Plug	for BU6 979/S 2x4



List of parts

<u>Pos.</u>	<u>Code number</u>	<u>Nomenclature</u>			
1	V3 115 73	Housing (assembly)	16	V3 579 57	Switch (assy)
4	V3 218 44	Disc (rubber)	18	C 280 AA/P100K	Capacitor
6	EL 6084/10	Microphone button	19	B 305 00A/1K2	Miniature carbon resistor 0,1 W, 1200 Ω, 10 %
7	V3 218 43	Ring (rubber)			
8	V3 744 70	Hinge (assembly)	20a	4822 076 00251	Flex
			20b	978/3x180	Plug

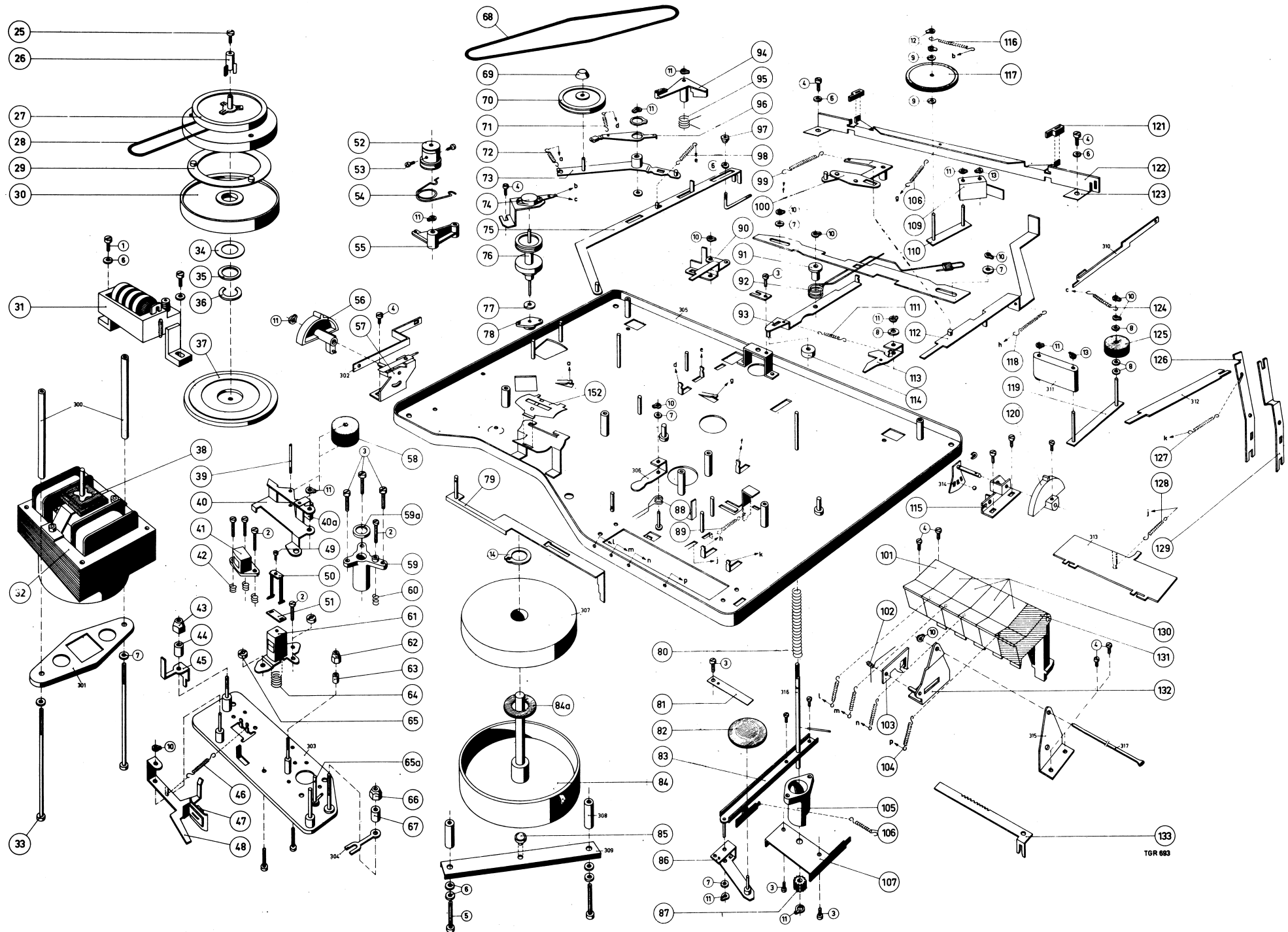


Fig.5

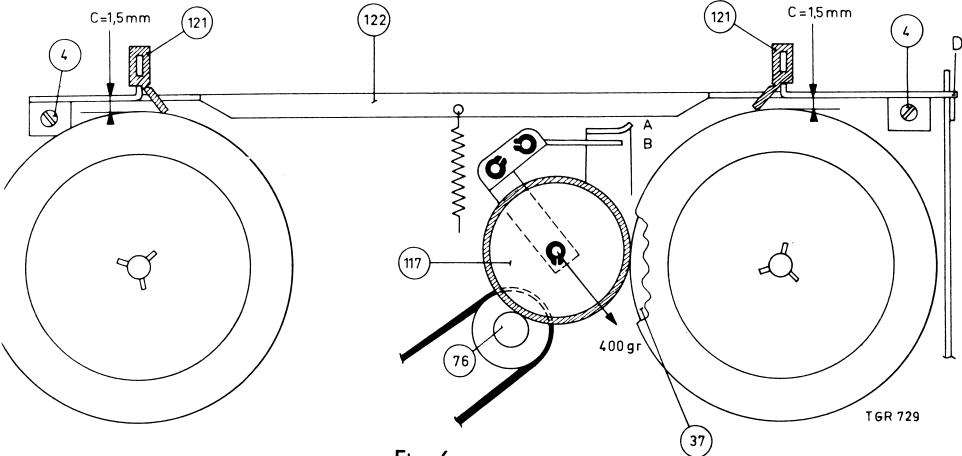


Fig. 6

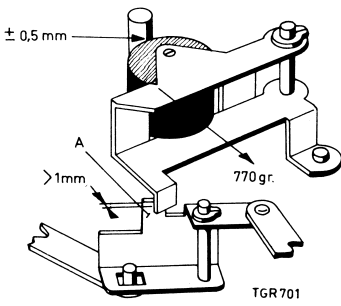


Fig. 7

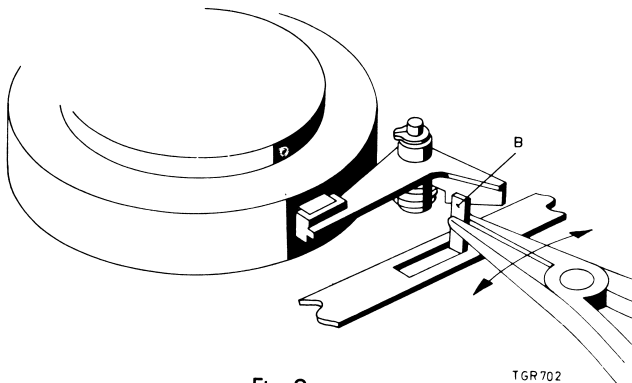


Fig. 8

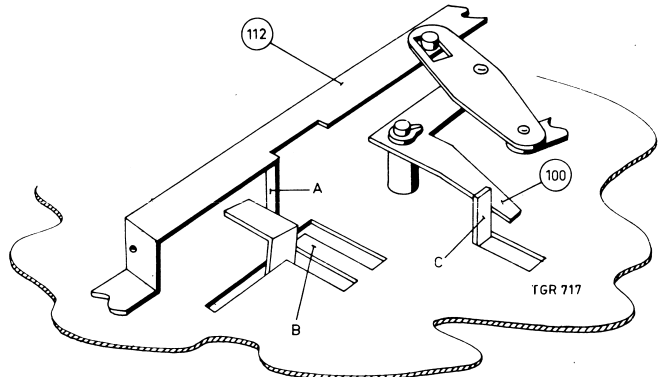


Fig. 9

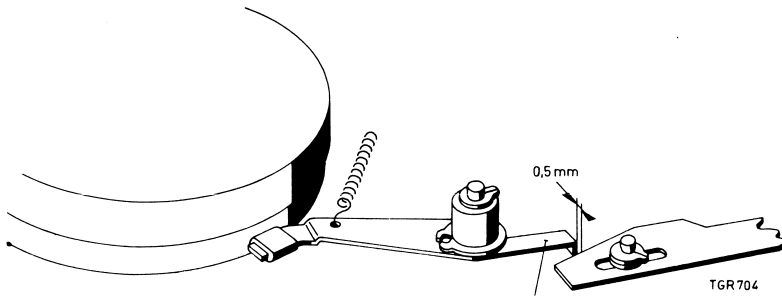


Fig. 10

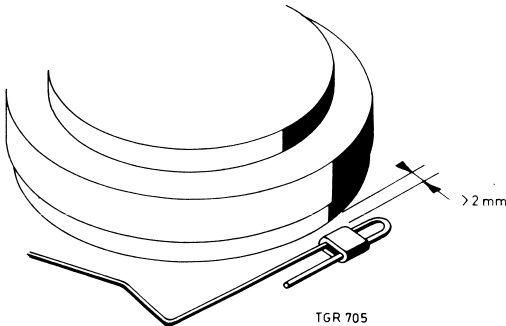


Fig. 11

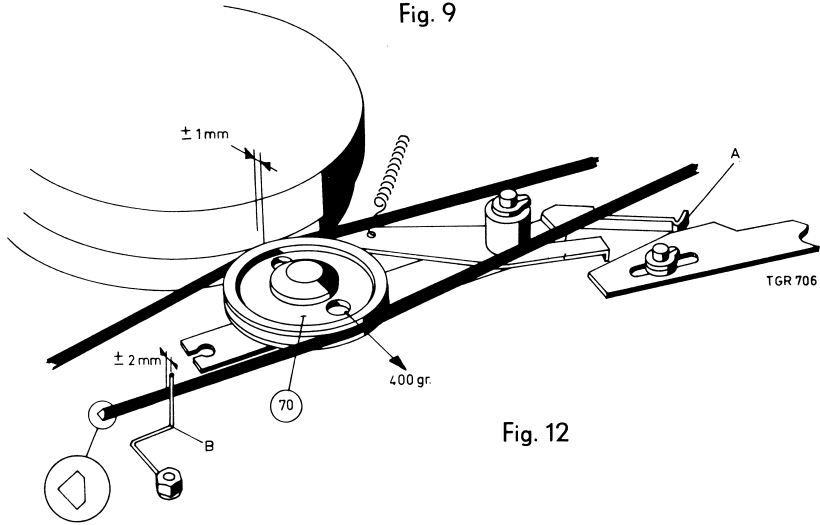


Fig. 12

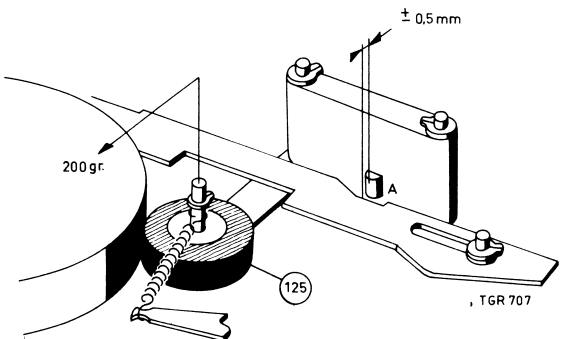


Fig. 13

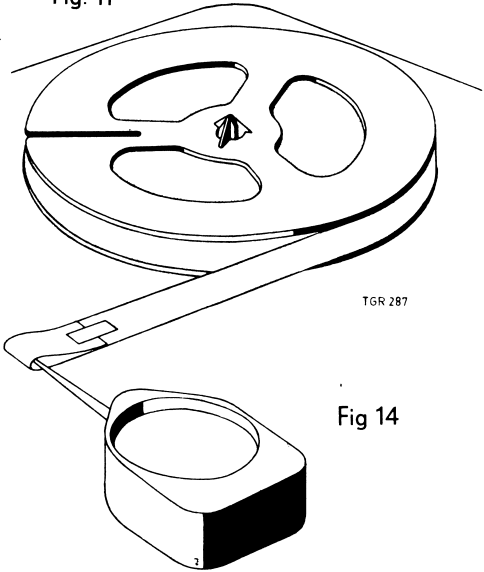


Fig. 14

Speed selector, see Fig. 15

Switch on the apparatus and set it to position "2.4 cm/sec.".

The distance from tag A to the intermediate wheel bracket, item 86, should then be about 1 mm.

Adjust by bending tag A.
In position "19 cm/sec.", the distance between tag B and the intermediate wheel bracket should also be about 1 mm.

Adjust by bending tag B.

Check : When switching over from "2.4 cm/sec." to "19 cm/sec.", the intermediate wheel should be properly lifted across all pulley stages. Furthermore, the intermediate wheel should run approximately in the centre of the relevant pulley stage at all speeds.

Adjusting the tape transport, see Fig. 16

The top bearing of the capstan is factory adjusted so that even with an 18 μ -tape there is no distortion of the tape at the tape guide.

Adjusting the bearing after replacement, see Fig. 16 and 17

- Insert an 18 μ -tapes (test tape 4822 215 00898) and switch on the apparatus.
- Loosen screws C for only one 90° turn.
- Then, turn in screw A so far that the tape becomes deformed at the bottom of the tape guide, see Fig. 17.
- Turn back screw A, until the tape snaps back into the tape guide.
- Then, turn the screw another 120°.
- Slightly tighten the lock-screw and screws C.

Replacing the record/play-back head, see Fig. 18

- Unsolder the connections.
- Loosen screw, item 49, and remove the bracket, item 50, and the plate, item 51.
- The head can then be removed.

Mounting is effected in reverse order.

Height adjustment of record/play-back head, see Fig. 19

For this, the 1 kc/s signal of the test tape is used. Switch on the apparatus on track 1-4. Tape speed 9.5 cm/sec.

Then adjust the height by means of the nut, item 65, so that the signal is just converted into noise while the volume control is at maximum.

Asimuth alignment of the recording/play-back head, see Fig. 18

For this the 13 kc/s signal of the test tape is used. Turn the screw, item 2, so that a maximum signal is measured.

Adjusting the erase head, see Fig. 19

By means of screws item 2, adjust the erase head so that the top of the upper coil core is level with the top of the tape.

Replacing the switches, see Fig. 20

- Open the switch by means of a screwdriver.
- Unsolder the contact springs.
- Mount a new switch.
- One of the ends of the switch has a ridge A which should be located at the side of the recess in the print.

Replacing the sliders of SK1 and SK4

These cannot be pulled out of the switch; first spindle A, see Fig. 21, should be unscrewed. The slider can then be pulled out toward the rear.

Note : Never pull out in the opposite direction as this damages the contact springs.

Switch adjustments

SK1, see Fig. 21

No buttons depressed; the switch should then be set to the indicated position.

Adjustment : by bending the bracket, item 126.

Check : see Fig. 22. Depress the record button; the switch should then be set to the indicated position.

SK2

Switch on the apparatus at "19 cm/sec."; the switch should then be as shown in Fig. 23. This can be adjusted by moving the toothed bracket, item 133, one or more teeth.

Fine adjustment is effected by bending the toothed bracket in the indicated direction.

Check : Switch over to "2.4 cm/sec.", the switch should then be as shown in Fig. 24.

SK3

Depress the "play-back" button; the switch should then be in the indicated position, see Fig. 26. Adjust by bending tag A on the bracket, item 112, see Fig. 9.

Check : No buttons depressed; switch should be as indicated in Fig. 27. Adjust by bending tag B in the mounting plate, see Fig. 9.

SK4

Switch to track 2-3; the switch should be as shown in Fig. 28. Adjust by bending the bracket, item 129.

Check : Switch to track 1-4; switch as shown in Fig. 29.

Pressure roller lever, see Fig. 7

The pressure exerted by the pressure roller should be 770 gr. \pm 20 %.

Pressure felt

The pressure exerted by the pressure felt against the record/play-back head, should be 30 gr. \pm 10 %, as measured in Fig. 30.

Adjusting the reel disc height

The reel disc height can be adjusted by fitting rings underneath friction disc item 37. The adjustment should be effected so that the tape is exactly in the centre of the reel.

Note : The steel ring underneath the friction disc should be at the side of the mounting plate.

Drive-wheel, item 117

Switch on the apparatus in "play-back" position; the drive-wheel, item 117, should then run between the reel and the pulley, item 76, with a force of 400 gr. \pm 15 %, see Fig. 6.

Drive-wheel, item 70

Switch the apparatus to position "rewind". The force by means of which the drive-wheel presses against the reel, should be 400 gr. \pm 15 %, see Fig. 12.

Intermediate wheel, item 82

Switch the apparatus to a speed of 2.4 cm/sec. The force, measured at point C, should be about 250 gr., see Fig. 15.

Cut-out relay

The force by which the cut-out relay releases the buttons, should be 450 gr., \pm 20 %.

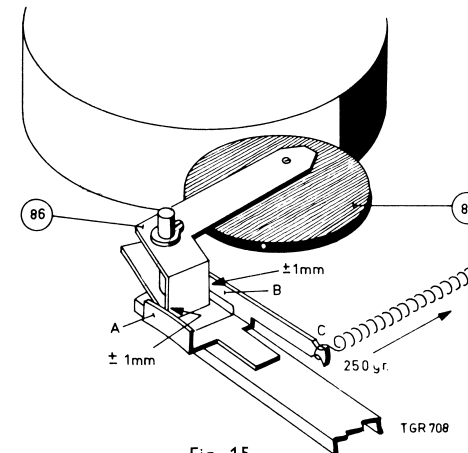


Fig. 15

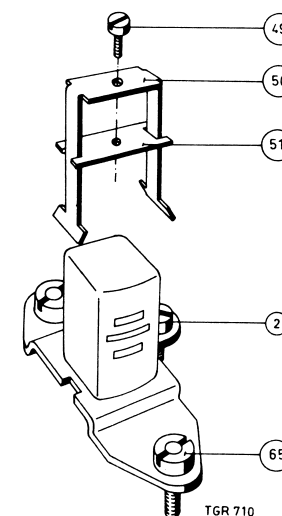


Fig. 18

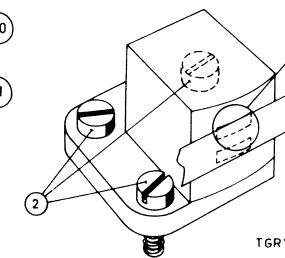


Fig. 19

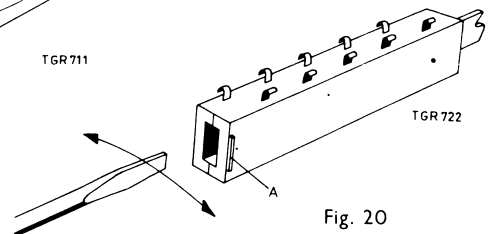


Fig. 20

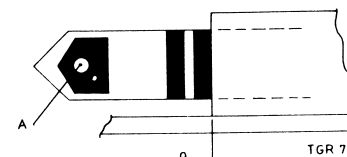


Fig. 21

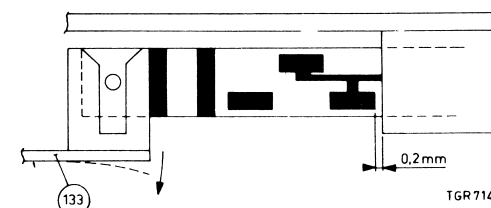


Fig. 23

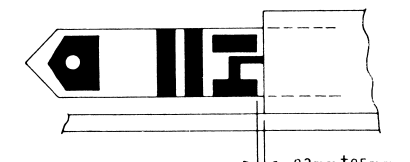


Fig. 22

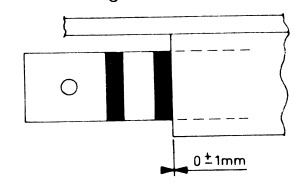
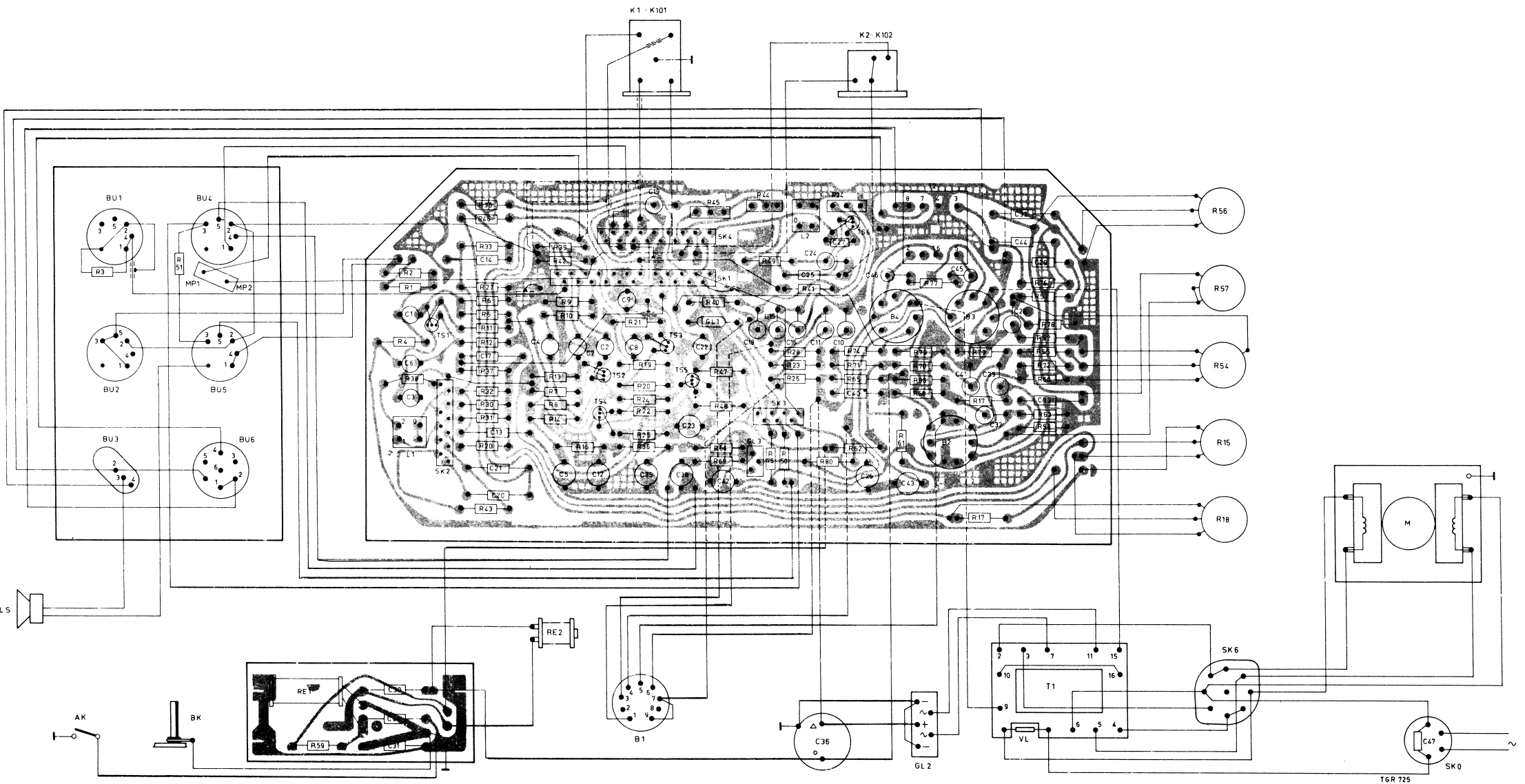
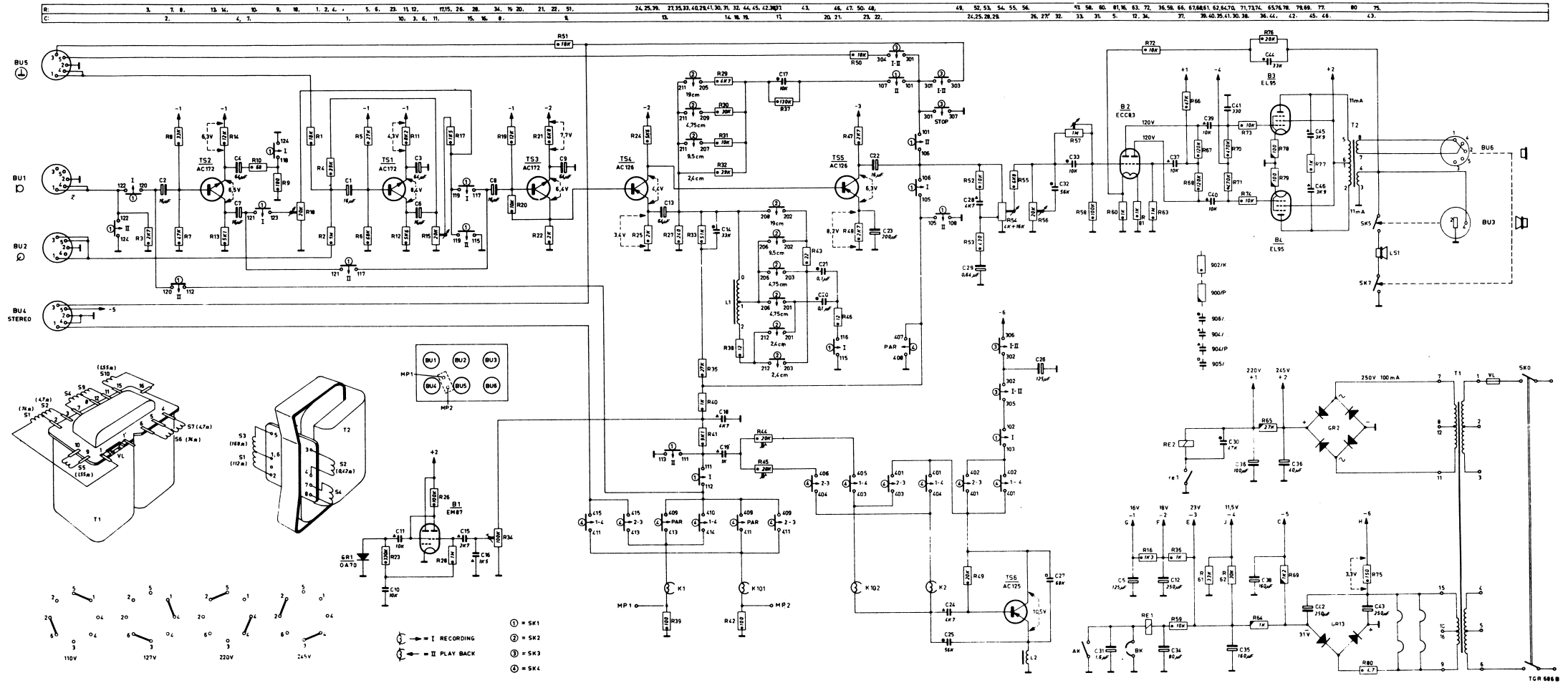


Fig. 24





P22-9 PHILIPS MODEL EL3556A

Electrical adjustments and measurements

Measure at point MP1 for track 1-4.
Measure at point MP2 for track 2-3.

Sensitivity recording amplifier

Pick-up input

- Control "Radio/P.U." fully open.
- Control for "Play-back" closed.
- Control for "microphone" closed.
- Depress the "record" button.
- With a signal generator, apply a 1 kc/s signal so that the voltage on MP1-MP2 is 15 mV. The voltage indicated by the signal generator should then be 95 mV \pm 2 dB.

Diode input

- Control "Radio/P.U." fully open.
- Control for "play-back" closed.
- Control for "microphone" closed.
- Depress the "record" button.
- With a signal generator, apply a 1 kc/s signal (via a circuit as is shown in Fig. 25), so that the voltage on MP1-MP2 is 15 mV. The voltage supplied by the signal generator should then be 175 mV, \pm 2 dB.

Microphone input

- Volume control for "microphone" fully open.
- Volume control for "play-back" closed.
- Volume control for "Radio/P.U." closed.
- Depress the "record" button.
- With a signal generator, apply a 1 kc/s signal (via a circuit as is shown in Fig. 25) so that the voltage on MP1-MP2 is 15 mV. The voltage supplied by the signal generator should then be 22 mV, \pm 2 dB.

Adjusting the Magic eye

Apply a 1 kc/s signal to the microphone input so that the voltage at MP1-MP2 is 15 mV.
Adjust R34 so that the indicator shows full scale deflection.

Oscillator voltage

This should be about 15 V at 52 kc/s, \pm 10 %, measured at the erase head.

Play-back sensitivity at 250 c/s

- "Play-back" control fully closed.
- "Play-back" button depressed.
- Tape speed 4.75 cm/sec.
- Apply a 250 c/s, 160 mV signal to MP1-MP2 via a 100 k Ω resistor. The voltage at the diode output should then be 1.1 V \pm 1.5 dB.

Adjusting the bias

- Tape speed 9.5 cm/sec.
- "Record" and "play-back" buttons depressed.
- Adjust R44 so that the voltage on MP1 is 58 mV.
- Adjust R45 so that the voltage on MP2 is 58 mV.

Frequency response curve

- Control "Radio/P.U." fully open.
- "Play-back" control closed.

- "Microphone" control closed.
- "Treble" control closed.
- Connect the signal generator to the pick-up input.
- At the various speeds, measure various frequencies in the frequency range of the following table:

Tape speed	Frequency range
2.4 cm/sec.	60 - 4,500 c/s
4.75 cm/sec.	60 - 10,000 c/s
9.5 cm/sec.	60 - 15,000 c/s
19 cm/sec.	40 - 18,000 c/s

The frequencies to be measured should be measured at MP1-MP2 with a voltage of 75 mV. Measure via a circuit as shown in Fig. 25.
Only depress the "record" button for adjusting this voltage.

- Set the apparatus to position "play-back".
- Across it, measure the recorded frequencies.
- The voltage at the diode output should be within a range of 6 dB.

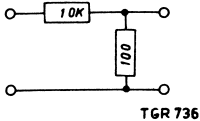


Fig. 25

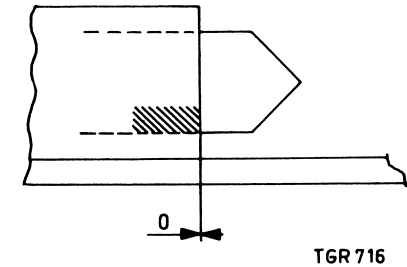


Fig. 26

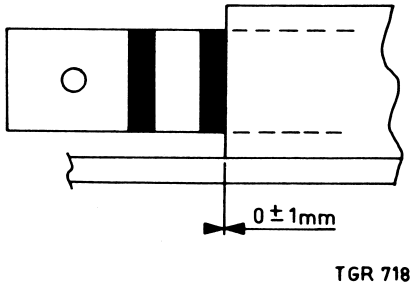


Fig. 27

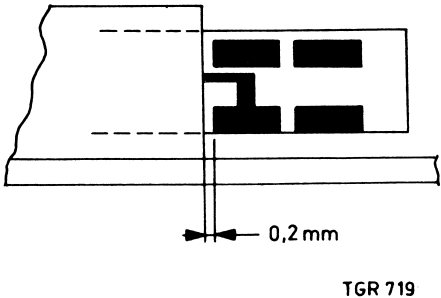


Fig. 28

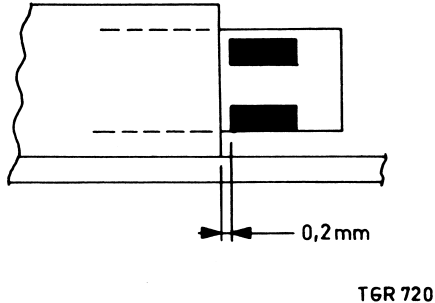


Fig. 29

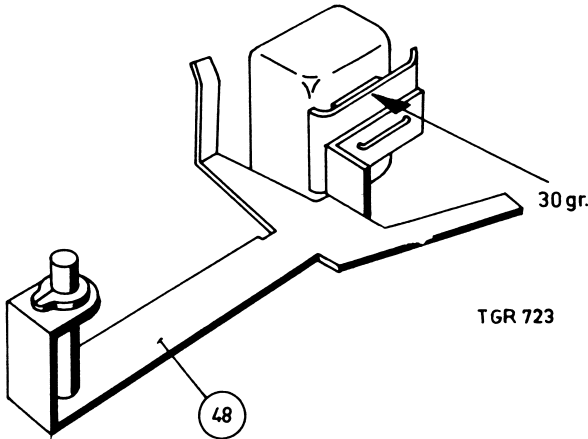


Fig. 30

PHILIPS *Service* INFORMATION

PHILIPS MODEL EL3556A

P22-10

21-9-1965	EL 3556	Bc 562
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Starting with number WR01 the connections of transformer T1 have been changed. These are now as shown in Fig. 1.
Starting with number WR02, the recording-/playback head and its mounting have been changed.
When mounting a new head, mounting plate item 153 should also be replaced, see Fig. 2.

Code number new recording-/playback head : 4822 212 00957
Code number mounting plate : 4822 212 00959
Code number of Re1 : 4822 212 00816
Code number of Re2 : 4822 212 00655

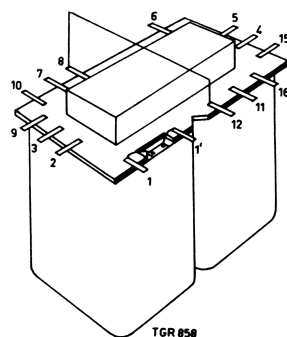
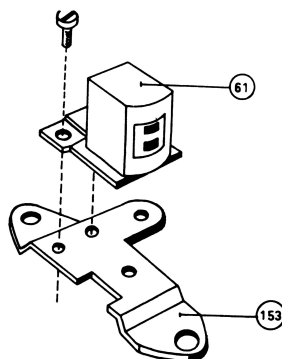


Fig. 1.



TGR 861

8-10-1965	EL 3556	Bc 581
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Re : Circuit diagram

For improving the bass control, C33 has been changed to 2K7.
In connection with standardization, R44 and R45 have been changed to 22 K.
Please change the voltage value across R48 to 7.7 V.

15-1-1966	EL 3556A All versions	Bc586
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Starting with marking WR02, week 48, the following changes have been made in the EL 3556A:

- To simplify the adjustment of the intermediate wheel item 82, bracket item 83 has been modified as shown in Fig. 1. The intermediate wheel can now be adjusted by bending tag A slightly to the left or to the right. The old bracket and the new one may be interchanged.
- To prevent that the intermediate wheel item 82 is affected by grease, a felt ring has been fitted around the thrust bearing. However, for this the thrust bearing had to be raised and consequently, leaf spring item 81 also. This spring now has become a bracket. At present, the construction is as shown in Fig. 2. Both intermediate wheels cannot be interchanged. Therefore, when mounting a new intermediate wheel, leaf spring item 81 should also be replaced by the new bracket item 81. Code number new intermediate wheel item 82: 4822 212 00956
Code number bracket item 81 : 4822 212 00955

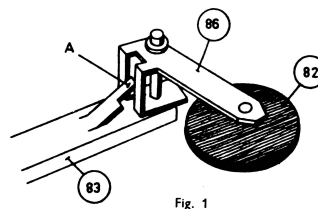


Fig. 1

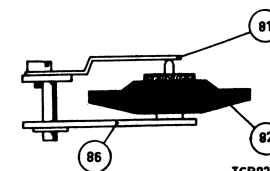


Fig. 2

TGR929

1-4-1966	EL 3556	Bc 587
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The pressure felt, item 40 a, has been cancelled, starting from marking WR03. A bracket with spring has been introduced instead.

This new bracket is not supplied separately, but it is assembled with the pressure roller lever, item 40.

The code number of the new pressure roller lever and bracket is : 4822 212 00954

The code number of the spring between the bracket and the pressure roller lever is : 4822 212 00756.

The code number of the pressure felt on the bracket is : WY 820 38.

The two pressure roller levers are interchangeable.

Besides, to improve the frequency response curve, R43 has been changed from 22 Ω into 33 Ω (code number of R43 is: 902/K33) and R46 has been cancelled.

1-5-1966	EL 3556	Bc 588
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In view of standardisation, a new erase head and new tape guides have been applied in these recorders from marking WR03 onwards. These parts cannot be interchanged with those of apparatuses with a marking before WR03.

In connection with this construction, spring, item 42, and screws, item 2, are deleted.

Code number of new erase head, item 41 : 4822 249 40033.
Code number of new tape guide, left, item 44 : 4822 212 00853.
Code number of new tape guide, right, item 67 : 4822 212 00855.
Code number of the new tape-guide nuts, item 43 and 66 : 4822 212 00856.
Code number of spring B under left tape guide : 4822 212 00857.

Adjusting the new erase head, see Fig. 1

The new erase head can be adjusted by bending lug A up or down. The erase head is adjusted till the top of the core of the upper coil is flush with the top of the tape, see Fig. 2.

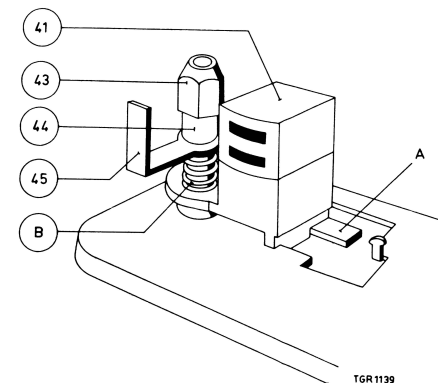


Fig. 1

TGR 1139

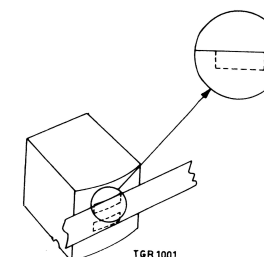


Fig. 2

TGR 1001

P22-11

PHILIPS MODEL EL3556A

15-8-1966

EL 3556A

Bc 602



As from stamp WR04 10/66 the erase head is equipped with a pressure felt, to prevent looping. In view of this pressure bracket, item 48, has been completely modified so, that a bracket as shown in Fig. 1 is obtained. This construction (items 180 + 48) can also be applied in apparatuses previous to WR04 10/66.

Code number bracket item 48	4822 403 20015
Code number bracket item 180	4822 403 40025
Code number pressure felt item 183	4822 212 00861
Code number spring item 181	4822 492 40234
Code number pressure felt item 179a	WY 820 38
Code number clamping ring item 182	4822 175 01168

As from WR04 12/66 items 25 and 26 are cancelled and now form an assembly with turntable item 27.

Code number new turntable item 27, 4822 528 10125.

As from WR04 36/66 resistor R401 has been replaced by an OA70 diode. This is in view of the near-closure of tuning indicator B1.

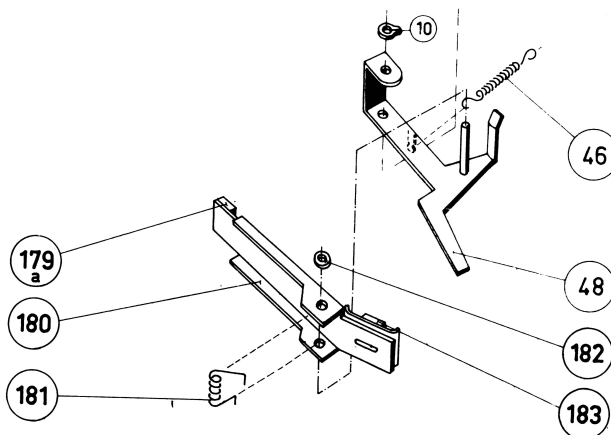


Fig. 1

TGR 1307

26.7.1966

EL 3556

Bc 643



The code numbers of the following parts in the list of electrical parts have been changed.

C36 was AC 5407/50+50+50; will be 4822 124 30068

BU3 was 976/5 ; will be 979/S2x4

BU6 was 976/2x4 ; will be 978/6

To the list of parts should be added:

<u>Item</u>	<u>Code number</u>
R44-R45	4822 101 10074
R15-R18-R56	4822 071 00814
VL: fuse	A3 425 53
C3, C4, C9	909/U64
C1, C2, C6, C7, C8, C22	909/X16
C34, C35, C38	909/C160
C5, C26	909/W125
C 31	909/C1.6

Moreover, the code number of the counter belt, item 28 has, been changed from 4822 163 01073 into 4822 358 30053.

1-6-1966

EL 3556

Bc 652

Re: Loudspeaker

The loudspeaker, supplied for service purposes, has been provided with a foam plastic edge. It can, consequently, be mounted so close to the loudspeaker board that the cone can touch this board.

This can be prevented by mounting the loudspeaker with 4 spacers, having a length of 4.5 mm. These spacers can be made from the service standard spacers: 990/4.5x35.