Note: The screening plate should properly lie against the head screening of the head.

B5. Rollers 64.

The left-hand roller must be so adjusted that the distance between lower side guide bracket and mounting plate is 16.3 mm. At the right this distance must be 16.5 mm.

B6. Pressure roller 66B.

The pressure of the pressure roller against the capstan must be about 800 gr. (see fig. 6).
The force with which the pressure roller draws the tape through the apparatus must be > 500 gr. (see fig. 7)
This can be adjusted by:

a. Degreasing the bearing surface of the pressure roller and the capstan.
b. b. Cleaning the bearing of the pressure roller and greasing it again.
c. Increasing the pressure of the pressure roller to max. 1000 gr.

B7. Reel discs 94 and 95 and coupling wheels 89

Check whether the brackets 87 and 88 have a stroke of 1.5-2 mm (see fig. 8).
Check whether the tape runs freely through the guide brackets.
If this is not the case then the height of the reel disc must be adjusted by means of a filling ring under the friction disc 93 or 126.
These rings are supplied under no. A9 868 66.
A9 868 66 consists of 150 rings of different thicknesses at a diameter of 4 mm.
Now check whether the reel disc is 0.8-1.2 mm above the vulcolan plugs of the coupling wheel.
If this is not the case then the coupling wheel must be brought. at the correct level by means of the filling ring. These filling rings are supplied under code no. A9 868 65. This code number consists of 150 rings of different thicknesses at a diameter of 6 mm.

B8. Friction discs 93 and 126.

The friction between the felt and the friction disc must be for the left reel disc turning anti-clockwise 12 ± 2 gr.
For the right-hand reel disc it should to Anti-clockwise 18 ± 2 gr.
clockwise 23 ± 2 gr.
This must be measured with a full 5" reel with a radius of 60 mm.
These frictions are to be adjusted by degreasing the felt and friction disc with carbon tetrachloride.

B9. Brakes.

In the stock position the distance between the locking bracket 43 and the brake rod 98 must be > 0mm (see fig. 9).

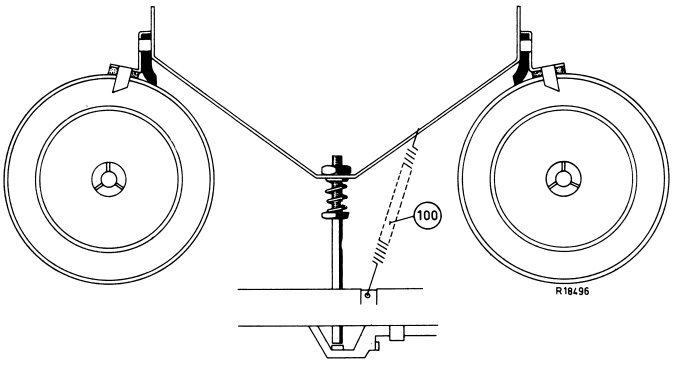


Fig.10

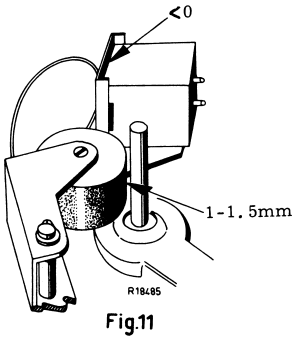


Fig.11

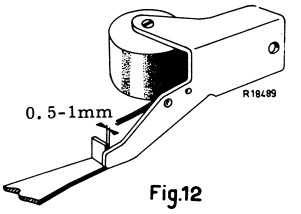


Fig.12

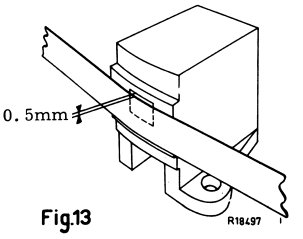


Fig.13

In the positions fast forward/rewinding or recording/playback the brake blocks must be removed about 1 mm. from the reel discs. This can be adjusted with the nuts 99.
The brake force of the right-hand brake must be 150 gr. turning clockwise and 75 gr. anti-clockwise.
The brake force of the left-hand brake is 50 gr. clockwise and 150 gr. anti-clockwise.
The above forces must be measured with a full 5" reel at a radius of 60 mm.
The adjustment of the brake forces can be done by:

a. Rehooking the spring pos. 100 (see fig. 10)
b. Greasing the brake blocks and brake surfaces.

When the rubber brake shoe is worn off the brake felts at the side of the rubber must be shortened a little.

B10. Quick stop.

When depressing the quick stop the pressure roller 66b must be lifted about 0.8 mm. from the capstan in the position recording or playback (see fig. 11).
In the rest position the bracket 109 must be free from the pressure roller lever (see fig. 12).
The brake force exerted on the left-hand reel disc by depressing the quick-stop must be 35 to 70 gr. turning anti-clockwise. This force must be measured with a full 5" reel at a radius of 60 mm.

B11. Motor Pos. 140.

The air gap between rotor and stator is 0.2 mm. The rotor can be centred by means of 3 spacing gauges. These spacing gauges are supplied under code no. A9 600 22.

B12. Erasing head.

With the screws 52 the erasing head must be so adjusted that the core of it protrudes 0.5 mm above the tape (see fig. 13).

Check:
a. Record and signal of 1000 c/s with an input voltage of 100 mV on Bu1, whilst R11 is on maximum.
b. Play back this signal and adjust the output voltage at Bu4 to 1 volt with R11.
c. Turn the tape upside down and erase the track which lies opposite the track recorded under a.
d. Turn the tape upside down again and play back the track recorded under a.
The output voltage must be > 850 mV. If this voltage is too small then the erasing head must be put somewhat higher.
e. Erase the track recorded under a.
f. When reproducing this nothing should be heard. If this is the case then the head stands a little bit too high and the above adjustment must be repeated.

C. Greasing instructions.

Grease with watchmakers' oil: X 007 12.

Reel disc shafts pos. 125-90.
Bearing of stretching wheel plate pos. 16 in mounting frame pos. 1
Bearings of the push buttons 75 and 78 on shafts pos. 73.
Shaft of pressure roller 66b.

Grease with calypsol oil A9 869 30.

Lower and upper bearing of the motor pos. 140.

Grease with calypsol grease A9 869 45.

Space around the flywheel bearing pos 2 and pos 45.
Reel disc bearing chamber pos. 94 and 95.
Space between the two pressure roller bearings pos. 66b.
Fill grease pot of the stretching wheel pos. 18.

Grease with Shell Alvania EP2 X 803 59.

Rotating points of the pressure roller lever 66.
Rotating point of the control lever for SK4 (pos. 109).
Rotating points and friction surfaces of the quick-stop lever pos. 107 and 109.
Friction surfaces of the brake bracket pos. 97 and rod 98.
Friction surfaces control bracket pos. 50.
Sliding surfaces of the locking bracket pos. 43.
Friction surfaces of bracket pos. 70.
Rod pos. 106.
Bearings and friction surfaces of bracket pos. 83.
Bearing points and friction surfaces of the brackets 88 and 87.
Slide bracket pos. 60 under recording playback/head.
Shaft of the recording key.
Switching off pin.

D. Rebuilding instructions from 50 to 60 c/s.

Electrical.

For the electrical connections to 60 c/s see fig. 14.
At 60 c/s the motor must be connected to a higher voltage in order to compensate the coupling loss with respect to 50 c/s.

Attention: Since the motor is not switchable without soldering after reconstruction, it is recommended to solder home the voltage adaptor to 1 pin.

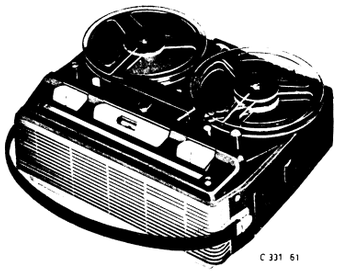
Mechanical.

The motor cord disc of 50 c/s must be replaced by a 60 c/s cord disc. When mounting this cord disc be careful that it is mounted on the correct level.

PHILIPS *Service*

notes

Recorder



PHILIPS TECHNICAL DATA MODEL EL 3515-00-01-04-06

Specification.

EL 3515-00 Complete with cord, microphone, tape and empty reel, suitable for 110-245 V - 50 c/s.
EL 3515-01 As /00 however for 60 c/s.
EL 3515-04 As /00 however with three core mains cord.
EL 3515-06 As /00 however according to Semko prescriptions.

Technical Data.

Tape speed	: 9,5 cm/sec. ($3\frac{3}{4}$"/sec.)
Power consumed	: about 60 Watt.
Dimensions	: 350 x 300 x 170 mm
Weight	: about 8 kg.
Reel diameter	: up to 18 cm (7")

Valves.

B1 : EF86	Pre-amplifier
B2 : ECC83	Pre-amplifier
B3 : ECL82	Pre-amplifier + oscillator output valve
B4 : EM84	Modulation indicator
B5 : EZ80	Rectifier

The headphone EL 3992-10 can be connected to the output Bu3.

Microphone	: EL 3750-00/EL 3751-00/EL 3753-00
5" reel with 180 m tape	: EL 3915
Empty 5" reel	: EL 3912-03
5" reel with 260 m tape	: EL 3915-50

Division of the documentation.

A. List of figures.
B. Adjustments of the mechanism
C. Greasing instructions
D. Prescriptions for rebuilding from 50-60 c/s and vice versa
E. Checking measurements at the amplifier
F. The exchange of the EM 84 (modulation indicator)
G. List of service parts.

A. Figures.

Fig. 1-13 Figures for elucidating the adjustment and the alignment.
Fig. 14 Connecting diagram for modification from 50 to 60 c/s
Fig. 15 Connections and controls
Fig. 16 Circuit diagram in the position playback
Fig. 17 Circuit diagram in the position recording
Fig. 18 Circuit diagram in the position microphone and pick-up amplifier
Fig. 20 Wiring diagram and drawing of the printed circuit
Fig. 21 Top view of the recorder
Fig. 22 Exploded view of the mechanism
Fig. 23 Exploded view of the plate 39 with heads and pressure roller
Fig. 24 Exploded view of the push buttons
Fig. 25 Exploded view of the motor

B. ALIGNMENT OF THE MECHANISM.

1. Cord 96 and stretching wheel 18
2. Flywheel 36 and bearings 12 and 45
3. Recording playback head pos. 57
4. Pressure felt 60 against recording playback head
5. Roller 64.
6. Pressure roller 66b
7. Reel discs 94 and 95 and coupling wheels 89
8. Friction discs 93 and 126
9. Brakes
10. Quick stop
11. Motor pos. 140
12. Erasing head

B1. Cord 96 and stretching wheel 18.

It must be possible for the stretching wheel to make one turn of 10 mm before the stretching wheel bracket comes against the stop cam. (See fig. 2)
If this stroke is too small and the cord tension as described hereunder good then the cord is too much extended and must be replaced.
In a working apparatus the cord must have a tension of 500 to 600 gr.
This can be measured by removing the cord and then repushing the stretching wheel 18 near the spindle with a dynamometer to the place where the stretching wheel is in working condition.
Now the dynamometer should indicate 500-600 gr. (see fig. 1).
The height of the stretching wheel must be so adjusted that the cord runs over it without twisting or wringing.

B2. Flywheel 36 and bearings 12 and 45.

The flywheel must be so adjusted that the tape is drawn close along the heads 57 and 141 without wringing. This can be adjusted by displacing the plate pos. 39, whilst the screws 121 are tightened, but not to the full extent.
When the spindle of the flywheel stands vertically the screws 121 must be screwed home. Then the bearings must be adjusted by tapping with a wooden or plastic cabinet against the bearing housings, whilst the flywheel is turning.
The height must be so adjusted that the groove in the flywheel is on the same level as the grooves in the coupling wheels. This is adjusted with screw 6 (see fig. 3).

B3. Recording playback head pos. 57 (see fig. 4).

Check for this adjustment whether the tape guides are adjusted at the correct height (see B-5)
The head must be so adjusted with the screw A-B-C that the tape runs straight through the guide bracket without wringing.
With the screw B the slot of the head must be adjusted perpendicularly to the tape modulation.
This adjustment has to be carried out with the aid of a special test tape. This test tape has been modulated with 8000 c/s and can be supplied under code No. A9 868 40.

Slot adjustment

- Connect a vacuum tube voltmeter to Bu1.
- Lay the test tape into the apparatus.
- Put the apparatus in the position "playback".
- Now adjust the maximum output voltage with screw B
- After this check whether the tape still runs freely through
- the guide bracket.
- If this is not the case the height adjustment must be repeated.
- After this adjustment it is recommended to seal the screw A-B-C with wax.

It is also recommended to check the adjustment of the erasing head after this (see B-12).

B4. Pressure felt 60 against recording/playback head.

The force with which the pressure felt pushes against the recording/playback head must be so great that it is possible to draw the tape with a force of 15-25 grms along the recording/playback head (see fig. 5).
This pressure can be adjusted by bending the brass bracket on which the felt has been glued.

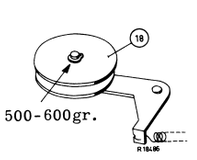


Fig.1

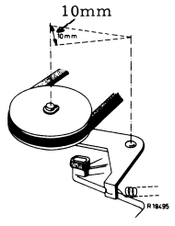


Fig.2

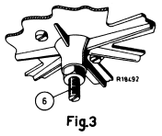


Fig.3

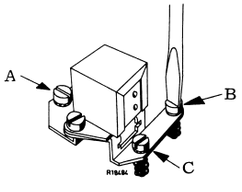


Fig.4

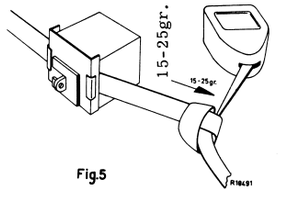


Fig.5

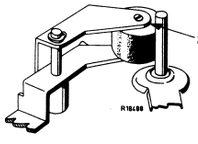


Fig.6

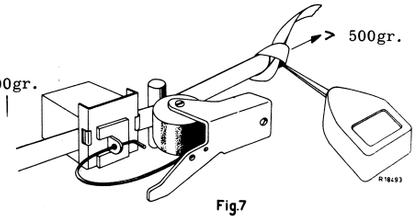


Fig.7

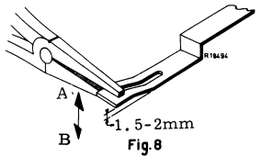


Fig.8

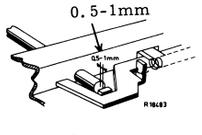


Fig.9

E. Checking measurements to the amplifier.

1. The adjustment of L1.
2. Frequency characteristic of the recording amplifier.
3. Frequency characteristic of the P.U. and microphone amplifier.
4. Frequency characteristic of the playback amplifier via Bu1.
5. Frequency characteristic of the playback amplifier via Bu4.
6. Adjustment of the biasing current.
7. Overall frequency characteristic.

E1. The adjustment of L1.

. Connect a vacuum tube voltmeter to MP.
. Apply a signal of 14kc/s (100 mV) to Bu1.
. Depress key 7.
. Now adjust L1 in such a way with the core, that the
. maximum amplification is near 14 k c/s.
. It is recommended to seal the core after adjustment.

E2. Frequency characteristic of the recording amplifier.

. Close Bu3 with a resistor of 1.5 KΩ.
. Connect a vacuum tube voltmeter to MP.
. Short-circuit the erasing head K2.
. Put the apparatus in the position "recording".
. Turn R11 to maximum and R12 to minimum.
. Apply a signal of 1000 c/s to Bu1.
. Adjust the strength of it so that the vacuum tube voltmeter indicates 4.15 mV.
. Now approximately 24 mV must be on Bu3.
. The input voltage should lie between 20 and 29 mV.
. In the following table the output voltages have been mentioned as a function of the frequency at the input voltage found at 1000 c/s.

f	Vu - MP	Vu - Bu3
60 Hz	3,3 - 4,3 mV	
100 Hz	3,4 - 4,35 mV	
1kHz	4,15 mV	24 mV
6kHz	4,9 - 6,2 mV	
8kHz	6,2 - 7,9 mV	
10kHz	8,9 - 11,3 mV	
12kHz	11,6 - 13,5 mV	
13kHz	19,5 - 25 mV	
14kHz	25,5 - 31 mV	

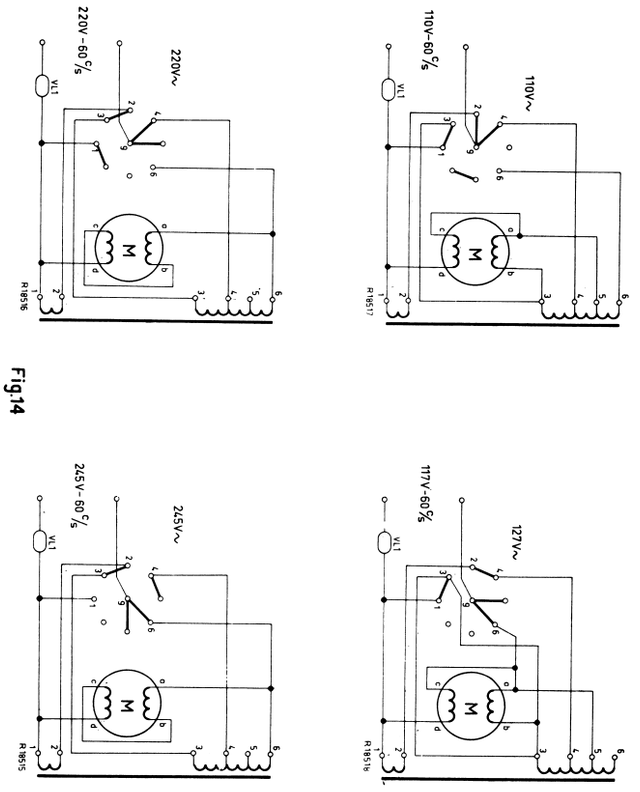


Fig.14

E3. Frequency characteristic of P.U. and microphone amplifier.

. Switch on SK1.
. Connect a resistor of 5.6 Ω to Bu4.
. Connect a vacuum tube voltmeter across it.
. Turn R11 to minimum and R12 to maximum.
. Apply a signal of 1000 c/s to Bu2 point 1 via a potentiometer circuit of 9100 and 910 .
. Adjust the strength of the input signal so that the vacuum tube voltmeter indicates 1 volt.
. The input voltage should lie between 5.1 and 9 mV.
. The output voltage as a function of the frequency has been indicated in the table below.
. As an input voltage the value found at 1000 c/s must be used.

f	Vu - Bu4 R33 max. hoog	Vu - Bu4 R33 min. hoog
60 Hz	1, 1 - 1,45 V	1, 05 - 1, 7 V
100 Hz	1 - 1,35 V	1, 04 - 1, 63 V
1kHz	1 V	0, 65 - 1, 03 V
4kHz	0,85 - 1,1 V	0, 2 - 0, 32 V
8kHz	0,74 - 0,94 V	0,085 - 0, 14 V
10kHz	0, 68 - 0,87 V	0,072 - 0,113 V
14kHz	0,55 - 0, 7 V	0,048 - 0,075 V

E4. Frequency characteristic of the playback amplifier via Bu1.

. Adjust R33 to maximum treble.
. Turn R11 and R12 to minimum.
. Connect a vacuum tube voltmeter to Bu1.
. Apply a signal of 1000 c/s to MP via a resistor of 47 kΩ.
. Switch the apparatus in the position playback.
. Adjust the strength of the input signal so that the vacuum used voltmeter indicates 50 mV.
. The input voltage should lie between 10 - 14.5 mV. In the following table the output voltage has been given as a function of the frequency.
. As an input voltage the value found at 1000 c/s must be used.

f	Vu - Bu1	f	Vu - Bu1
60 Hz	300 - 390 mV	2 kHz	38 - 49 mV
125 Hz	200 - 255 mV	4 kHz	40 - 51 mV
250 Hz	115 - 145 mV	8 kHz	50 - 64 mV
500 Hz	61 - 78 mV	10 kHz	55 - 70 mV
1kHz	50 mV	14 kHz	59 - 76 mV

E5. Frequency characteristic of the playback amplifier via Bu4.

. Turn R11 to maximum and R33 to maximum treble.
. Connect a resistor of 5.6Ω on Bu4.
. Connect a vacuum tube voltmeter across it.
. Apply a signal of 1000 c/s to MP via a resistor of 47 kΩ.

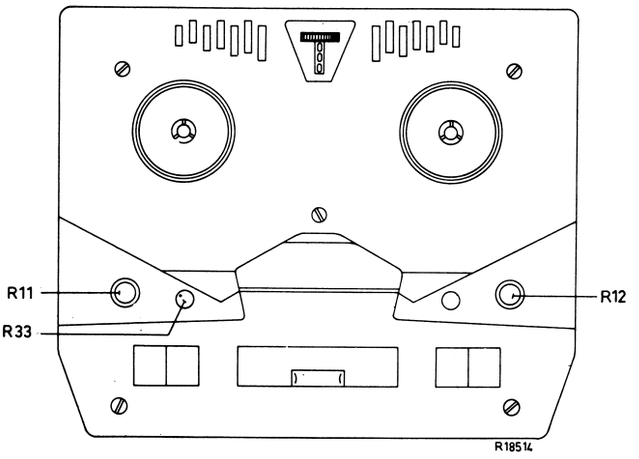
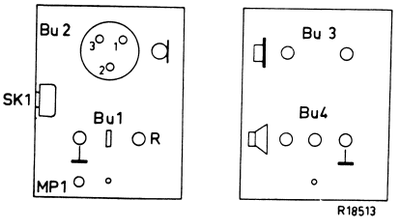


Fig.15



. Adjust this input voltage so that the vacuum tube voltmeter indicates 0.5 volt.
. The input voltage should lie between 23 - 33 mV.
. In the table below the output voltage has been given as a function of the frequency with the value found at 1000 c/s as an input voltage.
. At the frequencies 60 and 125 c/s half the value must be used as an input voltage.

f	Vi - MP	Vu - Bu4
60 Hz)	½(23-33) mV	1, 43 - 1, 8 V
125 Hz)		0, 765 - 0, 97 V
250 Hz)		1, 14 - 1, 44 V
500 Hz)		0, 625 - 0, 79 V
1kHz)		0, 5 V
2kHz)	23-33 mV	0, 39 - 0, 495 V
4kHz)		0, 415 - 0, 52 V
8kHz)		0, 51 - 0, 645 V
10kHz)		0, 54 - 0, 685 V
14kHz)		0, 57 - 0, 72 V

E6. Adjustment of the biasing current.

The biasing current must be so adjusted that the frequency characteristic prescribed under E7 is reached. This is obtained by diminishing the biasing current by means of C14 (see fig. 20). By this the distortion becomes greater, however, and may not exceed 5%. So a compromise must be found between the frequency characteristic and the distortion.
The biasing current should lie between 105 and 280 µA and can be measured on the measuring point as a voltage. This voltage is 50 and 130 mV.
In a single case a capacitor of 56 pF has been mounted between point 27 and Og on the switch SK2 in order to be able to reach the small biasing current of 105 µA.

E7. Overall frequency characteristic.

. Turn R11 to maximum.
. Apply a signal of 1000 cycles with a voltage of 5 mV ± 1% to Bu1.
. Now lay the tape into the apparatus and record frequencies of
. 60 c/s to 13 k c/s.
. In the position playback the output voltage measured at Bu1. should lie within a tolerance of 6 dB with respect to 1000 c/s.
. See for adjustment E6.
. The output voltage at 1000 c/s measured on Bu1 must be 150 mV.

F. The replacement of the modulation indicator.

. Remove the covering cap Pos.250.
. Press the locking bracket Pos. 83 downwards.
. Pull the stop knob Pos. 78 upwards.
. Disengage the clamping spring with which the EM84 has been fixed.
. Replace the valve and mount all in reverse direction.

GL1			OA85	R11	200	kΩ	48 900 00/DL200K
T1			WT 510 94	R12	200	kΩ	916/GL200K
T3			WT 510 96	R13	220	kΩ	902/220K
L1			WT 590 91	R14	270	kΩ	902/270K
C1	120	pF	904/120E	R15	100	kΩ	902/100K
C2	15000	pF	904/15K	R16	820	kΩ	902/820K
C3	50	µF	909/B50	R17	4700	Ω	902/4K7
C4	0,1	µF	906/100K	R18	1,5	MΩ	902/1M5
C5	27000	pF	906/27K	R19	100	kΩ	902/100K
C6	0,1	uF	906/100K	R20	100	kΩ	902/100K
C7	15000	pF	904/15K	R21	100	kΩ	902/100K
C8	5600	pF	904/5K6	R22	390	kΩ	902/390K
C9	120	pF	904/120E	R23	10	MΩ	902/10M
C10	27000	pF	906/27K	R24	12	kΩ	902/12K
C11	50+32+32	µF	A 6027	R25	100	Ω	902/100E
C12	15000	pF	904/15K	R26	100	kΩ	902/100K
C13	0,1	µF	906/100K	R27	220	kΩ	902/220K
C14	0-40	pF	WRC 811 TF/Y40E	R28	470	Ω	901/470E
C15	330	pF	904/330E	R29	100	kΩ	902/100K
C16	27000	pF	906/27K	R30	18	kΩ	902/18K
C17	15000	pF	906/15K	R31	100	kΩ	902/100K
C18	220	pF	904/220E	R32	470	kΩ	902/470K
C19	10000	pF	906/V10K	R33	100	kΩ	48 900 00/GL100K
C20	25	µF	AC 5705/25	R34	1	MΩ	902/1M
				R35	1	kΩ	902/1K
				R36	470	Ω	900/470E
R1	100	kΩ	902/100K	R37	22	kΩ	902/22K
R2	1	MΩ	902/1M	R38	2200	Ω	902/2K2
R3	2,7	MΩ	902/2M7	R39	560	Ω	902/560E
R5	10	MΩ	902/10M	R40	10	MΩ	902/10M
R6	2200	Ω	902/2K2				
R7	220	kΩ	901/220K				
R9	1	MΩ	901/1M				
R10	220	kΩ	901/220K				

G. List of parts.

Pos.	Description.	Code number.
3	P.V.C. ring	A9 868 65
6	Set screw	WT 835 88
7	Recording push button (red)	WT 832 49
8	Pressure spring	WT 730 63
11	Bearing plate	WT 277 17
12	Bearing	WT 265 28
16	Bearing plate for stretching wheel	WT 882 26
17	Ring	A9 868 95
18	Stretching wheel	WT 881 87
19	Clamping ring	984/4
20	Tension spring for stretching wheel	WT 740 91
28	Motor pulley 50 c/s	WT 882 25
28	Motor pulley 60 c/s	WT 882 35
36	Flywheel	WT 886 94
43	Locking bracket	WT 035 76
44	Tension spring	WT 740 86
45	Bearing	WT 265 28
48	Bearing plate	WT 277 88
51	Tension spring	WT 740 87
53	Pressure spring	WT 730 47
56	Pressure spring	WT 730 47
57	Recording playback head K1	WT 854 19
58	Screening	WT 035 81
60	Screen plate	WT 821 88
61	Pressure spring	WT 730 62
64	Roller	WT 458 02
65	Nut	WT 924 52
66a	Pressure roller lever	A9 869 49
66b	Pressure roller	WT 881 66
66c	Shaft	WT 646 12
69	Tension spring	WT 740 92
70	Connecting bracket	WT 943 15
71	Pressure spring for brake	WT 730 65
75	Push button	WT 261 63
78	Push button for switching off	WT 261 64
81	Torsion spring	WT 760 14
82	Tension spring	WT 740 77
89	Coupling wheel	WT 882 24
90	Reel shaft (right-hand)	WT 821 84
92	Tension spring	WT 740 85
93	Clutch disc	WT 886 55
94	Reel disc (right-hand)	WT 961 53
95	Reel disc (left-hand)	WT 961 50
96	Driving cord	WT 496 04
97	Brake bracket	WT 822 97

Pos.	Description.	Code number.
100	Tension spring	WT 740 89
101	Counter	WT 898 19
102	Drive cord	WT 495 21
105	Pressure piece	WT 678 96
107	Quick-stop bracket	WT 944 14
109	Switch lever	WT 045 85
114	Tension spring	WT 740 90
115a	Socket plate	WT 865 49
115b	Indication plate	WT 937 20
124	Pressure strip	WT 886 92
125	Reel shaft)left-hand)	WT 821 95
126	Clutch disc	WT 477 97
130	Profile spring	WT 765 45
132-133	Ring P.V.C.	A9 868 65
135-136	Ring P.V.C.	A9 868 66
140	Motor	JW 304 90
140a	Upper bearing	49 916 37
140b	Lower bearing	49 916 36
140c	Ball	971/67
141	Erasing head K2	WT 854 18
204	Ornamental cap	WT 252 18
205	Bottom (complete)	WT 251 95
205a	Rubber base	WRB 976 YY/850
209	Cover for cord space	WT 854 40
210	Knob	WT 261 52
210a	Clamping ring for knob	WRB 903 TT/7/32"
211	Knob	WT 261 54
211a	Clamping ring for knob	WRB 903 TT/7/32"
212	Ornamental screw	WRB 801 UT/4x8
213	PVC cap for reel disc	WT 251 64
217	Brace	WT 835 90
218	Cover. (complete)	WT 251 93
221	Bracket for brace (right-hand)	WT 251 87
222	Bracket for brace (left -hand)	WT 251 88
224	Indication strip	WT 697 19
250	Case	WT 242 26
252	Ornamental grill	WT 912 53
253	Clamping nut for ornamental grill	B 013 AD/2
257	Locking (left-hand) in cover	WT 045 87
258	Locking (right-hand) in cover	WT 045 88
301a	Socket plate	WT 865 47
301b	Indication plate	WT 937 22
301c	Voltage adaptor	WT 886 86
305	Locking hook	WT 937 19
306	Profile spring	WT 765 44
307	Slide knob for SK1	WT 896 65
308	Tension spring	WT 740 93
355	Pin for switching off	WT 001 74
	Miscellaneous.	
	Loudspeaker	AD 1400 W/01
	Slide switch SK1	WT 886 70
	Slide switch SK2	WT 886 71
	Slide switch SK4	WT 886 72
	Core of the coil L1	56681 53

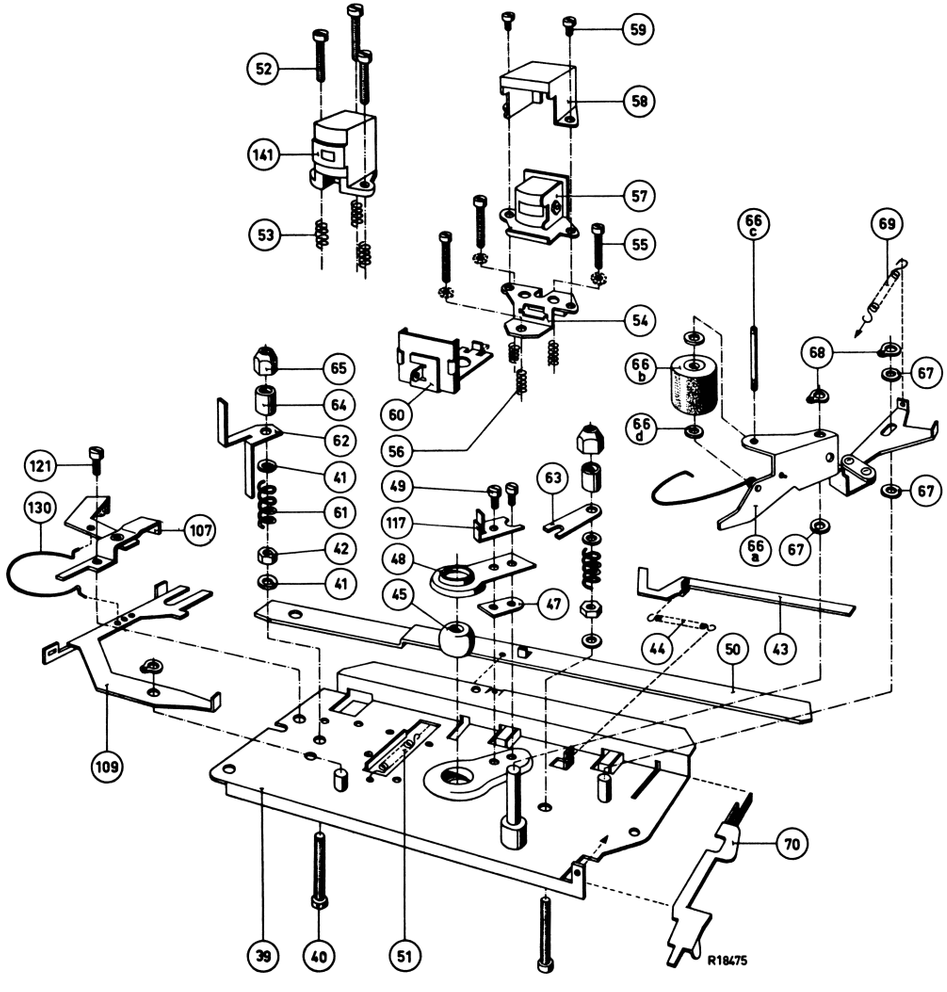


Fig.23

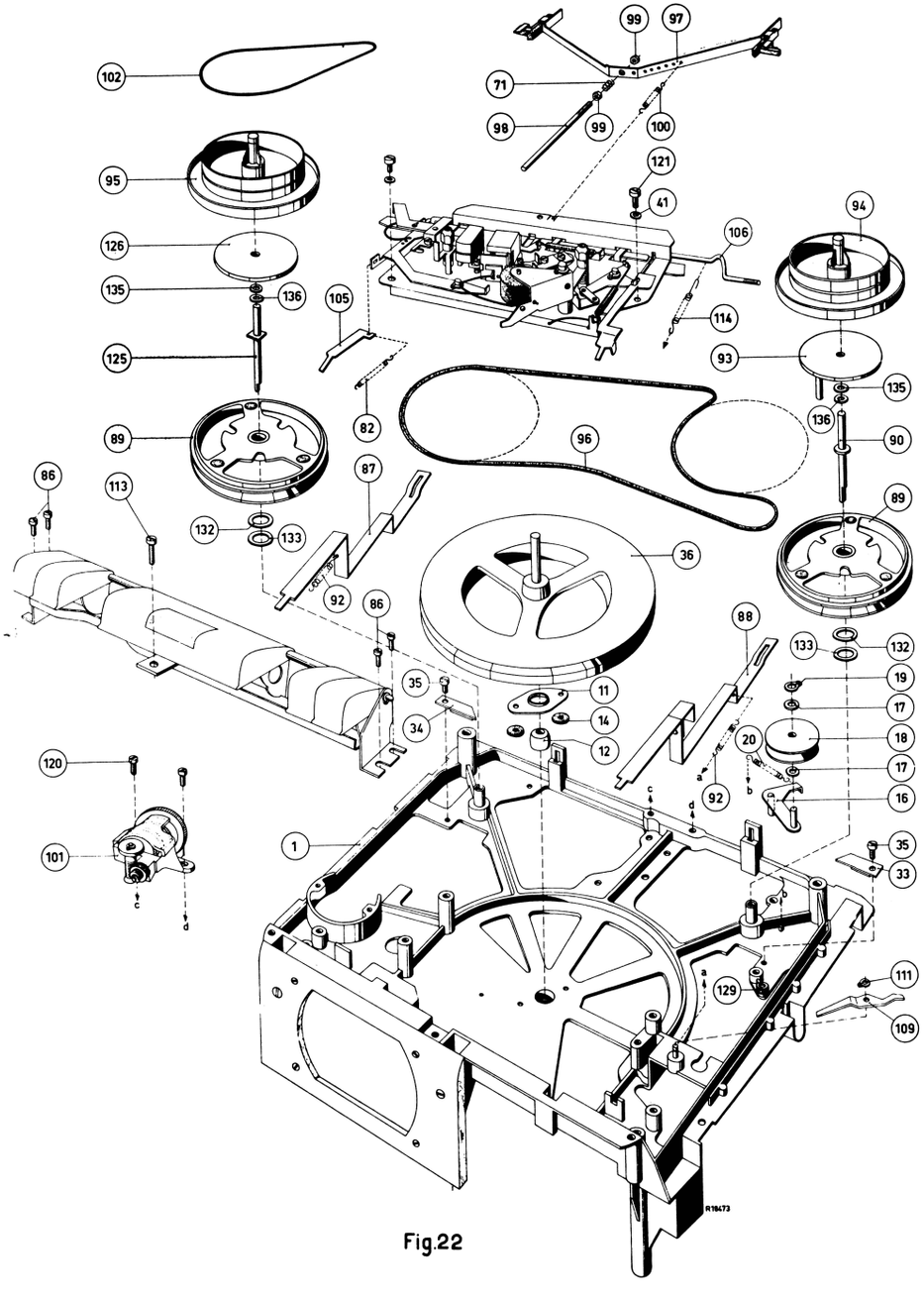


Fig.22

RE:
It may happen that the torsion spring of the pressure roller lever (pos. 66a) breaks. The form of this spring has therefore been modified and is supplied under code number WT 765 43.
The leaf spring of the pressure felt from the screening plate (pos. 60) has been provided with a drop of soldering lead at the left side on the bent lips, in order to avoid the spring from being pulled along by the tape.
The pressure felt with leaf spring has been mentioned under pos. 124 in the list of parts. Code number WY 820 10.

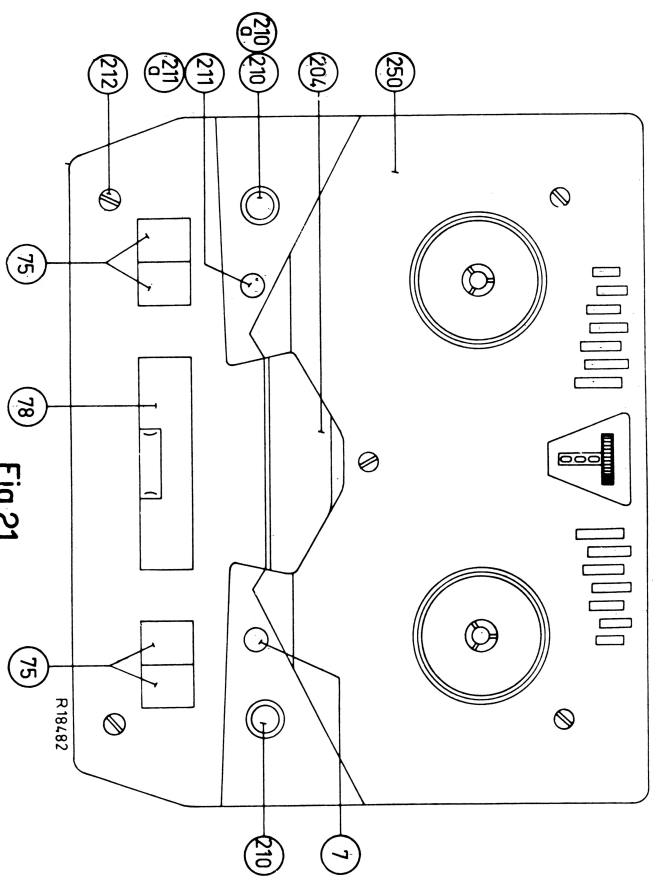


Fig.21

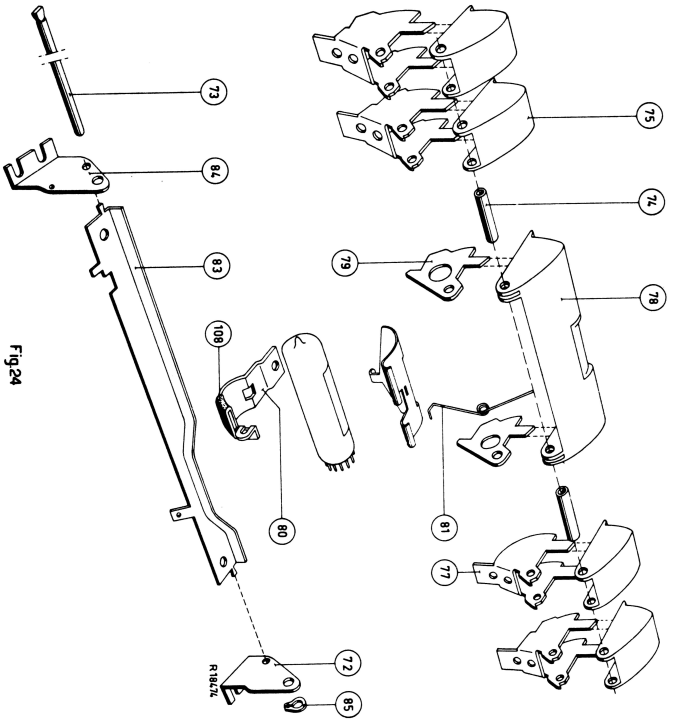


Fig.24

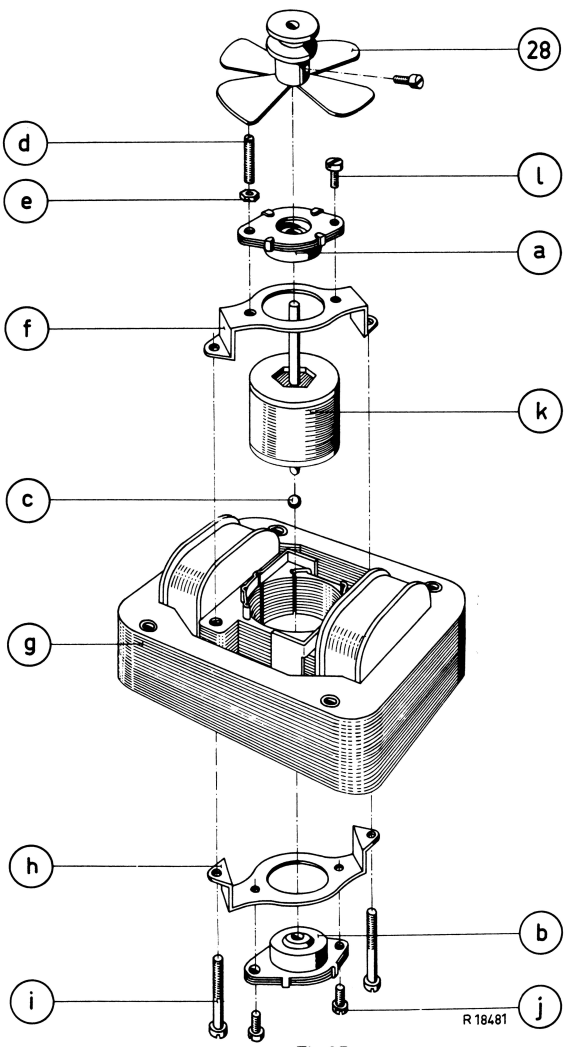
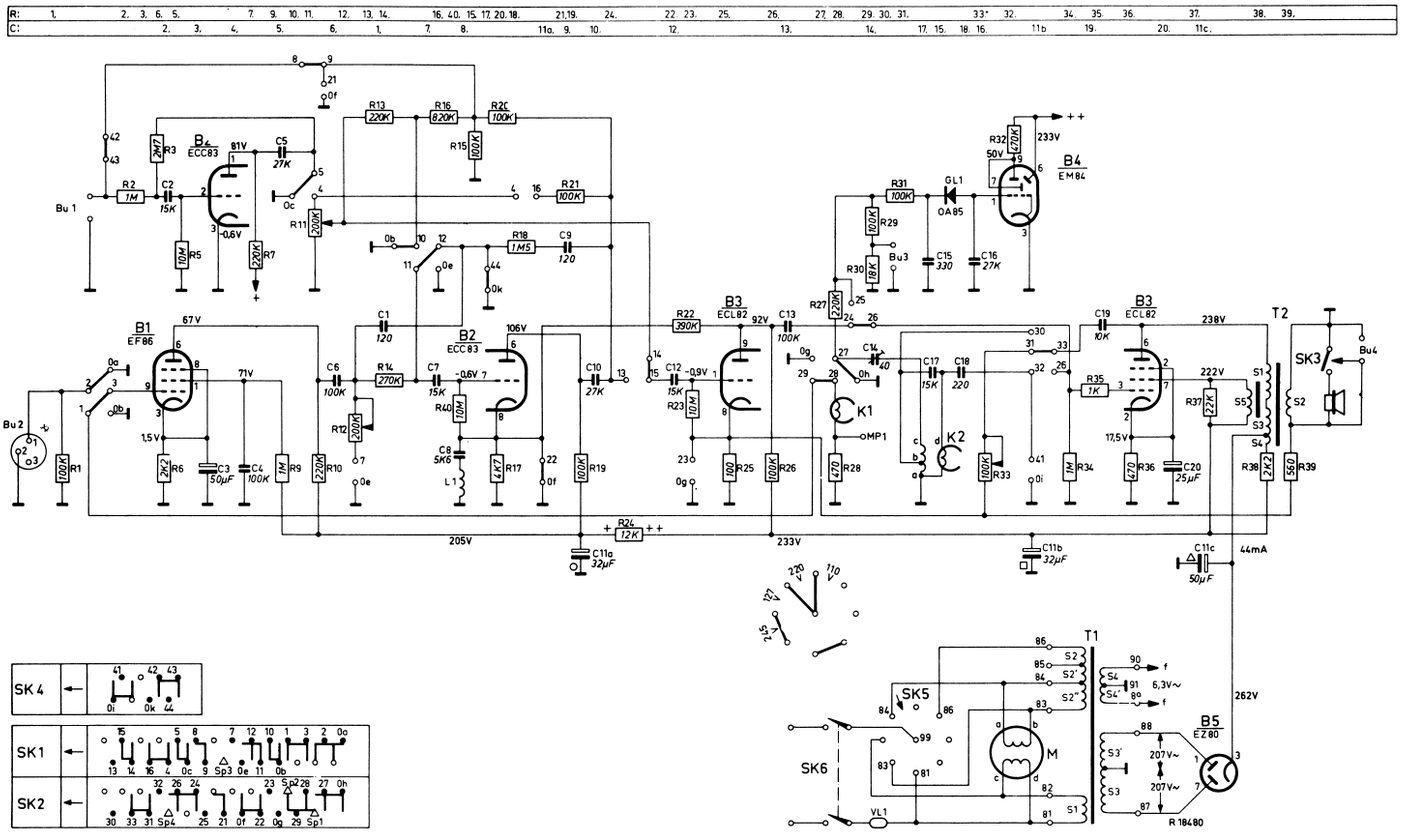


Fig.25

POS 140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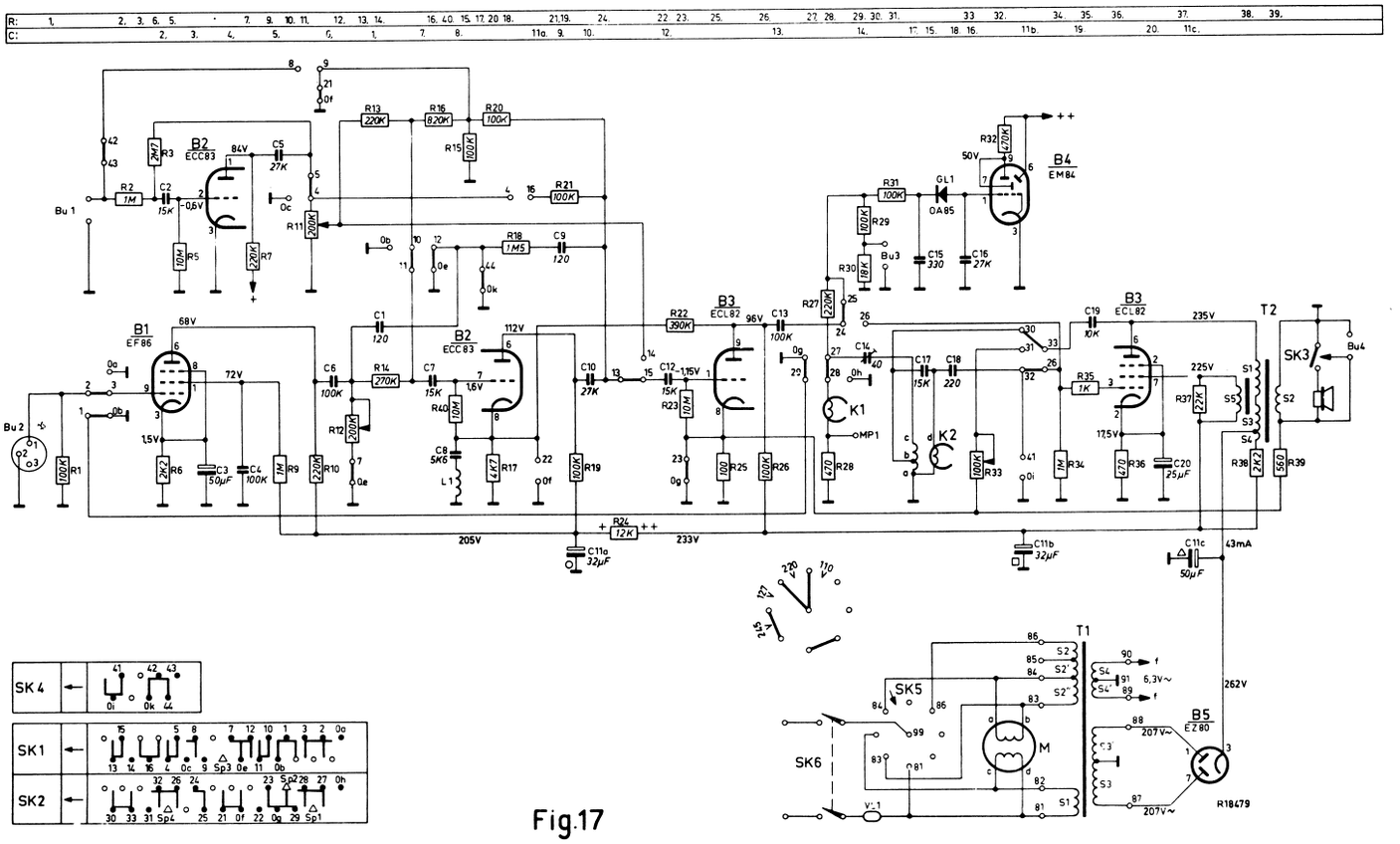
C: 2. 3. 4. 5. 6. 1. 7. 8. 11a. 9. 10. 12. 13. 14. 17. 15. 18. 16. 11b. 19. 20. 11c.
B1 EF86
B2 ECC83
B3 ECL82
B4 EM84
B5 EZ80
GL1 OA85
K1
K2
MP1
SK1
SK2
SK3
SK4
SK5
SK6
T1
T2
M
VL1
Bu1
Bu2
Bu3
Bu4
205V
233V
262V
44mA
R18480

Fig.16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C: 2. 3. 4. 5. 6. 1. 7. 8. 11a. 9. 10. 12. 13. 14. 17. 15. 18. 16. 11b. 19. 20. 11c.
B1 EF86
B2 ECC83
B3 ECL82
B4 EM84
B5 EZ80
GL1 OA85
K1
K2
MP1
SK1
SK2
SK3
SK4
SK5
SK6
T1
T2
M
VL1
Bu1
Bu2
Bu3
Bu4
205V
233V
262V
43mA
R18479

Fig.17

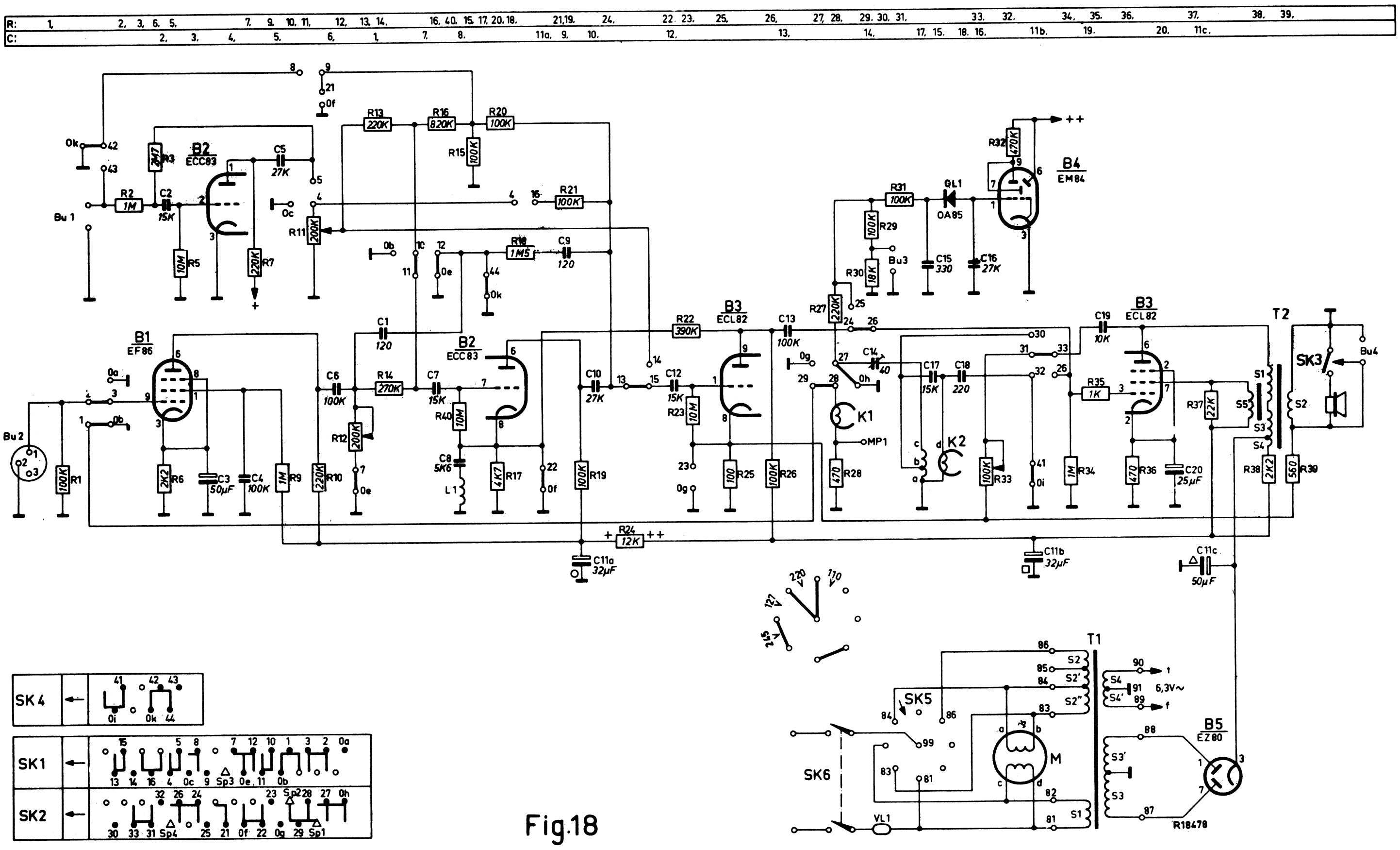
B1 EF86
B2 ECC83
B3 ECL82
B4 EM84
B5 EZ80
T1
T2
SK1
SK2
SK3
SK4
SK5
SK6
Bu 1
Bu 2
Bu3
Bu4
GL1 OA85
VL1
R18478

Fig.18

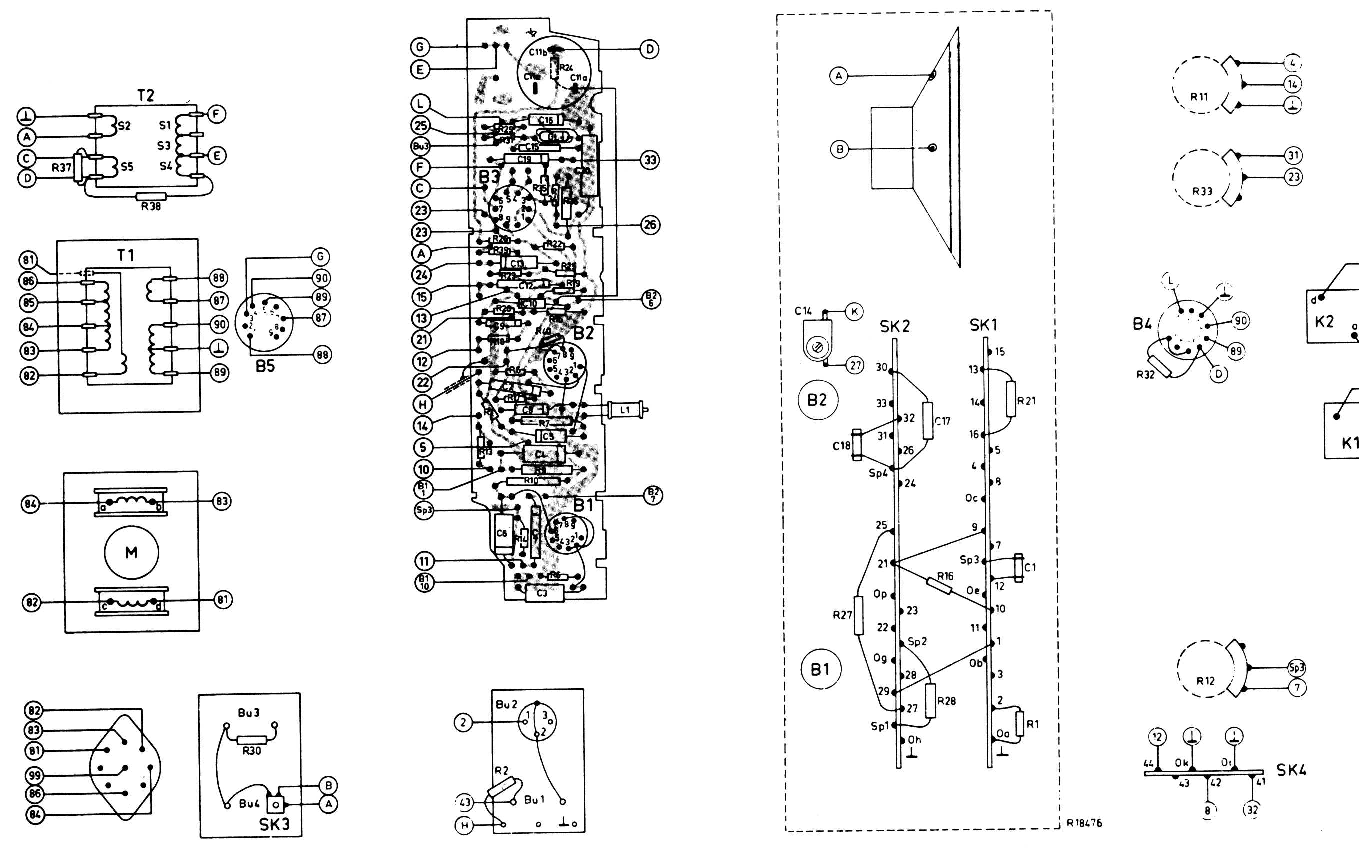
T2
T1
B5
M
SK3
Bu3
Bu4
R30
Bu2
Bu1
R2
B3
B2
B1
L1
SK2
SK1
R18476
R11
R33
B4
R32
K2
K1
R12
SK4

Fig.20