DESCRIPTION OF THE MOTOR CONTROL CIRCUIT
N 2600 - N 2601, Fig. 12-13

For the sake of clarity a simplified circuit diagram is shown in Fig. 12.
Assume that the voltage tends to increase. As a result the base of TS301 will become less positive with respect to the emitter, because diode GR will keep the emitter potential constant.
As a result transistor TS301 becomes less conductive and consequently the collector current, which is also the base current of TS302, decreases.
Consequently, the motor current will decrease until the desired value is again reached. At the voltage decrease, the base of TS301 will become more positive with respect to the emitter and TS301 will become more conductive, so that the base current of TS302 increases. As a result the motor current will increase.

The circuit shown in Fig. 12, however, controls only the voltage variations and not the deviation, which occurs at load variations of the motor. If the motor load increases, the motor current will also increase and so will the voltage drop across the motor. If the voltage across the motor does not increase, the counter e.m.f. will become smaller, so that a lower number of revolutions is obtained.
To counteract this, the voltage across the motor should increase, independent of the motor load. This is obtained by adding resistor R, see Fig. 13.
When the motor load increases, the current through the resistor will also increase and so will the voltage drop. As a result the base of TS301 will become more positive with respect to the emitter. TS301 and consequently TS302, will again be turned on, as described above. As a result the voltage across the motor will increase.

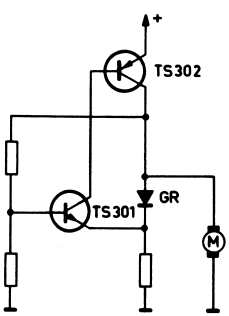


Fig. 12

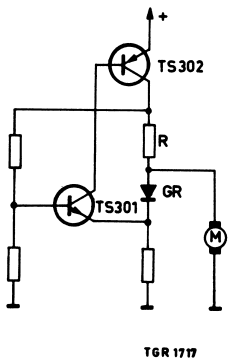


Fig. 13

DESCRIPTION OF THE AUTOMATIC STOP N 2600 - N 2601

From factory marking WR02 the automatic stop in the N 2600 has been modified. The circuit diagram, especially the circuit serving to energise the magnet, has been modified, see Fig. 14b. The following description also applies to the N 2601.

Energising of the magnet

Switch SK4, formerly mounted on tape guide, item 77, now consists of 3 contact springs, which press on a rotating p.c. board on the right-hand turntable (friction coupling).

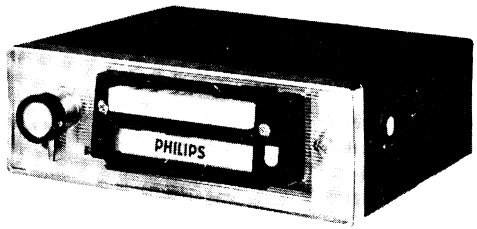
When the motor is switched on, so that the turntable starts rotating, switch SK4 is switched over approx. 20 times per revolution of the turntable.
Points 401 and 402 and points 402 and 403 are interconnected in turn.
In the rest position of the recorder, i.e. when the casette container is not pressed down, points 201 and 202 of SK2 are closed.
When the supply voltage is connected, the base of TS202 and also the base of TS201 will receive a positive voltage. As a result the magnet will be energised. The motor does not yet operate because control circuit does not receive voltage.
If the casette container is pressed down (the recorder is switched on) points 201 and 203 of SK2 will be closed. Consequently, the motor and also the turntable will start rotating.
As a result SK4 is again rapidly switched over from one position to the other. If, at a certain moment, points 401 and 402 of SK4 are closed, C202 will be charged via R201 and R202.
As a result, the base of TS202 will receive a voltage that is high enough to energise the magnet. Simultaneously, C201 is rapidly discharged via R201.
The next moment SK4 will have attained its second position.
C202 is then charged via R201 and R202, so that the magnet remains energised. C202 discharges via R201. Since SK4 reverses very quickly and since R202, C201 and C202 are rather large, a virtually constant charging current will pass through R202, so that the base of TS202 remains at a practically constant positive voltage.
The magnet, therefore, remains energised.
If the end of the tape has been reached, the turntable will no longer rotate, so that SK4 remains in a certain position.
C201 of C202 is then charged via R201 and R202. After some time, (approx. 1 sec). the charging current will have become too small, so that the base voltage of TS202 becomes too low.
Consequently, the magnet will be de-energised, so that the casette container comes up automatically.
As a result points 201 and 202 of SK2 are closed again so that the magnet is again energised immediately after the casette container has come up.
A following casette can be played back on the recorder.

PHILIPS *Service*

RECORDERS

N 2600/00

N 2601/00



INTRODUCTION

The N 2600 is a mono-casette recorder with output amplifier, suitable for use in a car with a 12 V battery.

The N 2601 is stereo-casette recorder without output amplifier, suitable for use in a car with a 12 V battery.

These recorders are suitable for a supply voltage of 11...16 V with the negative pole connected to earth.
However, they can also be converted so that the positive pole is connected to earth.
For this, see the relevant circuit diagrams in Fig. 14.

TECHNICAL DATA

	N 2600	N 2601
Tape speed	: 4.75 cm/sec	4.75 cm/sec
Supply voltage	: 11...16 V	11...16 V
Dimensions	: 16x17.5x5.5 cm	16x17.5x5.5 cm
Weight	: 1.4 kg	1.4 kg
Width of the tape	: 3.81 mm in compact casette	3.81 mm
Number of tracks	: 2	2x2
Frequency range	: 60 - 10.000 Hz ± 3 dB	60 - 10.000 Hz ± 3 dB
Current consumption	: 200 mA	200 mA
Output voltage	: > 500 mV - 20 kΩ	> 500 mV - 20 kΩ
Transistors	: 2xBC148B	3xBC148B
	1xBC147	2xBC148C
	1xBC149B	2xBC149B
	1xAD162	1xAD162
Diodes	: 1xOA91	1xOA91
	3xBA114	3xBA114

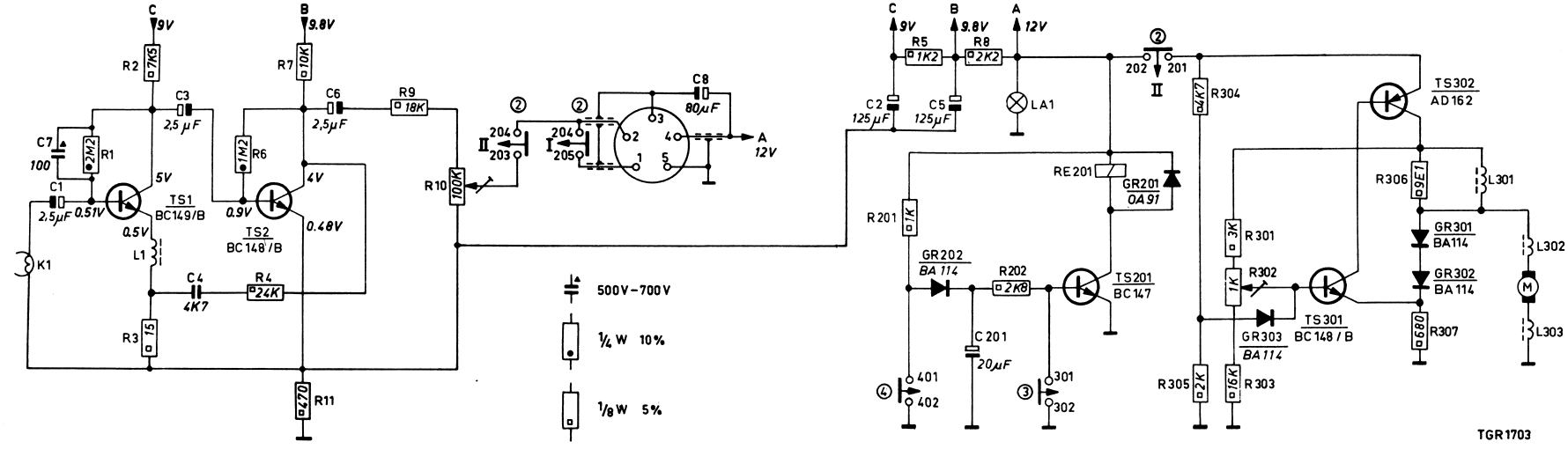


Fig. 14a

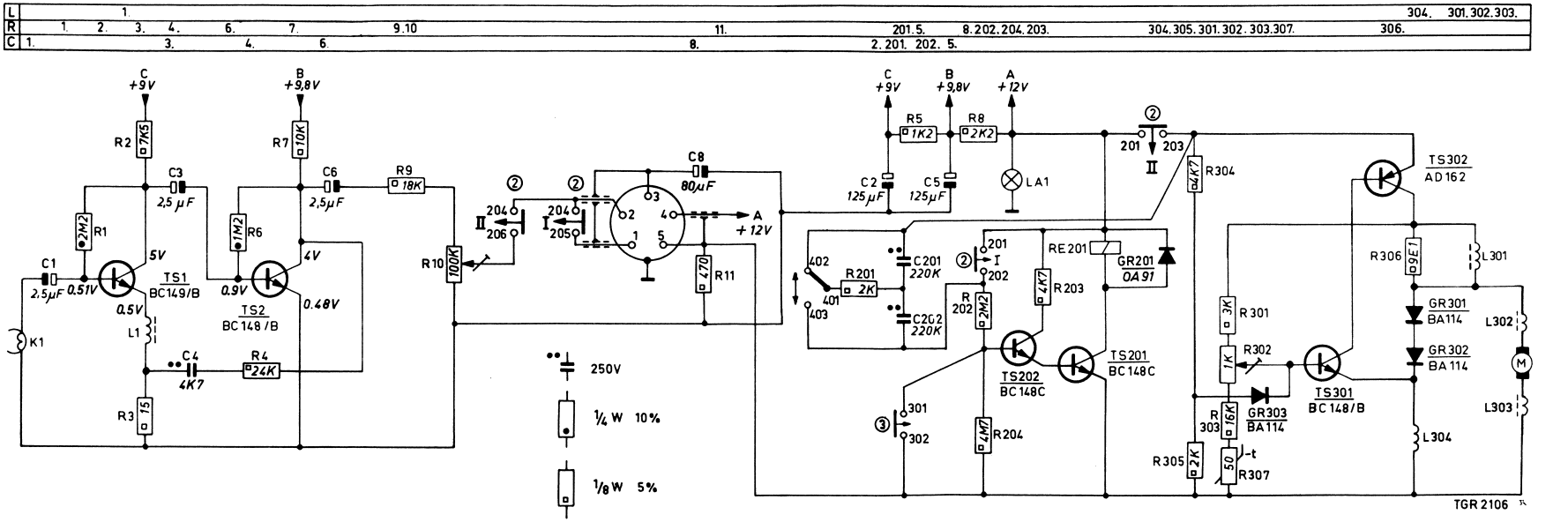


Fig. 14b

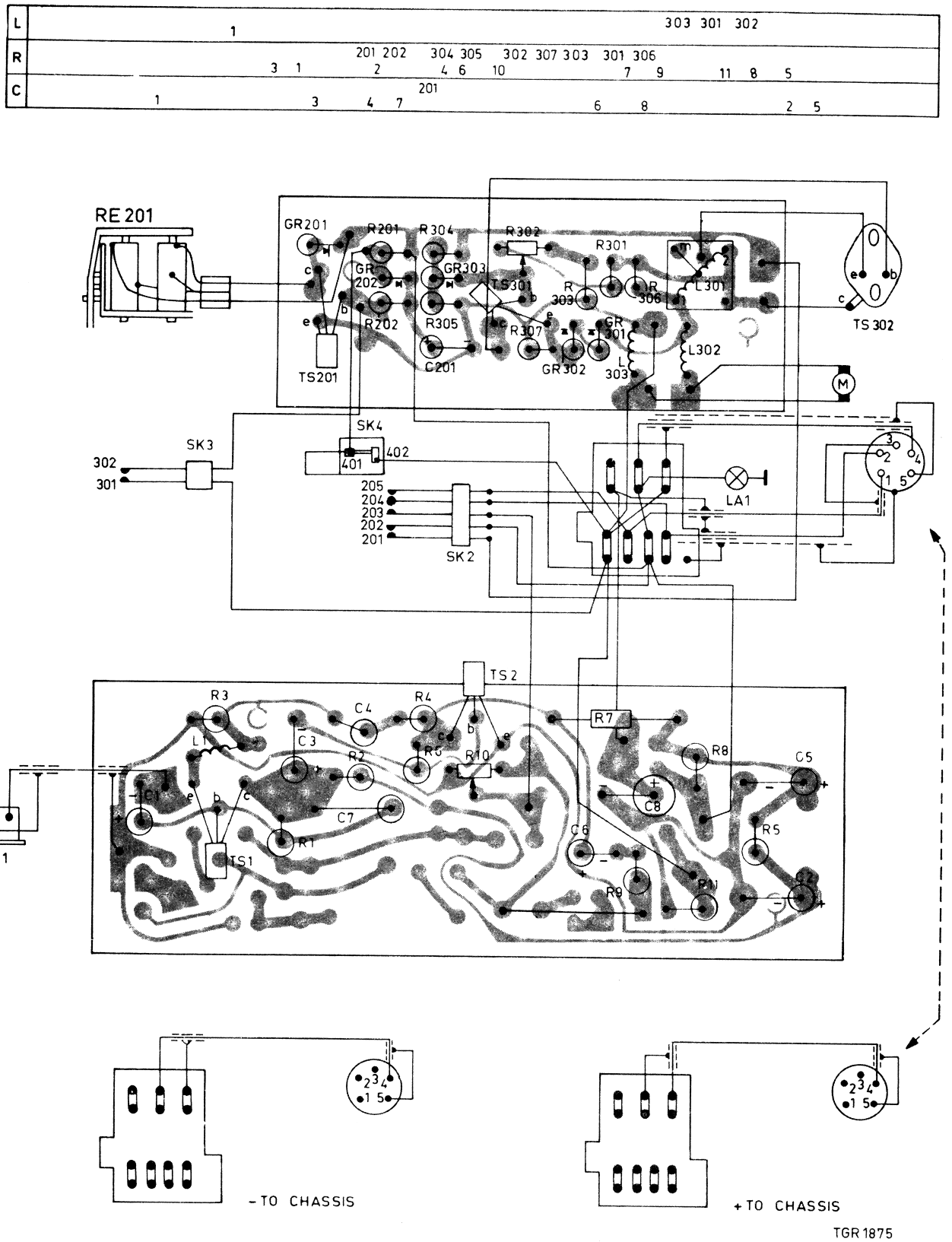

L
1
303 301 302
R
201 202
304 305
302 307 303
301 306
3 1
2
4 6
10
7 9
11 8 5
C
201
1
3
4 7
6
8
2 5
RE 201
GR201
R201
R304
R302
R301
GR 202
GR303
TS301
R 303
R 300
L 301
TS 302
R202
R305
R307
GR 301
L302
TS201
C201
GR302
L 303
M
SK4
SK3
402
401
302
301
205
204
203
202
201
SK2
LA1
TS 2
R3
C4
R4
R7
C3
R2
R6
R10
R8
C5
C1
C8
C7
R1
C6
R5
K1
TS1
R9
P1
- TO CHASSIS
+ TO CHASSIS
TGR 1875

Fig. 15a

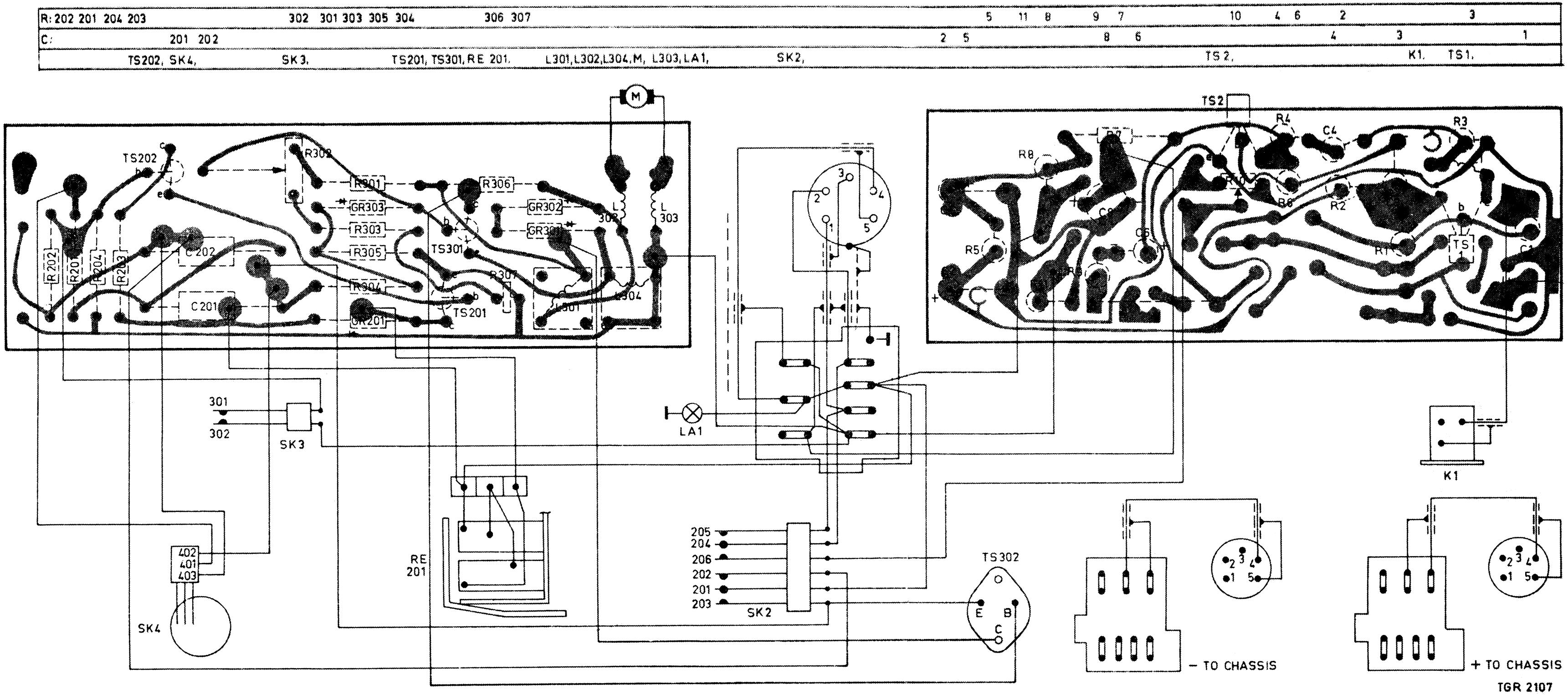

R: 202 201 204 203 302 301 303 305 304 306 307 5 11 8 9 7 10 4 6 2 3
C: 201 202 2 5 8 6 4 3 1
TS202, SK4, SK3, TS201, TS301, RE 201, L301, L302, L304, M, L303, LA1, SK2, TS2, K1, TS1,
M
TS202
R302
R301
R306
GR303
GR302
R303
R305
R304
R307
TS301
TS201
C202
C201
GR201
L301
L304
L 302
L 303
R202
R201
R204
R203
TS2
R4
C4
R3
R7
R8
R10
R6
R2
C8
C6
R5
R1
C1
TS 1
301
302
SK3
LA1
402
401
403
SK4
RE 201
205
204
206
202
201
203
SK2
TS302
E
B
C
K1
– TO CHASSIS
+ TO CHASSIS
TGR 2107

Fig. 15b

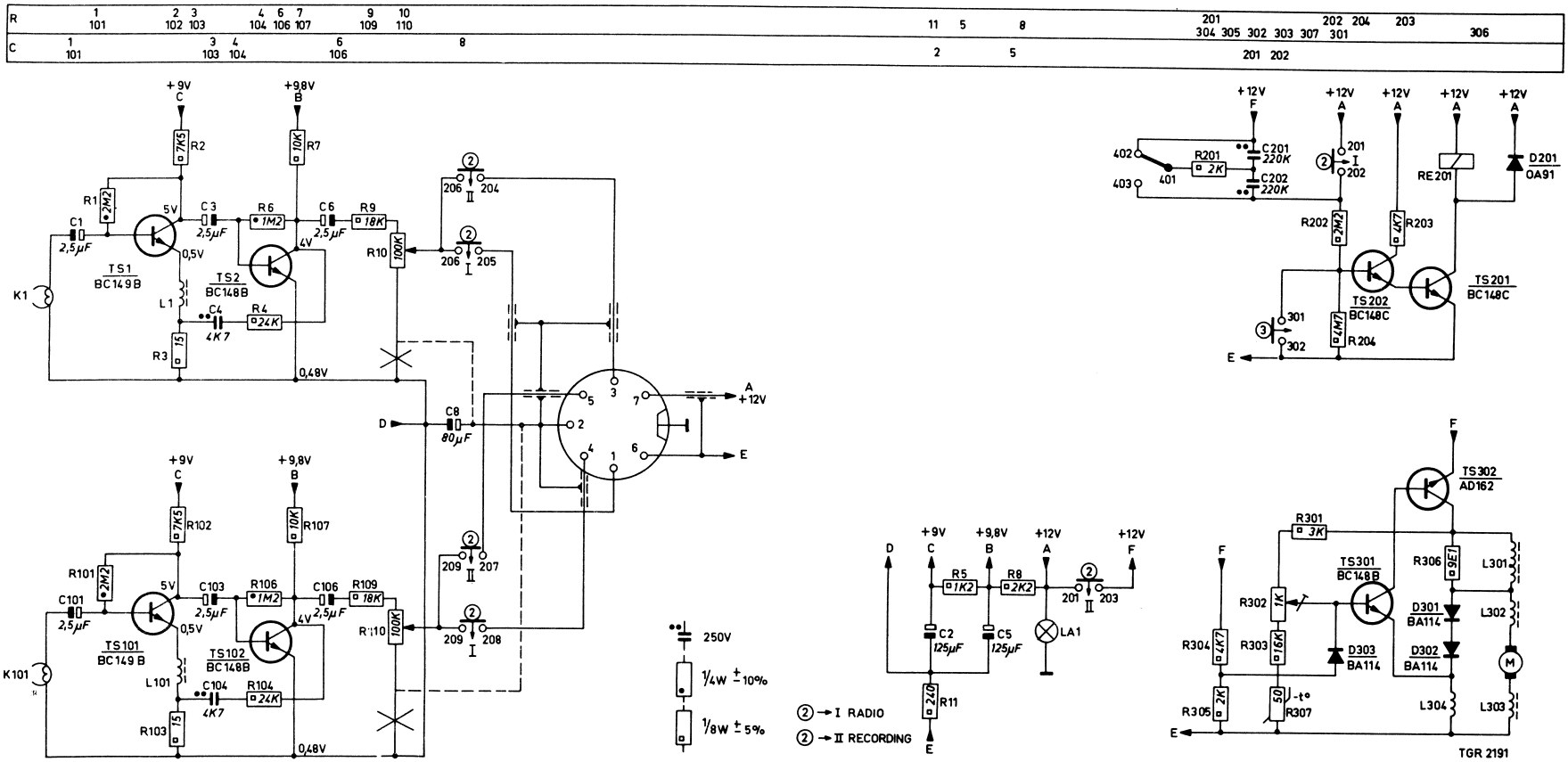

R 1 101 2 102 3 103 4 104 6 106 7 107 9 109 10 110 11 5 8 201 304 305 302 303 307 301 202 204 203 306
C 1 101 3 103 4 104 6 106 8 2 5 201 202
+9V C
+9,8V B
+12V F
+12V A
R1 2M2
R2 7K5
R7 10K
R101 2M2
R102 7K5
R107 10K
C1 2,5µF
C101 2,5µF
C3 2,5µF
C103 2,5µF
C6 2,5µF
C106 2,5µF
R6 1M2
R106 1M2
R9 18K
R109 18K
R10 100K
R110 100K
TS1 BC149B
TS101 BC149B
TS2 BC148B
TS102 BC148B
L1
L101
C4 4K7
C104 4K7
R4 24K
R104 24K
R3 15
R103 15
K1
K101
5V
4V
0,5V
0,48V
206 II 204
206 I 205
209 II 207
209 I 208
C8 80µF
D
E
A +12V
250V
1/4W ± 10%
1/8W ± 5%
C201 220K
C202 220K
R201 2K
402
403
401
201 I 202
RE201
D201 OA91
R202 2M2
R203 4K7
R204 1M
TS201 BC148C
TS202 BC148C
301
302
R5 1K2
R8 2K2
C2 125µF
C5 125µF
LA1
201 II 203
R11 240
② → I RADIO
② → II RECORDING
TS302 AD162
R301 3K
TS301 BC148B
R302 1K
R303 16K
R304 4K7
R305 2K
R306 9E1
R307 50 -t°
D301 BA114
D302 BA114
D303 BA114
L301
L302
L303
L304
M
TGR 2191

Fig. 14c

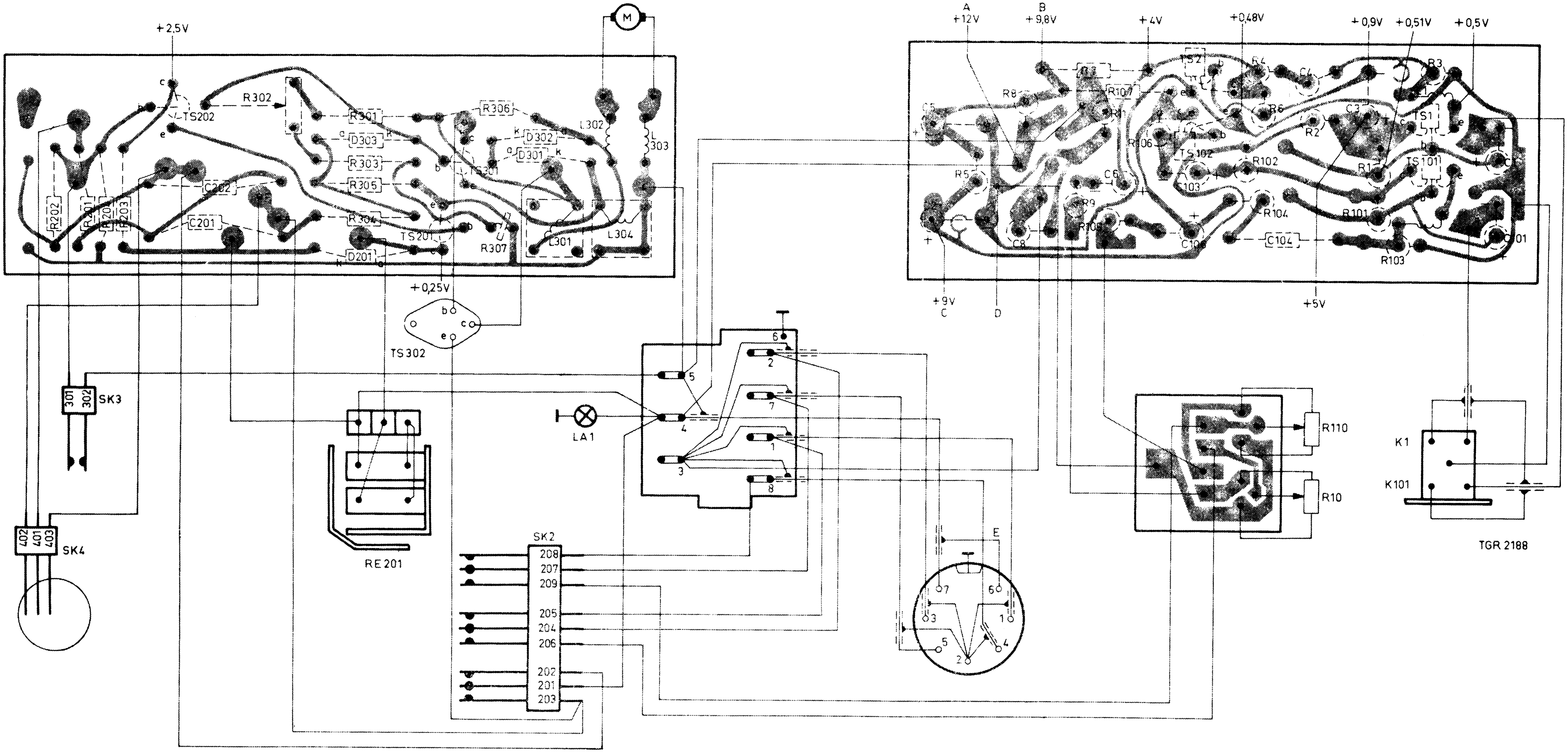
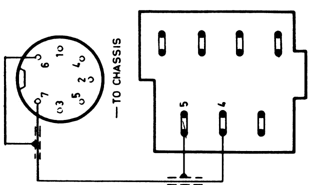
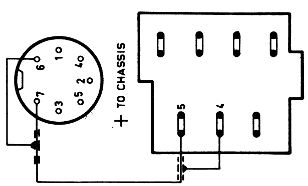

M
+2,5V
TS202
R302
R301
R306
D303
D302
R303
D301
TS301
R305
L302
L303
C202
C201
R304
TS201
D201
R307
L301
L304
R202
R201
R203
+0,25V
TS302
SK3
SK4
LA1
RE201
SK2
A
+12V
B
+9,8V
+4V
+0,48V
+0,9V
+0,51V
+0,5V
R8
R107
R106
TS102
R102
R1
TS101
TS1
R3
R2
R6
C3
C4
R4
TS2
R5
C6
R103
C103
R9
R105
C8
R104
C104
R101
C101
+9V
C
D
+5V
R110
R10
K1
K101
E
TGR 2188

Fig. 15c


— TO CHASSIS


+ TO CHASSIS