

EL 3305/12D/22D



For maintenance and repair of the EL 3305/12D/22D, also refer to the Service Notes on the EL 3300/00 - EL 3301/00.

Technical data  
List of mechanical parts  
List of cabinet parts  
List of electrical parts

Connection to a car radio  
Repair hints  
Replacing parts  
Mechanical adjustment and lubrication  
Exploded view of the cabinet

Circuit diagram of EL 3305/12D/22D  
Circuit diagram of EL 1997/00  
Wiring diagram

Exploded view of the mechanism and the tape cassette

TECHNICAL DATA

The EL 3305/12D/22D is a cassette player with built-in preamplifier for reproduction of pre-modulated cassettes in combination with a car radio.

Supply voltage	: 6 V 12 V, via adapter EL 1997/00
Current consumption at 6 V	: 110 mA
Dimensions	: 165x140x85 mm (6 $\frac{1}{2}$ "x5 $\frac{1}{2}$ "x3 $\frac{3}{8}$ ")
Dimensions EL 1997/00	: 55x55x35 mm (2 $\frac{1}{8}$ "x2 $\frac{1}{8}$ "x1 $\frac{3}{8}$ ")
Weight	: 1.5 kg
Weight EL 1997/00	: 110 g
Frequency range	: 100 - 7000 c/s $\pm$ 3 dB
Tape speed	: 4.75 cm/sec (1 $\frac{7}{8}$ " / sec)
Tape width	: 3.8 mm (0.15")
Number of tracks	: 2
Track width	: 1.15 mm (0.06")
Playing time	: 2x30 mins. per cassette
Output voltage	: 200 mV across 1.5 k $\Omega$
Transistors	: 3x AC125

LIST OF MECHANICAL PARTS, EL 3305 (see Fig. 7)

Item	Code number	Description
1	999/2x5	Cylinder head screw 2x5 mm
2	988/2	Washer, 2 mm
3	999/2x8	Cylinder head screw 2x8 mm
4	987/3	Toothed spring washer, 2 mm
5	999/2x12	Cylinder head screw 2x12 mm
6	985/1,9	Circlip, 3 mm
7	986/3	Pressure ring, 3 mm
8	985/1,9	Lock washer
26	4822 175 00954	Playback head
28	4822 175 00955	Pressure spring under playback head
30	4822 175 00961	Stop spring
31	4822 175 00962	Stop roller assy.
36	4822 163 00922	Switch lever
35	89 205 01	Ball
37	4822 175 00965	Wire spring of control bracket
38	A3 311 15	Fitting of pilot lamp
39	TD 300 49	Ring
40	4822 175 00985	Roller
41	4822 175 00982	Lever assy
42	4822 163 00914	Guide block
43	4822 175 00984	Wire spring underneath lever
44	4822 175 00966	Winding lever assy
45	4822 175 00967	Pulley assy
46	4822 175 00968	Ring underneath pulley
47	4822 163 00915	Cord
48	4822 175 00944	Wire spring of brake bracket
49	4822 175 01251	Spring
50	4822 175 00945	Tension spring of brake bracket
51	4822 163 00918	Cap on top of turntable
52	4822 175 00943	Brake bracket
53	4822 175 00957	Pressure roller lever assy
54	4822 175 00964	Turntable assy
55	4822 175 00958	Spring of pressure roller lever
56	4822 175 00986	Ring for brake bracket
57	4822 175 00978	Leaf spring for cassette
60	4822 175 00974	Wire spring
61	4822 175 00969	Upper bearing flywheel
62	4822 175 01478	Switch SK3
63	4822 175 00951	Idler wheel assy
64	4822 175 01055	Ring
65	4822 175 01126	Drive cord
66	4822 175 00971	Flywheel assy
67	4822 175 00972	Bearing bracket of flywheel
	4822 194 00239)	
68	4822 194 00257)	Motor assy
	4822 175 01514)	
69	4822 163 00919	Pressure plug

LIST OF CABINET PARTS (see Fig. 3)

Item	Code number	Description
1	999/2x5	Cylinder-head screw, 2x5 mm
2	986/5	Circlip for pin, item 30
3	999/2,6x23	Cylinder-head screw, 2.6x23 mm
4	999/2,6x8	Cylinder-head screw, 2.6x8 mm
5	999/2,6x15	Cylinder-head screw, 2.6x15 mm
25	4822 175 01123	Control knob
26	4822 175 01432	Nylon slide button
27	4822 175 01434	Cabinet assy
28	4822 175 01428	Guide plate, right
29	4822 175 01431	Bottom plate
30	4822 175 01426	Guide pin
31	4822 175 01427	Felt pad
32	4822 175 01429	Guide plate, left

LIST OF ELECTRICAL PARTS

TS1, TS2, TS3	AC125
T1	4822 117 00427
SK1	4822 175 00939
SK3	4822 175 01478
5-pole plug	978/5x270
C1, C4, C8	909/W2,5
C2, C6, C11	C 420 AH/A40
C3, C7	909/C25
C5	C 285 AA/S1K
C9	4822 069 01097
C10	909/W250
C12	909/U400
Pilot lamp	955/D12x100

LIST OF PARTS, ADAPTER EL 1997

TS1	AD149
GR1	0A2205
C1	4822 069 00903
5-pole plug	978/5x270
3-pole socket	979/6

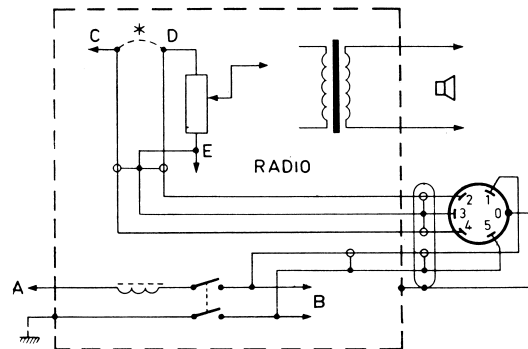


Fig. 1

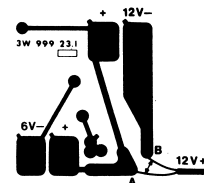
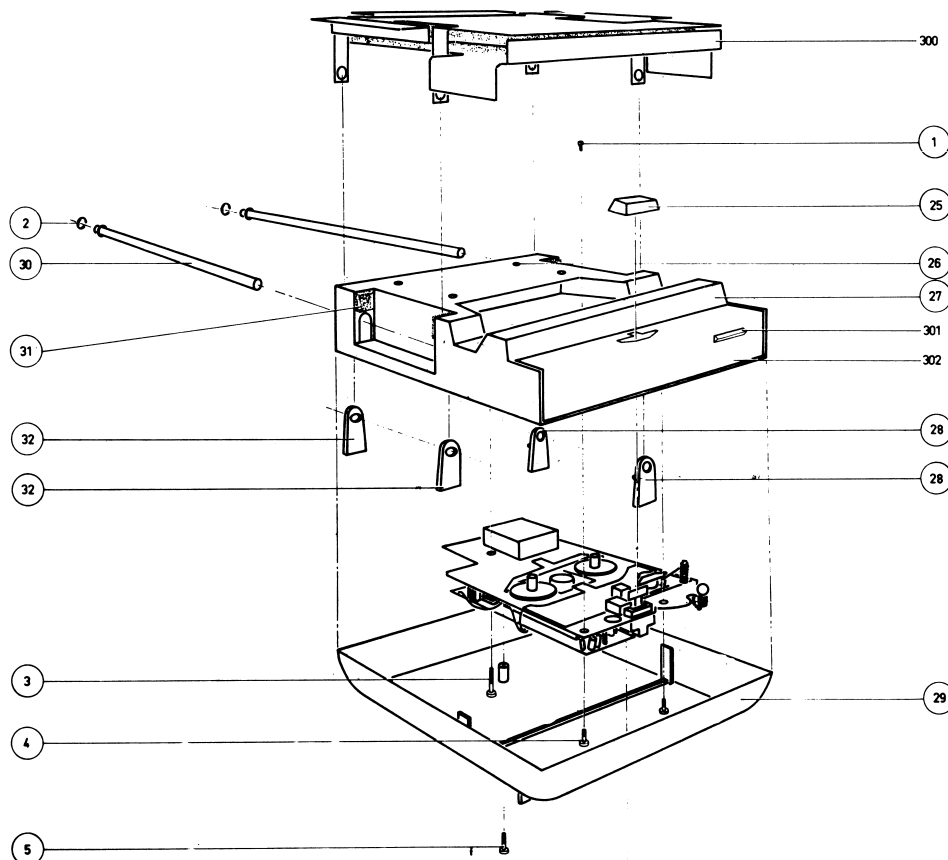


Fig. 2



#### Connection to a car radio

When the car radio is provided with a connection socket or loose cable with female plug for record-player or tape recorder connection, the EL 3305/12D/22D should be connected to this plug. For voltage and polarity, refer to the following.

#### Connection to a 6-V system

The connection cable of the EL 3305/12D/22D is suitable for connection to a car radio with "-" to chassis. When the car radio is not yet provided with a connection for record-player or tape recorder, connection should be effected as shown in Fig. 1. For this purpose, a cable with female plug is included in the delivery.

#### Connection to a 12-V system

When the EL 3305/12D/22D is employed in conjunction with a car radio connected to a 12-V system, the 12-V adapter EL 1997/00 should be included between the car radio and the EL 3305/12D/22D. On delivery, the EL 1997/00 is suitable for 12 V "-" connected to chassis.

For connection to a 12-V system with "+" to chassis points A and B in the adapter should be interchanged, see Fig. 2.

When the car radio does not have a connection, it should be made according to Fig. 1.

#### REPAIR HINTS

##### Removing the recorder from the car, see Fig. 3

Often it will be possible to leave mounting plate, item 300, in the car in case of repair. For this, however, it is necessary that pins, item 30, can be slid out approx. 10 cm, after removal of spring washers, item 2. If there is no room for this the apparatus, together with mounting plate, should be removed from the car.

##### Removing the cabinet, see Fig. 3

- . Remove the tape cassette.
- . Detach control, item 25, from the apparatus.
- . Remove the two screws, item 5, from the apparatus and take off the lid.
- . Remove the four screws, items 1, 3 and 4.
- . Take the apparatus out of the cabinet.
- . Fitting the cabinet is effected in the reverse order.

**Note :** When refitting the cabinet, ensure that the nylon guide plates, items 28 and 32 are correctly positioned. The 30.5 mm long plates should be placed on the right (i.e. on the side of the motor). The 28.5 mm plates should be placed on the left (on the print side). The cams on the plates should be at the rear.

#### Replacing parts

For replacing drive cord item 65, flywheel item 66, idler item 63, motor item 68, and the turntables item 54, refer to the service notes on the EL 3300/00-EL 3301/00.

##### Replacing winding-roller lever, item 44, see Fig. 7

- . Unscrew the print.
- . Remove the nylon clamping rings, item 64, from winding-roller lever, item 44.
- . The winding roller lever can then be taken out by pressing the idler item 45, from the flywheel and simultaneously pressing the winding roller on top of the apparatus. When doing this the winding roller should first be slightly pressed down and swung underneath the left-hand turntable. Next, the winding-roller lever can be removed along bracket 41.
- . Mounting is effected in reverse order.

#### MECHANICAL ADJUSTMENTS

##### Playback head

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

- . Place a cassette with 5000 c/s test tape (code number 4822 218 00199) in the apparatus.
- . Switch on the apparatus.
- . Connect a valve voltmeter to points 2 and 3 of the connection cable.
- . Adjust for maximum output voltage with screw, item 5, Fig. 7.
- . After this, lock-paint the screw with cellulose lacquer.

##### Other mechanical adjustments

For adjusting the pressure-roller lever, checking the slipping clutch, adjusting the idler wheel, the winding-roller lever, the brake bracket and switch SK3 and for checking the speed refer to the service notes on the EL 3300/00 - EL 3301/00.

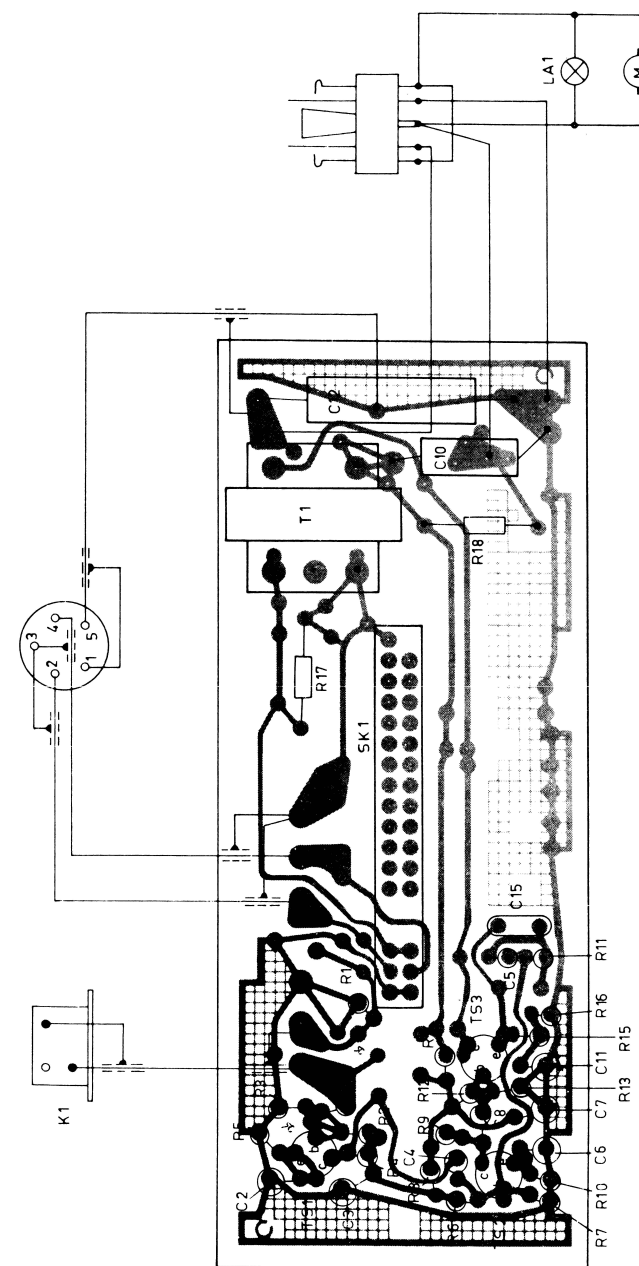
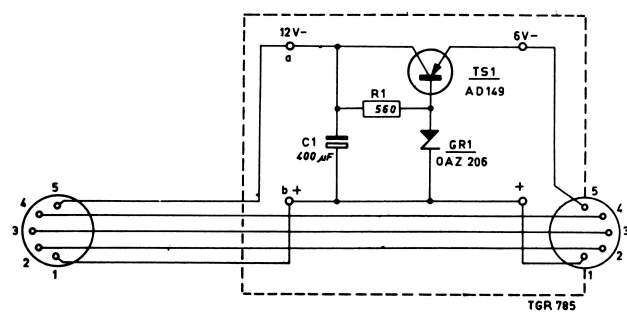
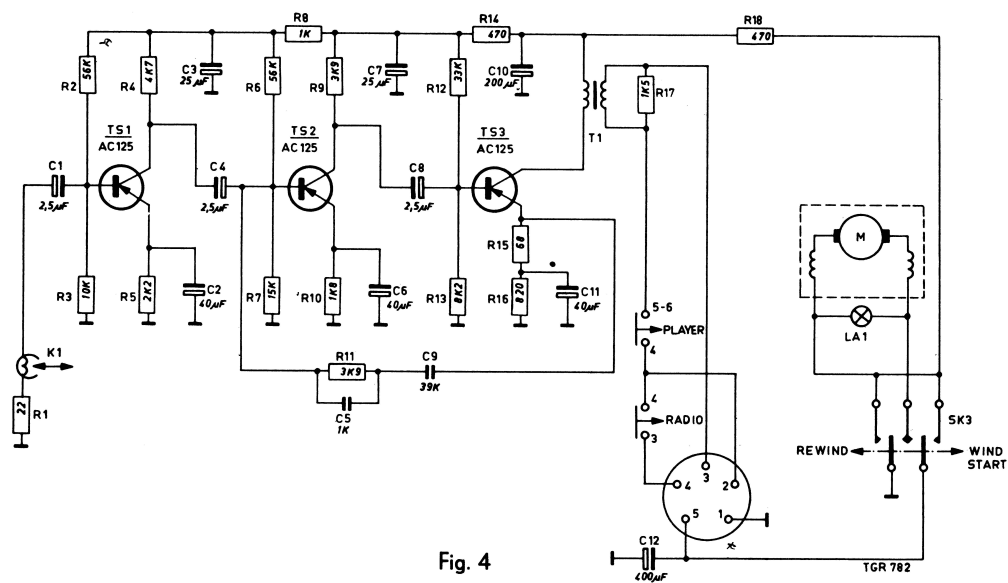
#### Lubrication

For lubrication refer to the service notes of the EL 3300/00 - EL 3301/00.

##### Explanation to Fig. 1

- 0 = chassis, fully screened
- 1 = battery (+), red
- 2 = volume control (live), blue
- 3 = volume control (tension free), screening blue and colourless
- 4 = detector, colourless
- 5 = battery (+), screening red
- A = to battery
- B = radio supply
- C = detector
- D = volume control (live)
- E = volume control (tension free)

- . The on/off switch is shown as a two pole switch, however, in most car radios, only one lead is switched, the other lead is not interrupted.
- . Interrupt the original connection between points C and D.







# PHILIPS *Service*

## INFORMATION

### RECORDERS

5-4-1966

EL 3305

Bc 608



#### Connecting the EL 3305 to a 24-V system

12-V adapter EL 1997 can be used when the EL 3305 is supplied from a 24-V battery.

The following modifications should, however, be made to this adapter:

- Transistor AD 149 should be removed from the print plate and, to obtain a better cooling, mounted on the non-perforated part of the adapter.

For this purpose, four holes should be drilled, see Fig. 1.

The transistor should be insulated with a mica plate and insulation bushings, which will be delivered together under code number 56201A.

To prevent short-circuit of the transistor with the mass of the carriage, a rubber cap, code number P7 060 63/000, should be placed on the transistor.

- C1 (400  $\mu$ F) should be replaced by a capacitor of 50  $\mu$ F - 40 V, code number 4822 069 00703.
- R1 (560  $\Omega$ ) should be replaced by a resistor of 2.2 k $\Omega$  - 0.25 W, code number 902/K2K2.

Bc 608

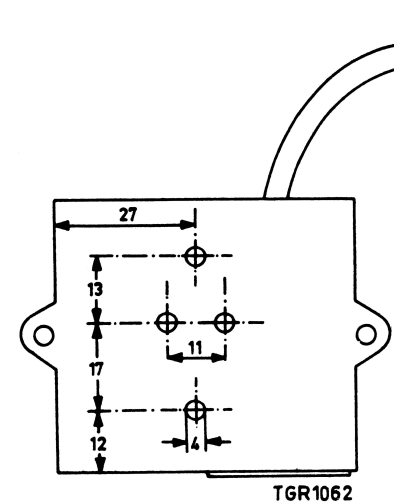


Fig. 1

