

S E R V I C E M A N U A L

FOR THE

PHILIPS AMPLIFIER 3712 - 3912

General Data

Mains voltage 230 V normal, adjustable to 105-253 V,
+ 10 per cent fluctuations permissible.
Consumption abt. 45 Watt, $\cos \phi = 0.85$.
Output 20 W; 10 per cent harmonic contest.
Max. input voltage 0.2 Volt (at 1000 cycles per sec. and
10 per cent harmonic contest).

Diagram

Principal diagram fig.1
Connection diagram fig.2
Adaptation diagram fig.3
Mounting diagram fig.4
Frequency diagram fig.5

Type numbers

3712 = 5 Watt amplifier, normal execution)
3912 = 5 Watt amplifier, tropical^x ") 100 V adapt.
3712E = 5 Watt amplifier, normal English execution

Input is lead to a pre-amplifier valve. The last stage is
resistance coupled.
An output transformer renders adaptation to loudspeaker of
different impedances possible.

A neonlamp is connected parallel to one of the 5 coils of
the output transformer, to avoid overloading.

All connections, operating knobs and valves are situated on
one side of the amplifier (fig.2). They are (from left to
right)

a. Beneath the valves.

1. "⊙" Input terminals of amplifier. The terminal marked
with a white point is connected to the grid of the
amplifying valve, the other to earth.
2. "⏏" Earth terminal.
3. "⏏" Plug for loudspeakers. These terminals are used
for all positions of output transformer coil
connections.

^{x)} not only coil, but also transformer core compounded,
wiring totally of full rubber cable.

4. " " terminals for mains voltage.
5. Valves: from left to right: type E.499, E.443N and 1805.
- b. Behind the valves.
6. After removing the cover a terminal board, containing the following connections:
 - a) 10 terminals with 5 contact strips. They are used to change the connections of the 5 coils of output-transformer, to obtain proper adaptation to loudspeakers. See also fig.3 for necessary connections.
 - b) Arrangement to adjust mains-transformer to different mains-voltages. On the back of the cover all connections can be found for different mains-voltages.

FREQUENCY CHARACTERISTICS

Fig.5 shows the characteristics for different frequencies.

ADAPTATION

Screws with connecting pieces are used for this purpose. The table shows, how these connections must be made for the different impedances required for loudspeakers.

Adaptation to different loudspeakers

Type of amplifier	Type of loudspeaker	Number	Connection	Adaptation	
				Volt	Ohm
3712) 3912)	2222 or 2216	1	—	20	—
		2	in series	20	—
3712/06) 3912/06)	2222 or 2216	1	—	—	9
		2	in series	—	20

3712	Volt
	100
	80
	60
	40
	20

0005

Fl

PUT INTO WORKING CONDITION

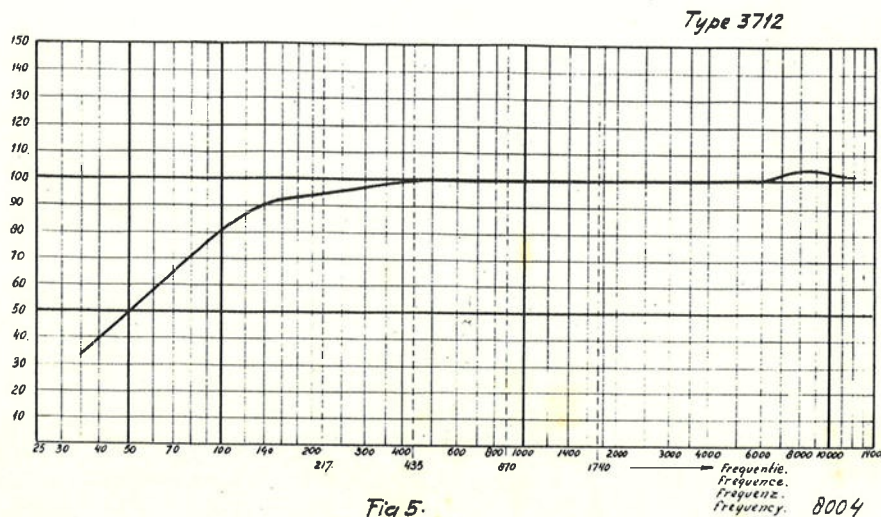
To insert the following valves from left to right: Type E.499, E.433N, 1805.

FAULTS, WHICH MAY OCCUR

M1

First make sure, whether mains-voltage is present and whether fuses are not burnt-out.

1. Pre-amplifier valve is not hot;
cause: valve E.499 defective.
2. Pre-amplifier valve does not amplify;
cause: valve E.499 or 1805 defective.
3. Power valve is not hot;
cause: valve defective.
4. Power valve does not amplify;
cause: valves E.443N or 1805 defective.
5. No valves burn;
cause: main-fuses burnt-out.
6. Bad reproduction;
cause: old or defective valves, wrong adaptation.
7. Hum;
cause: Hum potentiometer not properly adjusted.
Pre-amplifying valve defective.
Power valve defective.
Earth connection broken or insufficient.
Bad shielding of input-leads.
8. Amplifier valves burn, but no or very small volume;
cause: Neon fuse defective.
Contact strips on terminal plate loose.
Input-wires interchanged.
Faulty contact in input-leads.



N.V. PHILIPS

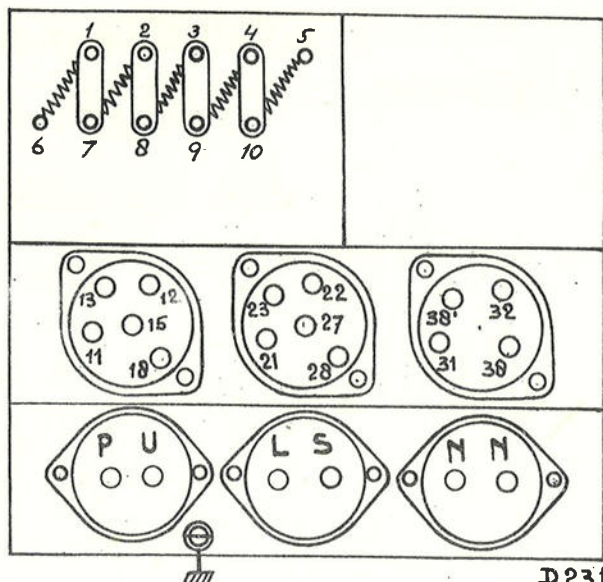
Meettabel
Tableau de mesure
Messtabelle
Measuring table

3712

TEEK. 2313

Dat. 15.4.1937

SERVICE



D 2313

WEERSTAND			RÉSISTANCE			WIDERSTAND			RESISTANCE		
12	11 12	21 22	31 32								
	10	10	10								
11	28	38	38'								
	470	475	475								
10	15	27	L S								
	465	140	170								
9	13	18	23								
	345	210	215								

CAPACITEIT		CAPACITÉ		KAPAZITÁT		CAPACITY	
12	18 23	23					
	370	230					
11	P 13						
	300						
10	39 32						
	270						
9	32	15	27				
	140	480	160				

SERVICE DATA

Currents and voltages of valves must be between the following limits:

MULLARD Valves for 3712E	PHILIPS Valves	Va (V)	I _a (mA)	-V _g (V) ^x	V _{g'} (V) ^x	Vf (V)
994V	E.499	180-220	0.45-0.55	1.5-1.9	-	3.9-4.1
PM.24b	E.443N	395-425	27-33	35-40	180-210	3.9-4.1
-	1805	-	-	-	-	-

to be measured with triode-voltmeter or with a compensation method

Va = anode voltage
Ia = anode current
Vg = grid voltage
Vg' = auxiliary grid tension
Vf = filament voltage

SPARE PARTS

No.	Fig.	Description	Code No.
1	4	Fuse with soldered spring	08.100.940
1a	4	Spare fuse	08.100.802
2	4	Rubber feet	25.985.110
3	4	Plug socket	25.786.950
4	4	Valve socket 4-p.	25.161.320
			for 3912:
			28.225.330
6.8	4	Valve socket 5-p.	25.161.330
			for 3912:
			28.225.340
5	4	Plug socket	28.852.300
7	4	Plug socket for mains	28.852.240

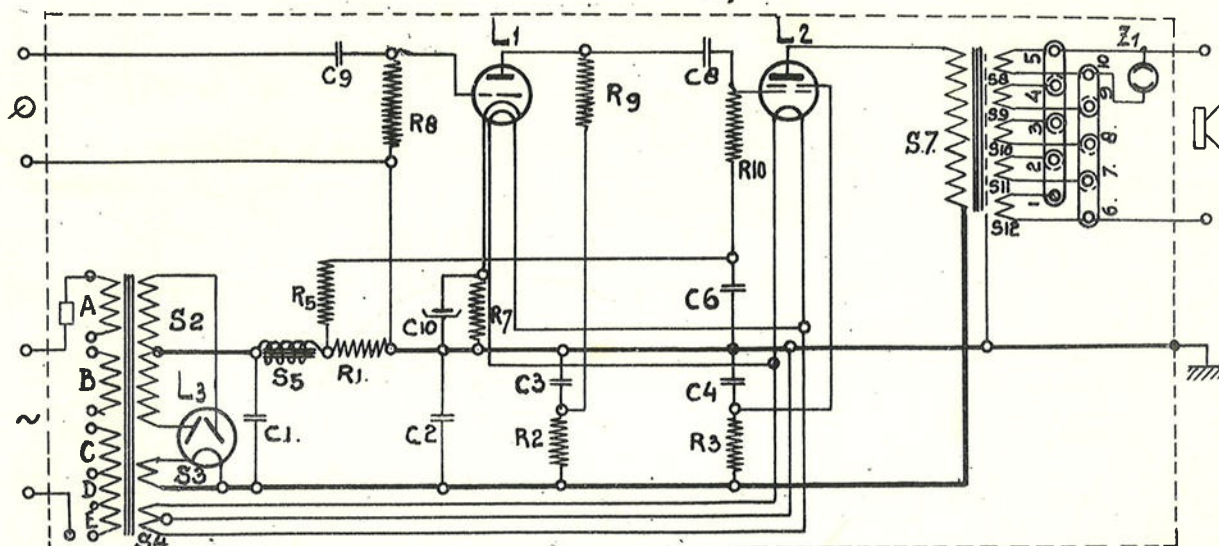
25.648.321 is the codenr. of the universal transformer;
710 is the number of turns when this transformer is
adjusted for 230 V.

The codenr. of the transformer coils (for 50 cycles)
is 25.728.620.

The codenr. of the transformer core (for 50 cycles)
is 25.211.710G.

The weight of the core is 1750 gr.

Type 3712



Spoelen Bobines Spulen Coils	Code No. No. du code	Condensatoren Condensateurs Kondensatoren Condensators	Code No. No. du code	Weerstanden Résistances Widerstände Resistances	Code No. No. du code
S1 = (220V) 710 W.	25648321 (Un.)	C1 = 3 μ F	25114852	R1 = 1000 Ω	25840030
S2 = 2x1389 W.		C2 = 3 "		R2 = 0,1 M. Ω	28770450
S3 = 13 "		C3 = 2 "		R3 = 50000 Ω	25840310
S4 = 2x7 "		C4 = 3 "		R5 = 0,1 M. Ω	28770450
S5 = 5700 "		C6 = 2 "		R7 = 3050 Ω	28771310
S7 = 4000 "	28527291	C8 = 20000 μ F	28198130	R8 = 0,2 M. Ω	28770480
S8 = 286 "		C9 = 0,1 μ F	28198200	R9 = 0,4 "	28770510
S9 = 286 "		C10 = 25 "	28182240	R10 = 0,4 "	28770510
S10 = 286 "					
S11 = 286 "					
S12 = 286 "					
		Z1 = 120V.-70V.	type 4378		

FIG.1

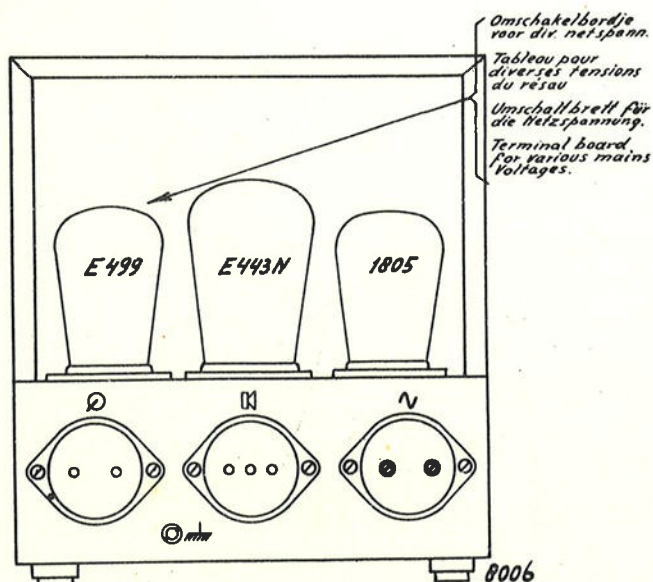


FIG.2

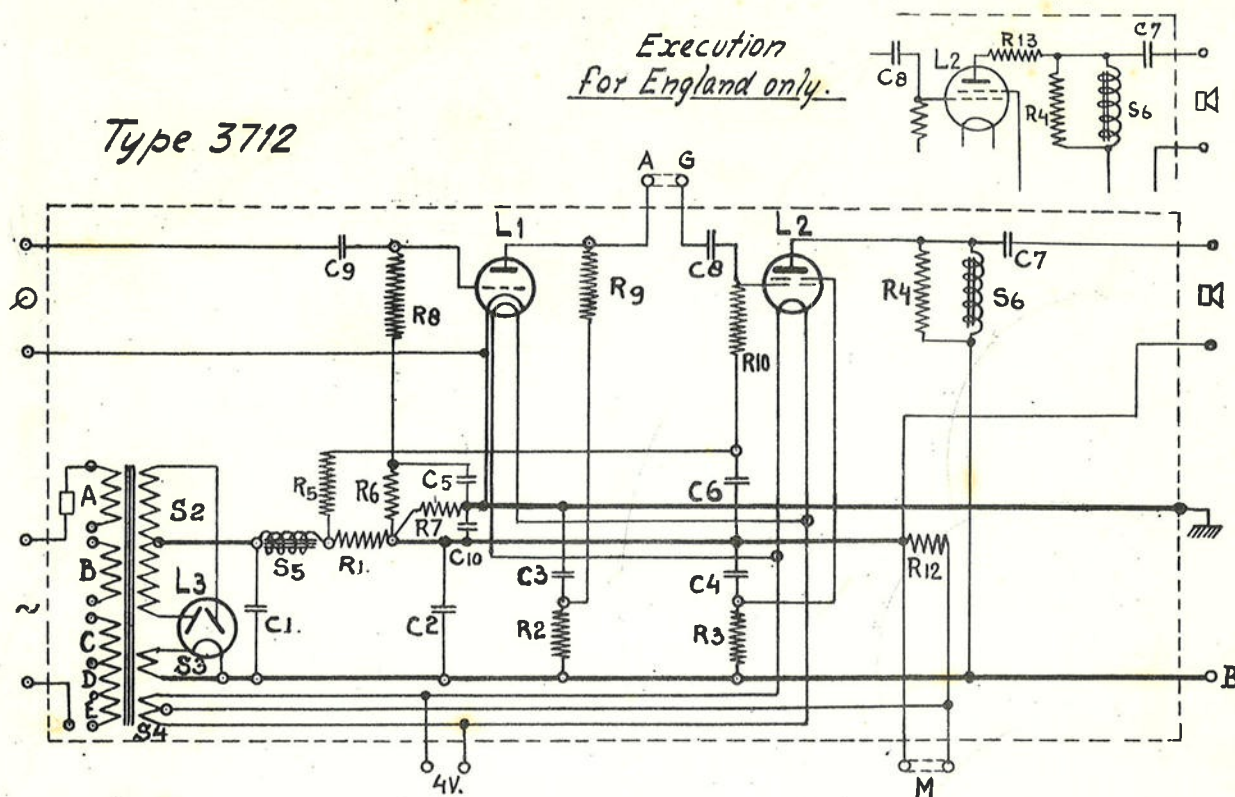
3712	Volt
	100
	80
	60
	40
	20

8005

FIG.3

Type 3712

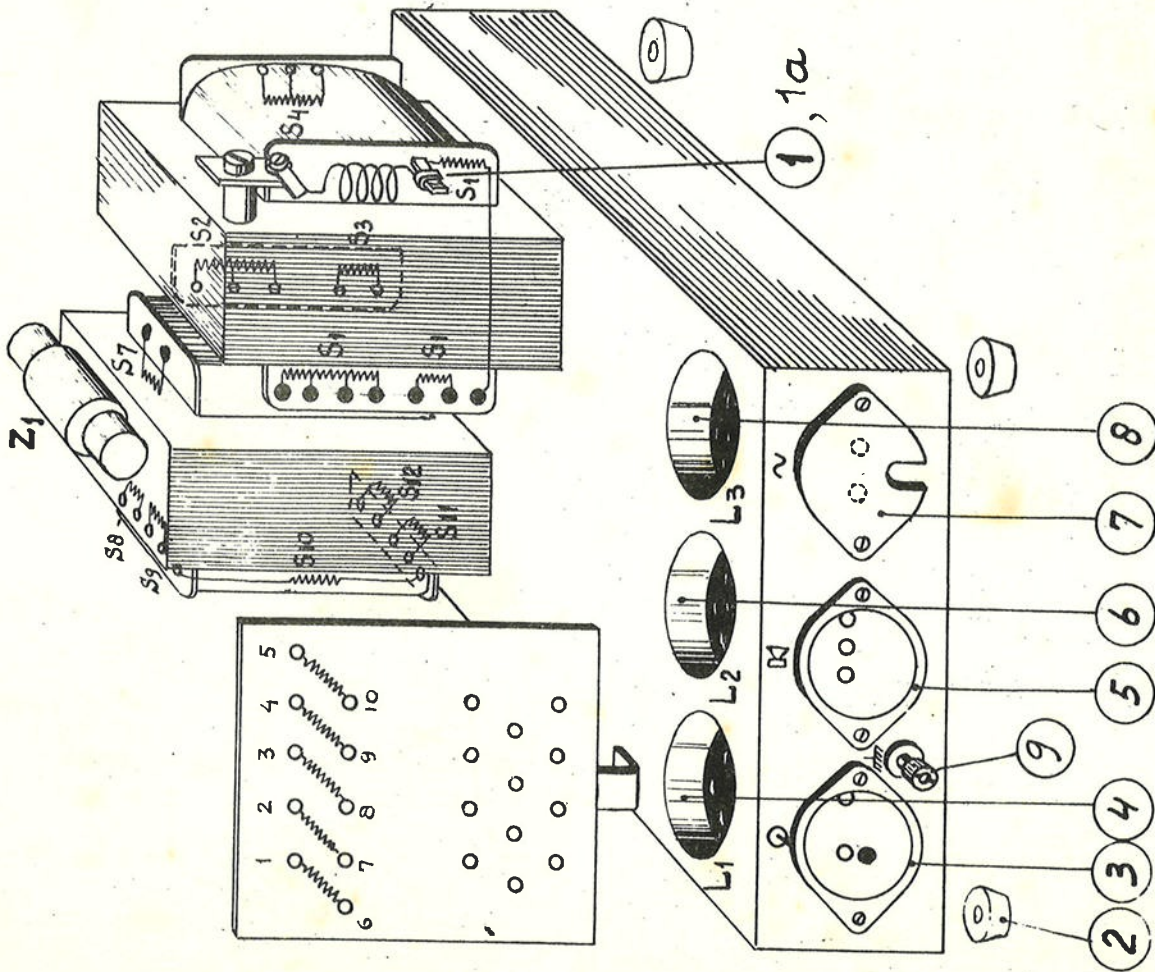
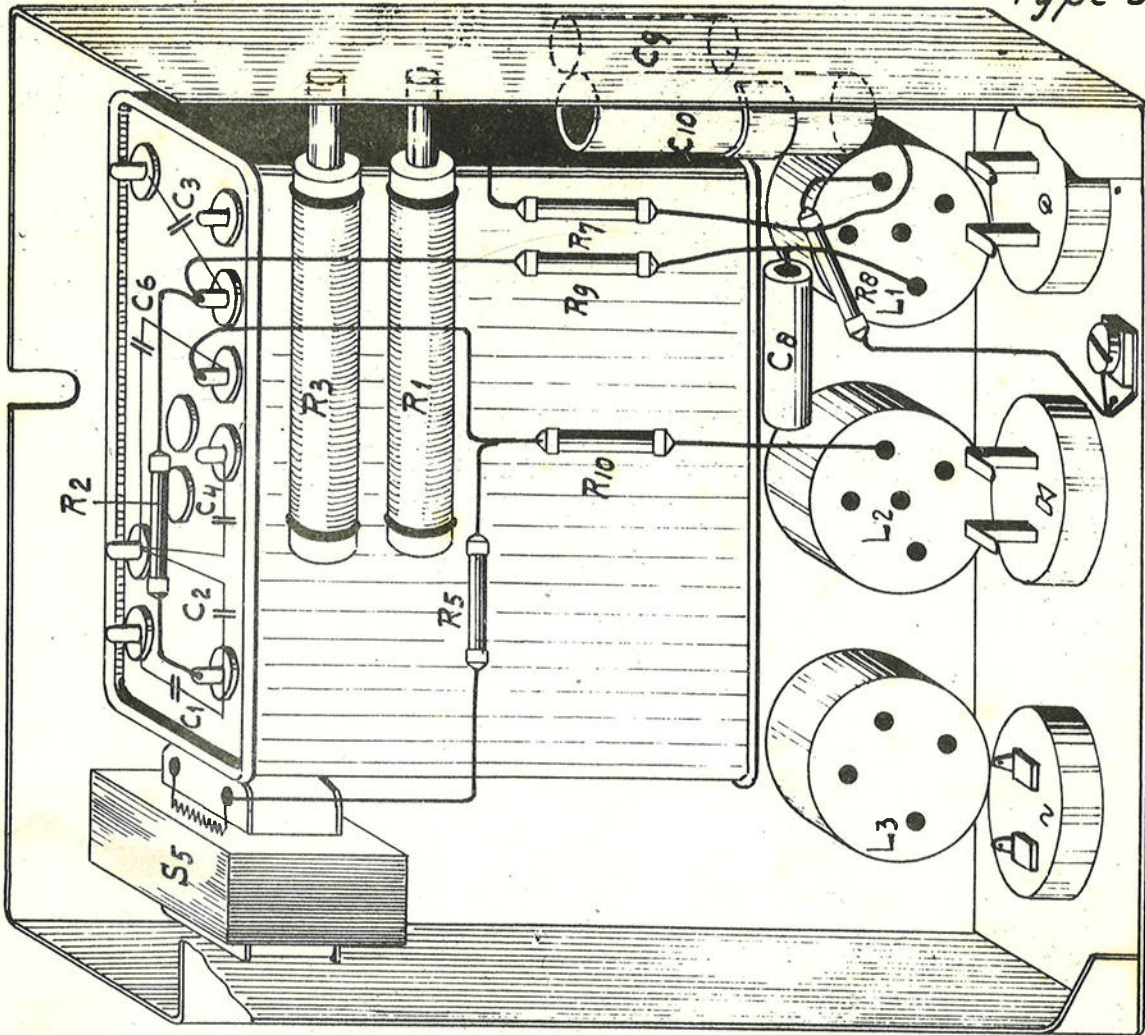
Execution
for England only.



Spoulen Bobines Spulen Coils	Code No. No. du code	Condensatoren Condensateurs Kondensatoren Condensators	Code No. No. du code	Weerstanden Résistances Widerstände Resistances	Code No. No. du code
S1 = (220V) 710 W.	25648321	C1 = 3 μ F	25114852	R1 = 1000 Ω	25840030
S2 = 2x1389 W.		C2 = 3 "		R2 = 0,1 M. Ω	28770450
S3 = 13 "	25485950	C3 = 2 "	28198130	R3 = 50000 Ω	25715820
S4 = 2x7 "		C4 = 3 "		R4 = 40000 Ω	
S5 = 5700 "	25485950	C5 = 2 "	28198200	R5 = 0,1 M. Ω	28770450
S6 = 5700 "		C6 = 2 "		R6 = 0,32 "	28771310
		C7 = 0,1 "	25115020	R7 = 3050 Ω	28770480
		C8 = 20000 μ F		R8 = 0,2 M. Ω	28770510
		C9 = 0,1 μ F		R9 = 0,4 "	28770510
		C10 = 1 "		R10 = 0,4 "	25718170
				R12 = 100 Ω	25840150
				R13 = 1000 "	

FIG. 1A

Type 3712



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