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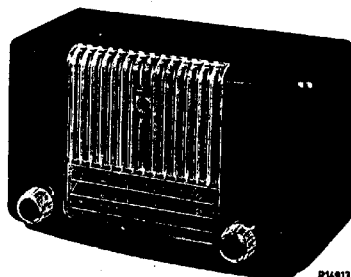
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# PHILIPS

## SERVICE NOTES

for the  
RECEIVER

### BX327U-04-06-10



1953

For a.c. or d.c. mains supply

### GENERAL

#### WAVERANGES

S.W.2 : 13.7 - 41 m ( 21.9 - 7.32 Mc/s)  
S.W.3 : 40.5 - 118 m ( 7.4 - 2.54 Mc/s)  
M.W. : 185 - 580 m (1622 - 517 kc/s)

I.F. : 452 kc/s

#### MAINS VOLTAGE

110, 127, 200, 220 V

#### CONTROLS

From left to right:

1. Mains switch and volume control

Lever: Tone control

2. Tuning

Lever: Waverange - and p.u. switch

#### POWER CONSUMPTION

40 W (220V)

#### LOUDSPEAKER

9742X (not repairable)  
Z = 5  $\Omega$

#### VALVE-COMBINATION

B1 : UCH42

B2 : UF41

B3 : UBC41

B4 : UL41

B5 : UY41

#### DIMENSIONS

Width : 280 mm)  
Height : 180 mm) knobs  
Depth : 160 mm) included

#### DIAL LAMP

L1 : 8097 D-00

WEIGHT: 2.7 kg

#### BANDWIDTH

The I.F. bandwidth (1:10) measured from g1 of B1 is about 14 kc/s. The "overall" bandwidth (1:10) measured from the aerial socket is about 12 kc/s at 925 kc/s and 545 kc/s.

ILLUSTRATIONS

- Fig. 1 Simplified circuit diagrams for each position of the waverange switch.
- Fig. 2 Position of the coils and trimmers.
- Fig. 3 Trimming points on the dial.
- Fig. 4 Switch wafers
- Fig. 5 Pointer and capacitor drive.
- Fig. 6 Connecting diagram of the output transformer.
- Fig. 7 Circuit diagram.
- Fig. 8 Wiring diagram (under)
- Fig. 9 Wiring diagram (above)

IMPORTANT When connecting a receiver to a.c. mains supply for repairs or trimming, it is necessary to use a transformer with separate windings. The secondary winding must not be earthed and one set only should be connected to the transformer. The chassis can then be earthed. When connecting to d.c. mains check for the right polarity.

MAINS VOLTAGES

In the 220 V position of the voltage adaptor the set can be used on 200 V by short circuiting R3.

TRIMMING THE RECEIVER

A. I.F. BANDFILTERS

1. Variable capacitor at minimum.
2. Waverange switch to M.W.
3. Volume control to maximum.
4. Connect a voltmeter via a trimming transformer to the loudspeaker terminals.
5. Screw the cores of the I.F. filters nearly full out.
6. Apply a modulated signal of 452 kc/s, via a capacitor of 33000 pF, to g1 of B1.
7. Trim the I.F. circuits, for maximum output voltages, in the following order:

- 4th I.F. circuit: S18-C25
- 3rd I.F. circuit: S17-C24
- 1st I.F. circuit: S15-C22
- 2nd I.F. circuit: S16-C23

After the last circuit has been trimmed no further adjustments should be made.

8. Seal the cores. S18, S17, S15, S16.

B. R.F. AND OSCILLATOR CIRCUITS

Trimming is done with the aid of trimming points on the dial (see fig. 3). Before starting to trim, turn the variable capacitor to minimum and set the pointer on the trimming point 1.

For all waveranges the following applies:

1. Volume control at maximum.
2. Tone control at "quality".
3. Connect a voltmeter via a trimming transformer to the extension loudspeaker sockets.

Trim as indicated in the following table, strictly observing the order given.

1	Wave range switch to	M.W.	S.W.3	S.W.2
2	Turn the pointer, by means of the tuning knob, to trimming point	2	2	2
3	Apply a modulated signal of..... via a capacitor of 33 pF to the aerial socket.	545kc/s	-	-
4	Trim for maximum output voltage	S14,S7	-	-
5	Turn the pointer by means of the tuning knob to trimming point	1	-	-
6	Apply a modulated signal of ..... via a capacitor of 33 pF to the aerial socket.	1630kc/s	-	-
7	Trim for maximum output voltage	C16,C5	-	-
8	Repeat the points	2-7	-	-
9	Apply a modulated signal of..... via a normal dummy aerial to the aerial socket.	-	2.65Mc/s	7.45Mc/s
10	Trim for maximum output voltage	-	S12,S4	S10,S2
11	Seal the cores and trimmers	S14,S7 C16,C5	S12,S4	S10,S2

REPAIRS AND REPLACEMENT OF PARTS

REMOVING THE CHASSIS FROM THE CABINET

1. Turn variable capacitor at maximum.
2. Remove the knobs.
3. Remove the rear panel.
4. Unsolder the loudspeaker connections.
5. Remove the pointer from the driving cable.
6. Unscrew the 2 screws underneath the chassis.
7. Take the chassis out of the cabinet.

POINTER AND CAPACITOR DRIVE

The path and the length of the driving cord are indicated in fig. 5, the variable capacitor being set to maximum.

OUTPUT TRANSFORMER

If the original output transformer of this apparatus becomes defective, it must be replaced by the standard transformer mentioned in the electrical parts list.

For connections see fig. 6.

VOLTAGES AND CURRENTS

Valves			Va	Vg(2+4)	Vk	Ia	Ig(2+4)
B1	UCH 42	Hexode	160	74		2.4	3.15
		Triode	85			3.4	
B2	UF 41	Pentode	160	74		5.3	1.6
B3	UBC 41	Duo Diode Triode	50			0.5	
B4	UI 41	Pentode	169	160	8.2	47	7.5
			Volts	Volts	Volts	mA	mA

VC1 = 185 Volts  
VC2 = 160 Volts

I total = 195 mA (220 V<sub>r</sub>)

These values have been measured with the Universal Measuring Instrument GM 4257. Receiver connected to 220 V<sub>r</sub>. Waverange switch to M.W. and no signal to the aerial socket.

LIST OF PARTS AND TOOLS

When ordering always quote:

1. Codenumber
2. Description and colour code
3. Typenumber of the receiver

	Description	Codenumber
	Cabinet for BX 327U-06-10 (colour MD)	P4 066 50.0
	Cabinet for BX 327U-04 (colour cream)	A3 737 83.0
	Dial for BX 327U-04 (oversea)	A3 741 14.0
	Dial for BX 327U-04 (mediterranean)	A3 741 15.0
	Dial for BX 327U-06-10 (oversea)	A3 741 02.0
	Dial for BX 327U-06-10 (mediterranean)	A3 741 03.0
	Ornamental screw for fixing dial (2x)	A3 713 21.0
	Diallampholder	A3 359 16.1
	Knob (colour AB, 2x)	A3 736 26.0
	Lever for waverange switch for BX 327U-06-10 (colour MD)	P4 380 00.0
	Lever for waverange switch for BX 327U-04 (colour cream)	A3 369 85.0
	Lever for toneswitch for BX 327U-06-10 (colour MD)	P4 075 19.0
	Lever for toneswitch for BX 327U-04 (colour cream)	A3 369 86.0
	Clamp spring (2x)	A3 321 46.0
	Rear panel	A3 699 37.0
	Socket plate (aerial-aerth)	A3 388 29.0
	Socket plate (P.U.)	A3 382 13.0
	Socket plate for voltage adapter	A3 228 85.0
	Voltage adapter	A3 228 55.0
	Tension spring for fixing large coilcan (4x)	A3 652 58.3
	Tension spring for fixing small coilcan	A3 652 92.0
	Variable capacitor	see capacitors
	Tension spring (variable capacitor)	A3 646 26.0
	Tone switch	A3 401 79.0
	Pulley (colour AA)	P4 120 02.0
	<u>TOOLS</u>	
	Service oscillator	GM 2883 or GM 2884
	Universal Measuring Instrument	GM 4256 or GM 4257
	Vaseline Compound	✓ X 009 47.0

S1	1,8 Ω	A3 125 26.0	G22	Spoelen	-
S2	0,2 Ω		G23	Coils	-
S3	6 Ω		G24	Bobines	-
S4	1,3 Ω	A3 125 32.0	G25	Spulen, Bobinas	-
S7	1,3 Ω	A3 117 40.0	G26	100 pF	48 203 10/100E
S8	0,6 Ω		G27	15000 pF	48 750 10/15K
S9	0,6 Ω	A3 125 55.0	G28	100 pF	48 203 10/100E
S10	0,2 Ω		G29	10000 pF	48 751 10/10K
S11	0,8 Ω		C30	22000 pF	48 757 20/22K
S12	0,9 Ω	A3 125 66.0	C31	2200 pF	48 751 10/2K2
S13	3,8 Ω		C32	33000 pF	48 752 10/33K
S14	11 Ω	A3 125 72.0	C33	330 pF	48 203 10/330E
S15	12 Ω		C34	5600 pF	48 104 10/V5K6
S16	12 Ω		C35	5600 pF	48 104 10/V5K6
G22	110 pF	A3 124 25.4	C36	5600 pF	48 104 10/V5K6
G23	110 pF		C37	3,9 pF	48 200 20/3E9
S17	12 Ω		R1	1000 Ω	49 379 81.0
S18	12 Ω	A3 124 25.4	R2	180 Ω	
G24	110 pF		R3	200 Ω	49 417 03.1
G25	110 pF		R4	430 Ω	
S19		A3 169 20.0	R5		49 379 62.0
S20			R6	0,1 MΩ	A9 999 00/100K
C1	50+50 μF	48 317 57/50+50	R7	22000 Ω	A9 999 00/22K
C2			R8	22000 Ω	A9 999 00/22K
C3	1000 pF	48 757 20/1K	R9	18000 Ω	A9 999 00/18K
C4	5,6 pF	48 201 20/5E6	R10	1,5 MΩ	A9 999 00/1M5
C5	30 pF	28 212 36.4	R11	15000 Ω	A9 999 00/15K
C6	1) 25 pF	49 005 49.2	R12	4,7 MΩ	A9 999 00/4M7
C7	3000 pF	48 429 05/3K	R13	0,45 MΩ	48 900 00/DL
C8	11-500 pF		R14	0,05 MΩ	50K+450K
C9	11-500 pF	49 001 56.1	R15	0,22 MΩ	A9 999 00/220K
C10	2) 25 pF	49 005 49.2	R16	0,68 MΩ	A9 999 00/680K
C11	3) 25 pF	49 005 49.2	R17	150 Ω	A9 999 00/150E
C12	47000 pF	48 750 10/47K	R18	0,1 MΩ	A9 999 00/100K
C13	470 pF	48 203 10/470E	R19		49 379 67.0
C14	47 pF	48 203 10/47E	R20	22000 Ω	A9 999 00/22K
C15	30 pF	48 336 02/30E	R21	1000 Ω	A9 999 00/1K
C16	30 pF	28 212 36.4	R22	33000 Ω	A9 999 00/33K
C17	1100 pF	48 336 02/1K1	R23	180 Ω	A9 999 00/180E
C18	1500 pF	48 206 50/1K5	R24	47000 Ω	A9 999 00/47K
C19	47000 pF	48 750 10/47K	R50	0,1 MΩ	A9 999 00/100K
C20	0,1 μF	48 751 10/100K			
C21	360 pF	48 336 02/360E			

- |                    |                |
|--------------------|----------------|
| 1. Adjust at 16 pF | Régler à 16 pF |
| 2. Adjust at 10 pF | Régler à 10 pF |
| 3. Adjust at 22 pF | Régler à 22 pF |

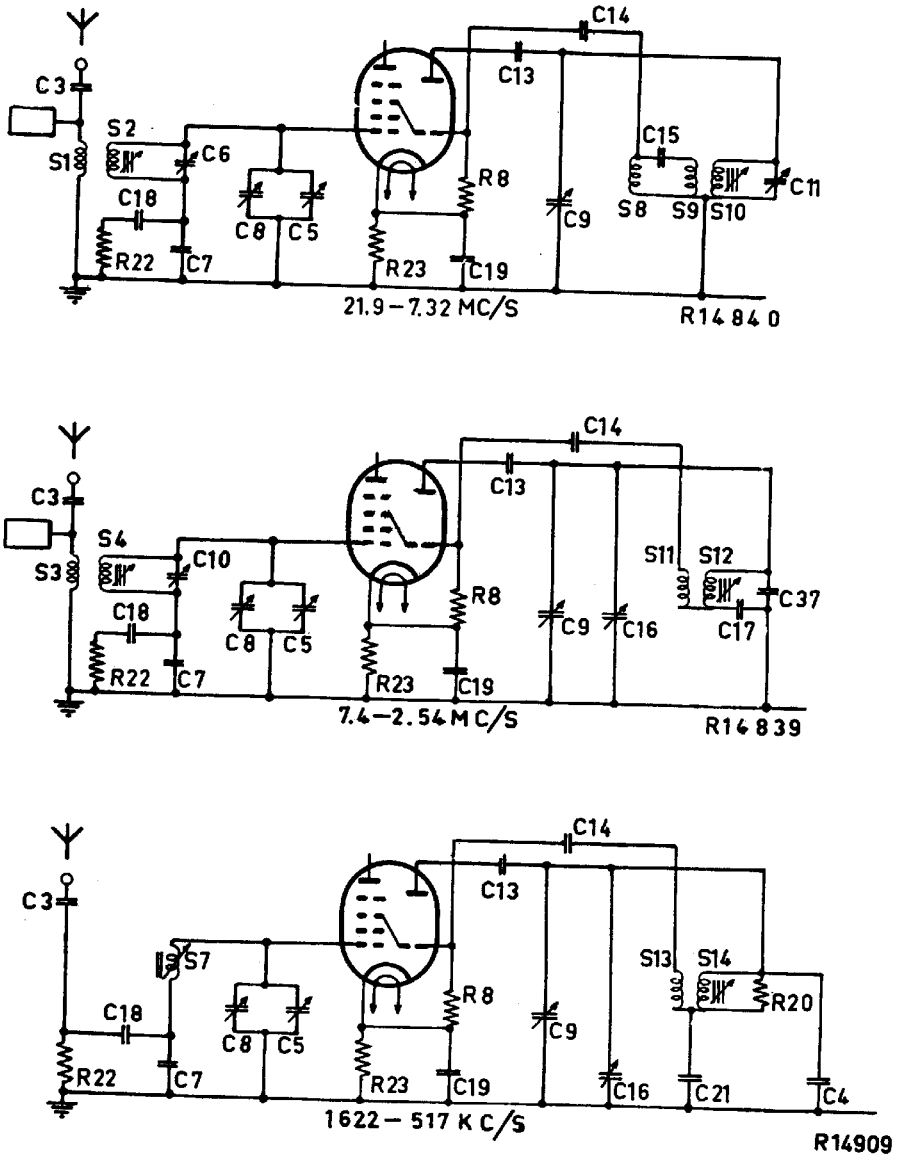
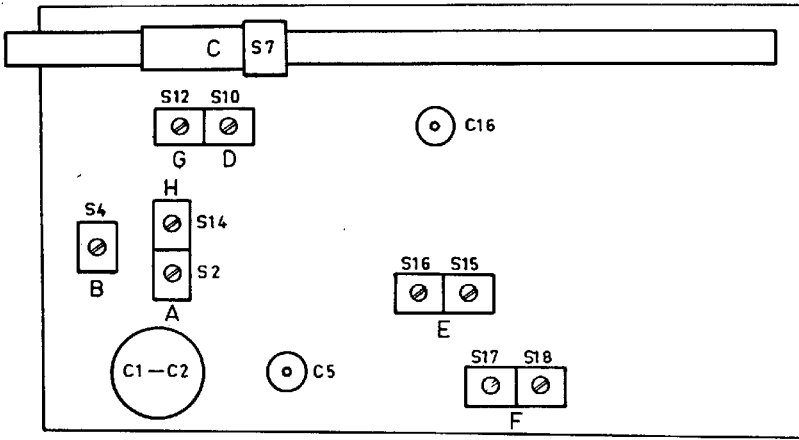
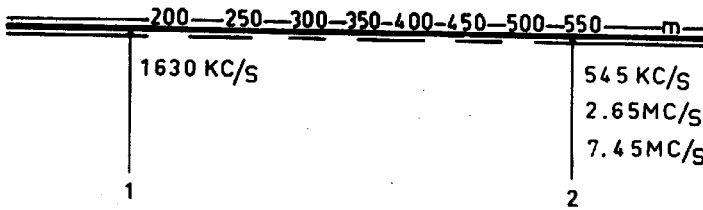


Fig.1



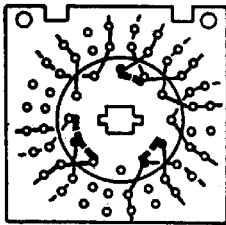
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Fig2

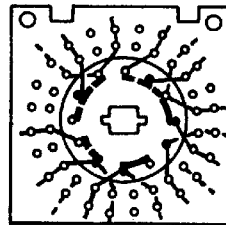


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Fig.3



sk 1



sk 2

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Fig.4



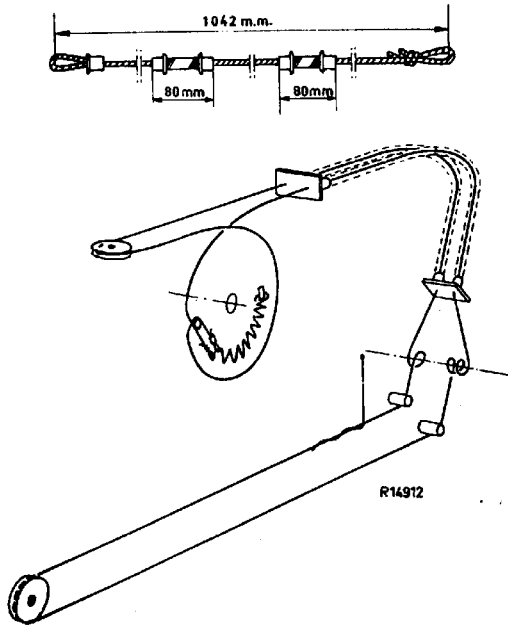


Fig.5

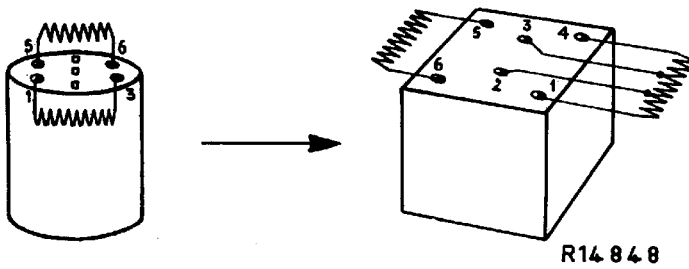


Fig.6

S:	1.3.2.4. 7.7A.	8. 9. 11.13.10.12.14.	15. 16.	17. 18.	19. 20. 21.
C:	34. 18.3.	32. 7. 6. 10. 5. 8. 12. 6.	14. 19. 13. 9.	11. 22. 16. 4. 17. 37. 23. 20. 36. 1.	35. 2. 24. 27. 26. 25. 31. 2. 8. 33. 29. 30.
R:	50. 22.	23. 2. 8. 7. 19.	3. 5. 4. 20. 9.	10. 1. 11. 24. 13. 14. 18. 12.	15. 16. 21. 17.

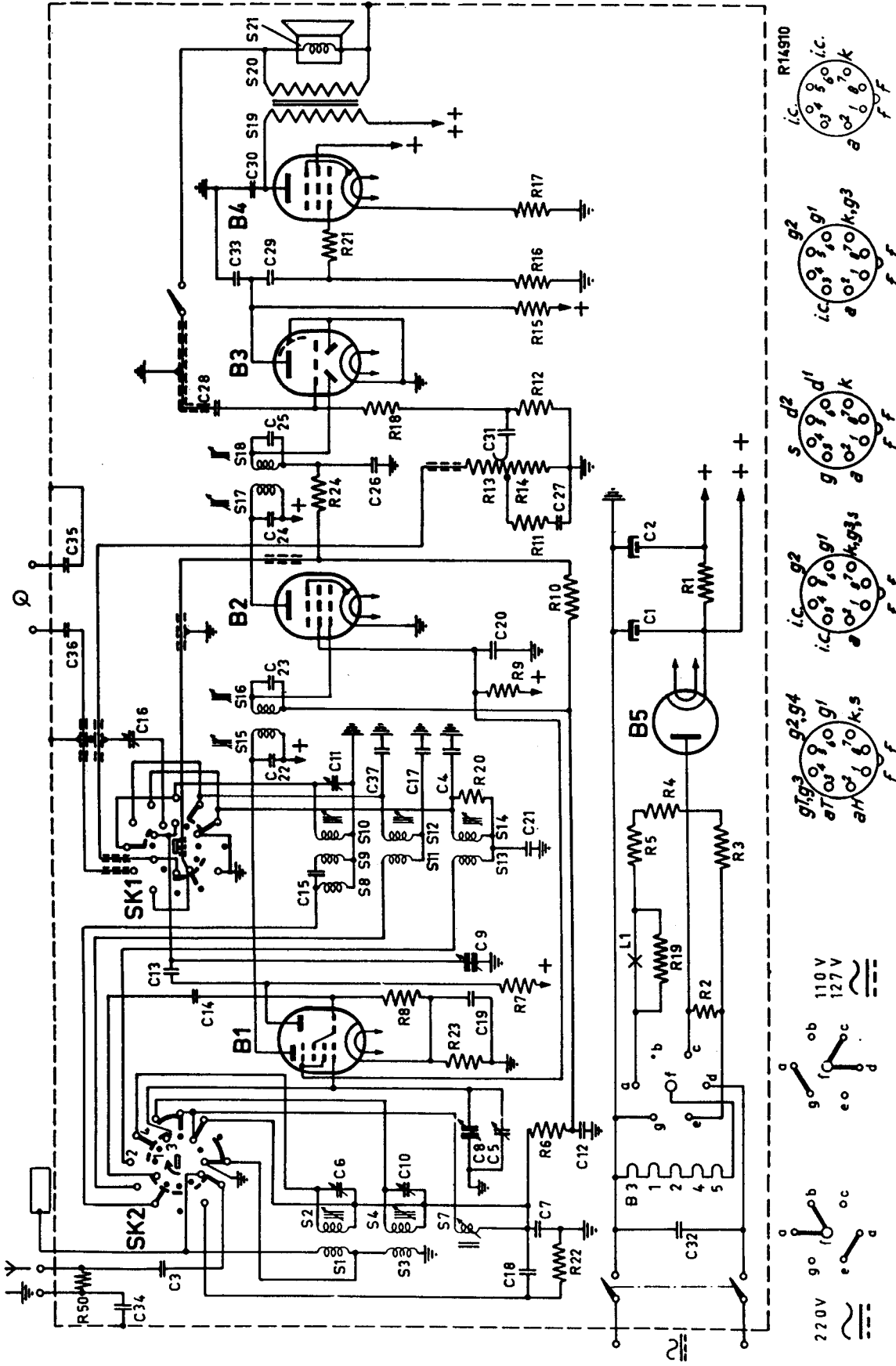
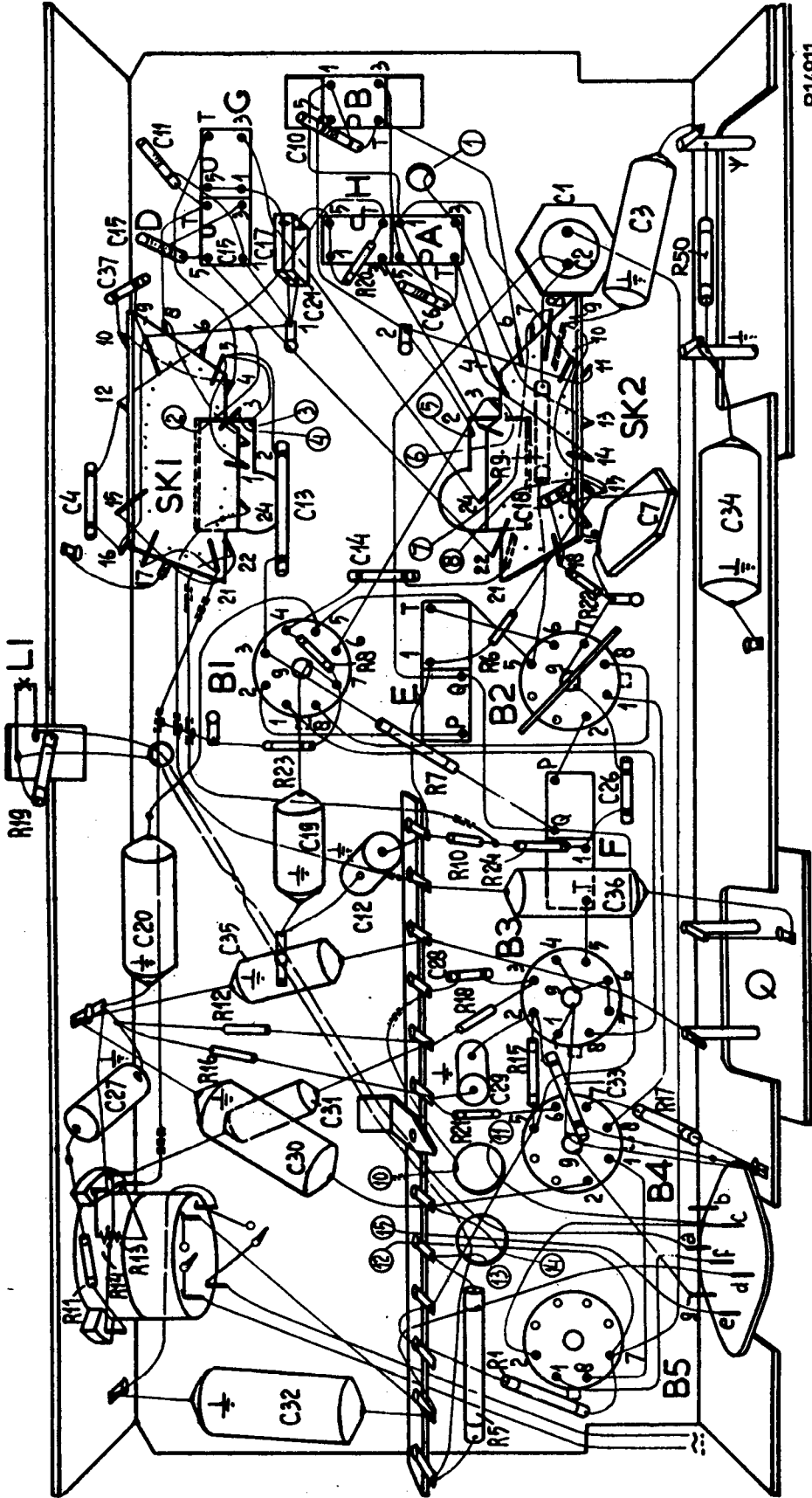


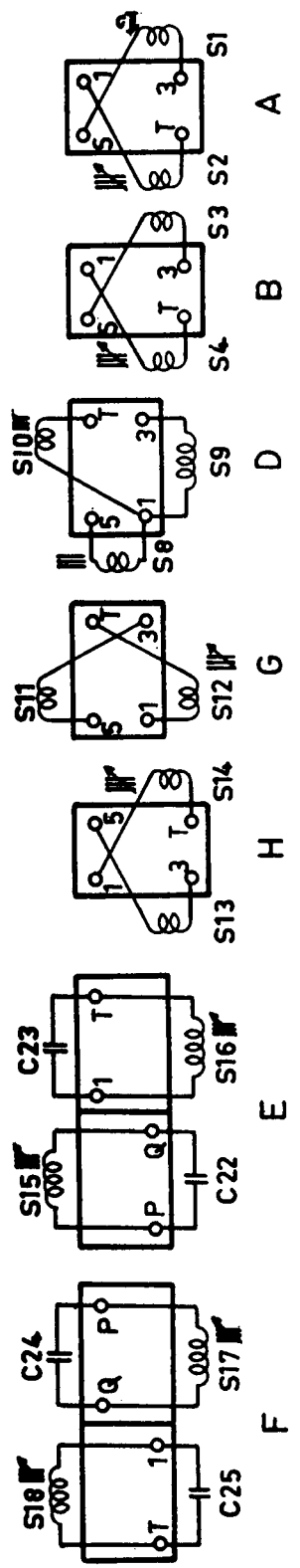
Fig. 7

S:	7.	F.	E. 21.	D.H.A.20.19. G. B.
C: 32.	30.	31.3327.29.5.352812.82036939.	16.	14. 7.34. 4. 13.18.
R: 5.1.	11.14.13.	17.21.15.16.12.18.	10.24. 19.7.23.	8. 6. 22. 9. 2. 3. 20. 4. 50.



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Fig.8



A

B

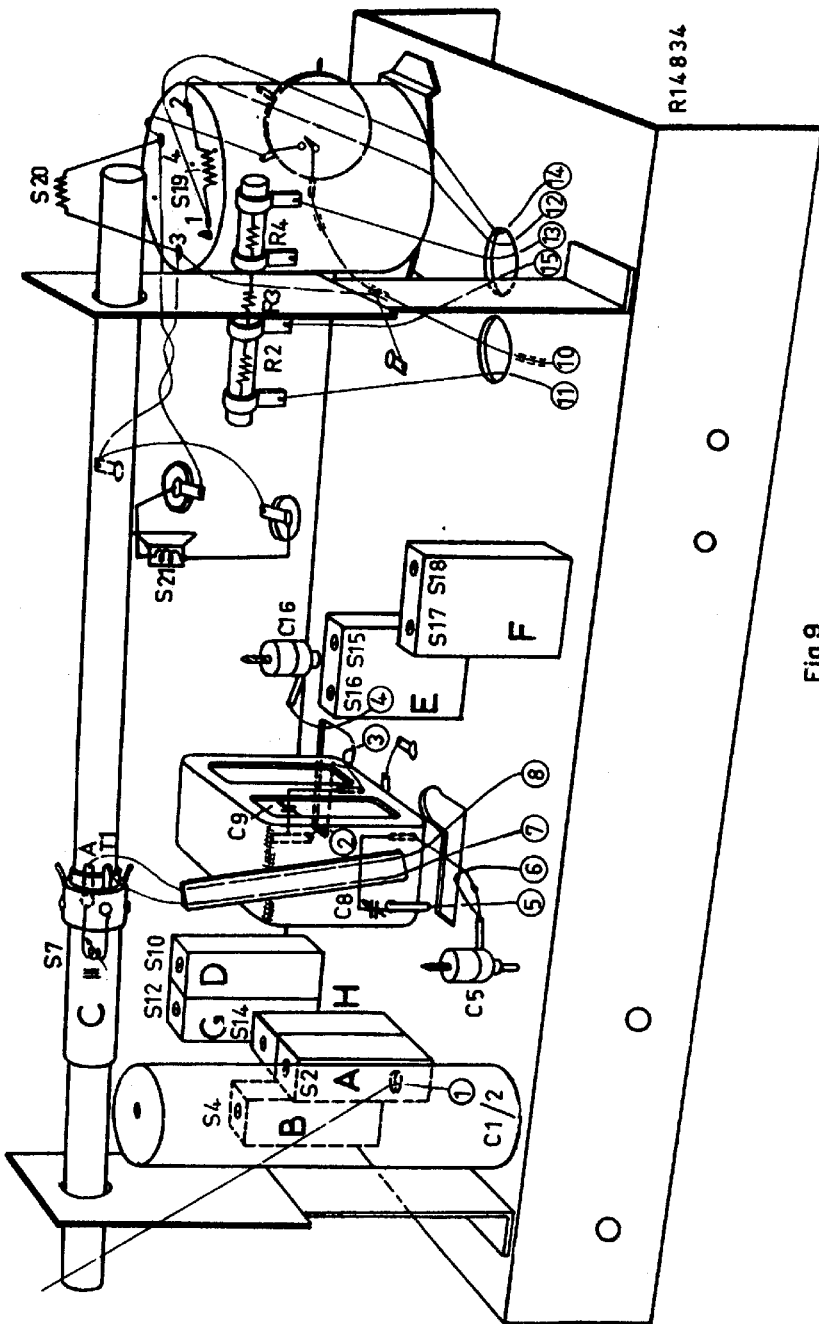
D

G

H

E

F



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Fig. 9