STRICTLY CONFIDENTIAL

FOR PHILIPS SERVICE DEALERS ONLY

SERVICE NOTES FOR THE RECEIVER

BX 685U

1949 — For a.c. and d.c. mains supplies

GENERAL

WAVE RANGES

S.W.1 :	11,2	- 13,6 m	(26,8 -21,27	Mc/s)
			16 m bandspread	
S.W.2 :	15,5	- 20 m	(19,3 -15	Mc/s)
			20 m bandspread	
S.W.3 :	19	- 25,8 m	(15,79-11,6	Mc/s)
			25 m bandspread	
S.W.4 :	24	- 31,8 m	(12,5 -9,33	Mc/s)
			30 m bandspread	
S.W.5 :	31	- 42,5 m	(9,67- 7,06	Mc/s)
			40 m bandspread	
S.W.6 :	37	- 50,8 m	(8,1 - 5,8	Mc/s)
			50 m bandspread	
S.W.7 :	50	- 150 m	(6 - 2	Mc/s)
M.W. :	185	- 580 m	(1620 -420	kc/s)

VALVES

B1 : UCH21 : Mixer and oscillator valve.
B2 : UF21 : I.F.amplifying valve
B3 : UF21 : L.F.amplifying valve
B4 : UBL21 : Output valve with detector
B5 : UM4 : Tuning valve
B6 : UY1(N): Rectifying valve

L1 and L2 : 2x 8097D-00

DIMENSIONS

Height : 40 cm (with the dial turned down)
Length : 57 cm (knobs included)
Width : 24,5 cm

WEIGHT

9,8 kg., valves included.

LOUDSPEAKER

Type Nr. 9702-05.

BANDWIDTH

a. The I.F. bandwidth (1:10) measured from the control grid of valve B1 amounts to about 10 kc/s, with the tone control knob pulled out (position small) and about 18 kc/s with the tone control knob pushed in (position wide).
b. The overall bandwidth (1:10) measured from the aerial socket to a signal of 1000 kc/s amounts to about 10 kc/s with the tone control knob pulled out (position small) and about 16 kc/s with the tone control knob pushed in (position wide).

INTERMEDIATE FREQUENCY

Amounts to 452 kc/s

GRAMOPHONE CONNECTION

When using a pick-up an adapting unit has to be used. This unit is supplied by the Commercial Department. Code number A3 418 46. At the rear panel room is provided for this unit, fig. 15 shows in which way it has to be installed and how it is connected.

CIRCUIT ANALYSIS

GENERAL

The short-wave range of this receiver is divided over 6 bands. The broadcasting short-wave bands, the 50, 40, 30, 25, 20 and 13 m bands are spread. The waverange switched on is the bottom one that can be read on the dial. When switching over to another waverange, this dial is being shifted up or down. The bandwidth of the receiver can be increased by pushing in the tone control knob. The volume control is such that with the volume control knob in the maximum position no losses in amplification occur by inverse feedback. Physiological tone correction is at the same time applied for the low and the very high tones. With the tone control knob the best reception can be chosen for each station whether it is a local one or a distant weak transmitter with or without side-band splash.

R.F. PART

A simple circuit diagram for the R.F. part of the S.W. range is given in fig. 1. The coils for the various S.W. ranges are given in the table. SK1 is the switch segment No. 1. SK2a and SK2b the switch segment No. 2, SK3a and SK3b the switch segment No. 3 and SK4 the segment No. 4.

	Sa	Sb	Sc	Sd
S.W.1	S5	S6	S21	S22
S.W.2	S7	S8	S23	S24
S.W.3	S9	S10	S25	S26
S.W.4	S11	S12	S27	S28
S.W.5	S13	S14	S29	S30
S.W.6	S15	S16	S31	S32

The switches SK2b and SK3b are closed for those coils which are not in use; this has

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been done to avoid undesired damping at a frequency which is equal to the resonance frequency of a coil which is not switched on by mutual coupling of the coils.
The parallel trimmers C24 and C11 are adjusted in the S.W. band 2 (15-20,1 m). The other S.W. bands need only be trimmed at the lower frequencies on the dial. This trimming is done by the adjustment of copper coil cores which when inserted cause a decrease of self-induction.
Dividing the short-wave range into 6 bands is done by decreasing the capacitance variation of the tuning condenser by connecting a condenser of 82 pF in series with the tuning condenser.
This also provides for bandspread at the lower frequencies on the dial. This can be explained as follows: the condenser of 82 pF has little influence upon the small values, 10-30 pF of the tuning condenser (at higher frequencies on the dial). As soon as the tuning capacity increases, this condenser starts to play a greater part. For values of 250 pF and higher of the tuning condenser the total tuning capacity increases only very little so that bandspread is obtained over this part. The trend of this capacity is given in fig. 2.
The dividing or the S.W. range is such that the broadcasting S.W. bands fall in the bandspread part. They lie all on top of each other on the dial. This connection has the additional advantage that the switching over from one broadcasting band to the other can be done by merely turning the wave-range switch.

I.F. PART

By pressing in the tone control knob the I.F. bandwidth is increased and one hereby obtains the overall bandwidth with a better reproduction of the high notes. Increasing the bandwidth is done by increasing the coupling of the first I.F. bandfilter with the aid of an additional coupling coil which is switched on by pressing in the tone control knob.
The diodes of valve B4 (UBL21) are used for detection and the A.V.C.
The automatic volume control is delayed by connecting the bottom of the A.V.C. detection resistor R23 to a negative voltage. The negative voltage is obtained from the voltage drop across the resistor R3 through which the total valve current of the receiver flows.

A.F. PART

VOLUME CONTROL

The circuit diagram of the I.F. volume control is given in fig. 3.
S49, S50 and S55 are parts of the secondary winding of the output transformer. The negative feedback voltage drawn across S49 and S50 and across S50 alone is applied to the top, point M, of the volume control via R15 and R14 and via R13, R16 and R14 respectively. This negative feedback voltage, however, is practically neutralized by the positive feedback voltage which is drawn across S55 via R9 and R10 and applied to the top, point M, of the volume control, so that with the slider on top (volume control at maximum) there is no feedback. This has the advantage that for the reception of weak stations with the volume control at maximum the highest sensitivity required is obtained as the amplification does not suffer any losses from negative feedback.
When the volume control knob is turned to a minimum, the negative feedback increases as the influence of the positive feedback voltage across R14 to R15 is more and more reduced.

PHYSIOLOGICAL TONE CORRECTION

The ear is at small volume sensitive to tones with a frequency of about 3500 c/s, while the ear is at this sound volume insensitive to low and very high tones. To compensate for this physiological tone correction is applied which is put into operation when the volume control knob is turned to a minimum volume.

a. The compensation for the insensitivity for low tones is here obtained by increasing the negative feedback for the higher tones when the volume control is turned to minimum volume. This is done by the capacitor C23 across R16. This capacitor forms a better passage for higher frequency of the negative feedback voltage than via R16 with the result that in point T the negative feedback in the high tones increases.
b. The compensation for the insensitivity to very high tones is obtained by:
   1. The capacitor C32; via this capacitor the positive feedback voltage in the very high tones is applied to point T.
   2. The capacitor C34; via this capacitor the signal for the very high tones finds a better passage to the slider in proportion to the decrease of resistance between point M and the slider. (Volume control turning to minimum position).

TONE CONTROL

The tone control as applied in this receiver is based on three positions of the tone control knob.
1. Position for low tones - for reception of stations with side-band splash.
2. Position for both low and high tones -quality position indicated by the stop.
3. Position for high tones - speech position.

By turning the tone control knob it is now possible to choose the best condition for each reception.
The characteristics of the three positions are indicated in fig. 4 in a space figure.
The tone control is obtained by adjustable negative feedback in the high and the low tones. (See fig. 5).

The capacitor C37 and the potentiometer R17 R18 with R40 in parallel form a high-pass filter via this filter the negative feedback for the high tones is applied to the grid of B3. This negative feedback is max. with the slider at the top-position for low tone- and supresses high tones.
Turning the slider downward, this negative feedback decreases as the negative feedback voltage is applied to the grid of B3 via a part of the potentiometer R17 (+R18). The high tones will then come through much better until finally the quality position is reached when the high tone negative feedback voltage is short-circuited by the capacitor C20.
With the slider in the bottom part R18 - of the potentiometer R17+R18 - speech position - negative feedback for the low tones is applied via the low-pass filter R20 and C36, so that these tones are suppressed.

IMPORTANT

When repairing, trimming or fault finding it is necessary, when connecting the receiver to a.c. mains, always to use a separating transformer with separated windings of which the secondary is not grounded. Then it is possible to ground the chassis directly. Grounding of the ground-socket is not sufficient as there is a condenser between chassis and ground socket.
The code number of a separating transformer is stated in the 'List of Spare Parts and Tools'.
When connecting the receiver to d.c. mains pay attention to the polarity.

TRIMMING THE RECEIVER

I.F. BANDFILTERS (Fig. 6)

1. Wave-range switch on M.W., volume control at maximum, tone control on treble (to the left) and pulled out.
2. Earth the receiver and connect an output meter to the extension loudspeaker sockets via the trimming transformer.
3. Turn out the cores of the I.F. bandfilters as much as possible.
4. Apply a modulated signal of 452 kc/s to the control grid g1 of the valve B1 via a capacitor of 33000 pF.
5. Adjust the cores to maximum output in the sequence S43 + S44, S41 + S42, S37 and S38. Any time the bandfilter circuits are trimmed the trimming must cease after the adjustment of the last circuit of the four.
6. Lacquer the cores.

I.F. WAVE TRAP (Fig. 6)

1 and 2 as with I.F. bandfilters.
3. The variable condenser at maximum capacity.
4. Apply a modulated signal of 452 kc/s to the aerial socket via a dummy aerial.
5. Adjust C52 to minimum output.
6. Lacquer the trimmer.

R.F. AND OSCILLATOR CIRCUITS (Fig. 9)

The trimming is done with the trimming points on the dial. These points are indicated in fig. 7 and this facilitates the looking for them on the dial.
For the trimming of the other S.W. bands one must first check whether the short-wave band 2 (15.5-20 m) is well trimmed. If this is not the case this has to be done first.
The trimming of the S.W. coils is done with a philite trimming key in which a notch is filed as indicated in fig. 8.

1. Volume control at maximum, tone control on shaft (to the left) and pulled out.
2. Earth the receiver and connect an output meter to the external loudspeaker sockets via the trimming transformer.
3. Turn the variable condenser to minimum capacity and adjust the indicator to the starting point 'A' of the dial.

Continue the adjusting as indicated in the table below.

		Waverange to be trimmed						
1	Waverange switch on	S.W.2	S.W.3	S.W.4	S.W.5	S.W.6	SW7	M.W.
2	Adjust the pointer to the trimming point(see also f.7)	17,8					15°	15°
3	Apply a modulated signal of via a dummy aerial to the aerial socket	17,8 Mc/s S.W.					5,8 Mc/s normal	1550 kc/s
4	Trim for maximum output successively (see fig. 9)	C11,C24					C22,C8	C19,C7
5	Adjust the pointer to the trimming point (see also fig. 7)	15,2	11,8	9,6	7,2	6,1	1,96	523
6	Apply a modulated signal of via a dummy aerial to the aerial socket	15,2 Mc/s S.W.	11,8 Mc/s S.W.	9,6 Mc/s S.W.	7,2 Mc/s S.W.	6,1 Mc/s S.W.	1,96 Mc/s normal	523 kc/s
7	Trim for maximum output successively (see fig. 9)	S24 S7+S8	S26 S9+S10	S28 S11+S12	S30 S13+S14	S32 S13+S16	C21	C18
8	Repeat points	1-7					1-7	1-7
9	Seal	C11,C24 S24 S7+S8	S26 S9+S10	S28 S11+S12	S30 S13+S14	S32 S15+S16	C22,C8 C21	C19,C7 C18

S.W.1 is trimmed by adjusting S22 on a modulated signal of 21.3 Mc/s to the trimming point 21.3 on the dial.

REPAIRS AND REPLACEMENTS OF PARTS

The removal of the back panel and the bottom panel will be sufficient for doing most repairs. If the chassis has to be taken out of the cabinet one must first remove the back panel and the bottom panel and then do as follows:

1. Loosen the knobs.
   Unsolder the loudspeaker connections. Loosen the tuning valve.
2. Loosen the wooden screws (2) with which the bracket in the top of the cabinet is mounted.
3. Remove the dial. Loosen the indicator by removing completely the screw for the mounting of the cable. Take the dial out of the cabinet.
4. Loosen the screws (4) with which the chassis is mounted in the cabinet.
5. Take the chassis out of the cabinet.

DRIVE

The drive is given in fig. 10; this also gives the lengths of the various cables. The capacitor is in position for maximum capacity. The wave-range switch stands on M.W.

DRIVING STRIP

The exchange of the driving strip is done as follows:

1. Take the chassis out of the cabinet. Wave-range switch on M.W. (turn fully anti-clockwise).

2. Loosen (1 screw) and remove the faulty driving strip.
3. Mount a new driving strip as indicated in fig. 10 and fasten provisionally.
4. Stretch the strip with a spring as indicated in the same figure. One can herefore use a spring which is also a stretching spring in the drive cable for the indicator.
5. Push the driving strip as much as possible in the clamping bracket and mount in such a way that both ends of the strip are aligned.
6. Remove the spring.

PUSH STRIPS FOR THE DIAL

For the exchange of the push strip take the chassis out of the cabinet. Then do as follows:
1. Put the waverange switch on S.W.1. Loosen the driving strip.
2. Turn the spindle with the three pinions, so that the push strip can be taken out.
3. After replacing the faulty push strip, press both push strips under the pinions.
4. Turn the spindle with the 3 pinions so far that the bottom of the push strips comesat the same place as the nick in the brackets.
5. Provisionally fasten the driving strip. Put the waverange switch in the position M.W. (turn fully anti-clockwise).
6. Fasten the driving strip as indicated under 'Driving Strip'.
7. Place the chassis in the cabinet. Put on the dial and check whether this is mounted in the right position. Adjusting is possible with a thin screwdriver with which the screw in the clamping bracket of the push strip is screwed upward or downward.

SWITCH SECTIONS

For loosening the switch sections one must do as follows:
1. Take the chassis out of the cabinet.
2. Put the wave-range switch in the position M.W. (turn fully anti-clockwise).
3. Loosen the leaf-spring at the end of the flat spindle (1 screw). Push the flat spindle farther to the midst of the chassis.
4. Place the wave-range switch in the position S.W. 4 (3/4 turn to the right).
5. Push the flat spindle with pliers backwards and further through the large gearwheel. To find the slot through which the flat spindle has to pass turn the gearwheel a little up and down by means of the waverange switch.

After removing the mounting strip one can easily reach the switch sections. Inserting the flat spindle is done in the reserve order. One must then pay attention to the position of the wave-range switch.

COILS

If a S.W. coil has to be removed the hole at the upper side of the chassis is drilled out after which the coil can be taken out. A new coil can be fitted by bending the rim of the coil with a warm soldering iron in the aperture concerned.

EXCHANGING GEAR WHEELS

After decasing:
1. Place the waverange switch in the position M.W.
2. Loosen the driving strip.
3. Loosen the brackets (3 screws).

The gear wheel and the stop mechanism can now be replaced.
The mount as follows:
1. Place three leaf-springs on both sides of the square of the small toothed wheel.
2. Place the bottom of these springs in the bottom locking studs on the chassis.
3. Place the springs on one side with the top in the top locking studs.
4. Place the spindle of the small toothed wheel in the spindle aperture in the chassis.
5. Bend the springs on the other side by means of pliers into the top blocking studs.
6. Press the toothed wheel.
7. Mount the large toothed wheel with the stop ring turning to the right so that it comes up against the bottom stop stud. The flat spindle must then glide into the slot of the toothed wheel. The small toothed wheel can be bent a little to the side during the mounting.
8. Mount the brackets and screw tight (3 screws). See to it that the toothed wheels turn straight in front of each other, the bracket can be shifted a little.
9. Check whether the toothed wheels are mounted well by switching in all positions.
10. Mount the driving strip.

LIST OF SPARE PARTS AND TOOLS

When ordering always mention:

1. Code number
2. Description
3. Type number of the apparatus

Fig.	Pos.	Description	Codenumber
		Cabinet	A3 000 62.0
		Indicator	A3 423 75.0
		Back panel	A3 423 85.0
		Dial	A3 219 35.0
10	1	Small driving toothed on axis of waverange switch	23 681 69.0
10	2	Leaf-spring for stop mechanism	A3 648 57.0
10	3	Large toothed wheel for driving dial	23 693 16.3
10	4	Driving strip	A3 399 96.0
10	5	Driving pulley dia. 18 mm for the driving of the variable condensers	A3 324 94.0
		Friction disc (2x)	A3 574 20.4
10	6	Driving drum dia. 55 mm for driving indicator	23 644 47.1
		Triangular plate for mounting pos. 5 and 6	A3 320 80.0
		Driving spindle for tuning	A3 332 54.0
10	7	Pinion (3x) for driving dial	23 693 17.0
		Pin fixing pinion	A3 599 58.0
		Ring to pinion	A3 560 41.0
10	8	Tension spring in driving cable	A3 648 23.0
10	9	Sheath for driving cable of variable condensor	08 010 52.0
10	10	Cable for driving variable condenser	33 403 57.0
10	11	Cable for driving pointer	33 635 55.0
		Variable condenser with drum	49 001 23.1
		Plate of hard paper } stop arrangement	A3 574 73.0
		Rubber sheath around blocking strip }	A3 487 10.1
		Suspension spring (3x) for variable condenser	A3 652 22.2
10	12	Tension spring in drum of variable condenser	A3 646 09.3
		Strip for pushing up the dial	A3 399 52.0
		Dial Southern Europe	A3 219 80.0
		KNOBS	
11	21	Knob for tuning	23 609 58.0
11	22	Knob for waverange switch	23 609 59.0
		Knob for volume and tone control	23 609 57.0
11	23	Socket plate for connection aerial	A3 378 92.0
11	24	Leaf-spring for fixing the back panel	A3 648 56.0
11	25	Valve holder for valve B1, B2, B3 and B4	49 231 31.2
11	26	Socket plate for gramophone connection	A1 340 42.0
11	27	Socket plate for loudspeaker connection	A3 376 47.0
11	28	Voltage adapter	A3 227 05.0
		Voltage connection plate	A3 379 29.0
11	29	Valve holder for valve B6 (rectifying valve)	49 231 22.3
11	31	Valve holder for valve B5 (tuning valve)	49 231 22.3
11	32	Fixing spring for tuning valve B5	A3 646 22.0
		Bracket for fixing the coil can	A1 515 69.0
		Pilot lampholder	A3 359 35.0
		SWITCHES	
		Switch section No. 1 waverange switch	A3 199 50.1
		No. 2 waverange switch	A3 199 51.0
		No. 3 waverange switch	A3 199 52.0
		No. 4 waverange switch	A3 199 53.1
		Bandwidth switch	A3 181 23.0
		Bush with locking cam on tone control spindle	A3 [illegible] 10.0
		Stop spring	A3 648 63.2
		Spindle tone control	A3 428 99.0
		LOUDSPEAKER Type No. 9702-05	
		Clamping ring	25 871 81.0
		Paper ring	28 451 54.0
		Cone	28 220 23.0
		Diffusor	23 666 56.0
		TOOLS	
		Service oscillator	GM 2882
		Trimming key	23 685 66.0
		Trim transformer	09 992 22.0
		Centering jig for loudspeaker	09 991 53.0
		Transformer with separated windings	E4 848 03.0
		PICK-UP UNIT A3 419 46	
		Transformer	A3 168 60.0
		Plug socket plate	A3 377 56.0
		Switch segment for pick-up switch	A3 181 01.0
		Condenser 4700 pF	48 757 20/4K7

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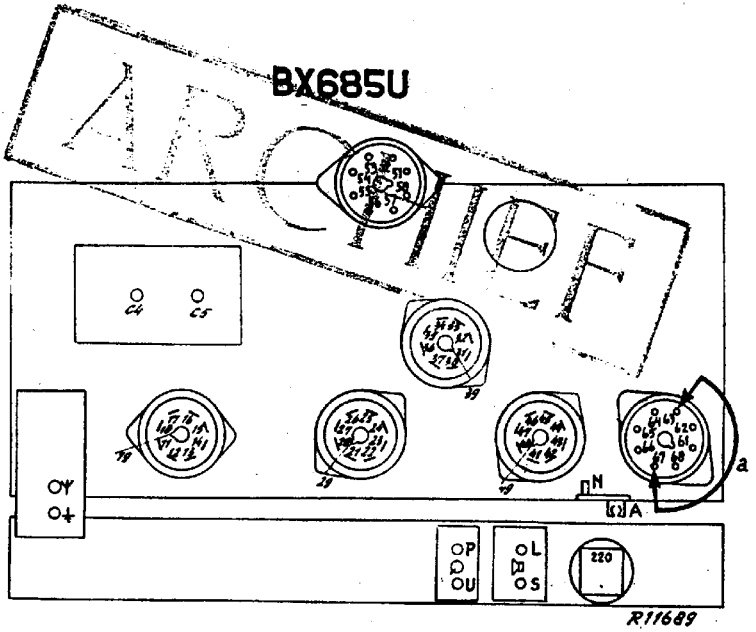

R																		
9	16/N	23/A	26/N	32/A	33/A	36	43	45	46	53/A	55/N	56/A	C5	P	Y	⏚		
	45	440	55	385	250	100	80	245	105	140	60	140	0	275	0	0		
10	13/A	14	15/A	17	Y/⏚													
	250	195	270	195	100													
11	12/A	22/A	31	41/51	42/A	44/A	54/A	57/N	N									
	435	435	170	125	360	435	440	175	175									
12	19	24	27	29	31/N	34	37	39	47	49	57	63/A	67/A	C4		L/S	U	
	0	0	0	0	155	0	0	0	0	0	110	160	160	50-150/85-540 160	250	0	0	
12																		

C																		
9									11	15	23	26	33					
										275	145	110	95					
10									12	32	63	Y	⏚					
										350	275	30	30					

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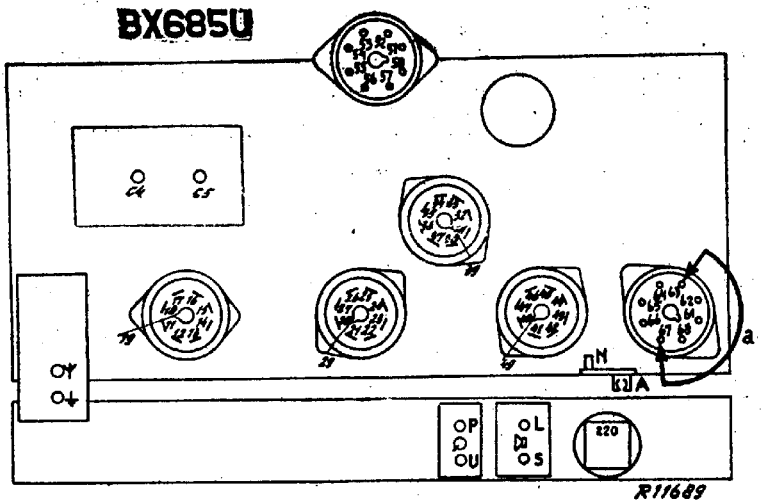

Ω x1	19	24	27	29	31/N	34	37	39	47	49	57	63/A	67/A	C4		
	480	480	480	480	250	480	480	480	480	480	270	215	195	245	160	
x1	L/S	U														
	430	480														
x10	31	41/51	57/A	N												
	155	210	155	160												
x10²	12/A	22/A	42/A	44/A	54/A											
	430	130	240	130	125											
x10³	15/A															
	115															
x10⁴	13/A	14	17	23/A	32/A	Y/⏚										
	360	255	255	235	150	180										
x10⁵	33/A	36	43	45	46	33/A	56/A	Y	⏚	C5	P					
	280	125	210	225	125	170	170	0	0	0	310					
5x10⁵	16/N	26/N	55/N													
	200	230	250													

µF x10⁻³	Y	⏚						x1								
	65	65														
x10⁻²	15	23	33	32	26			x10	63							
	340	220	175	180	200				365							
x10⁻¹																

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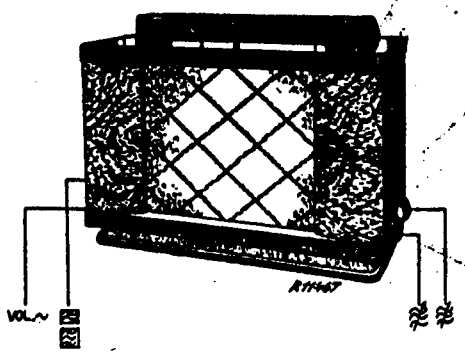


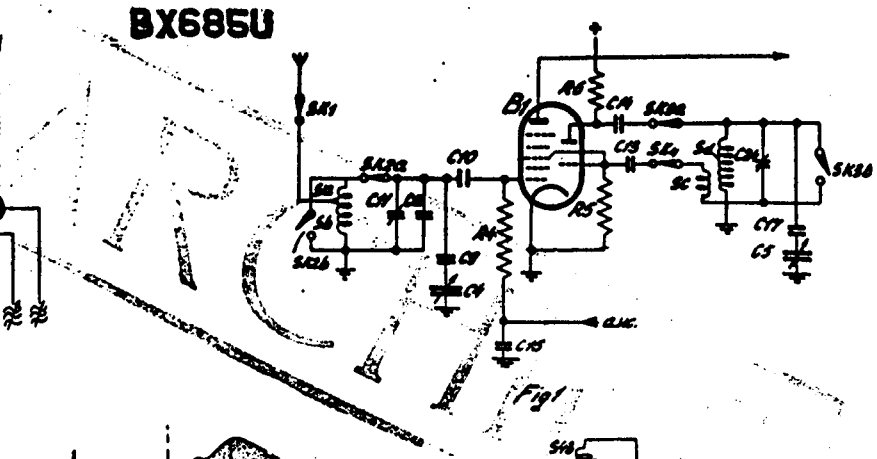


Fig1

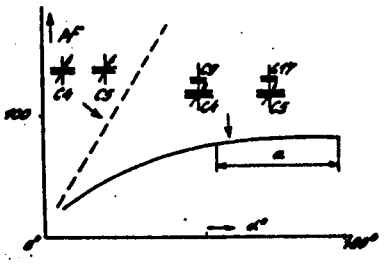


Fig2

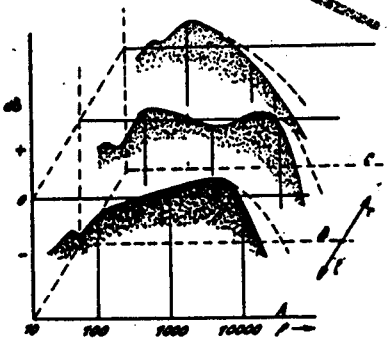


Fig4

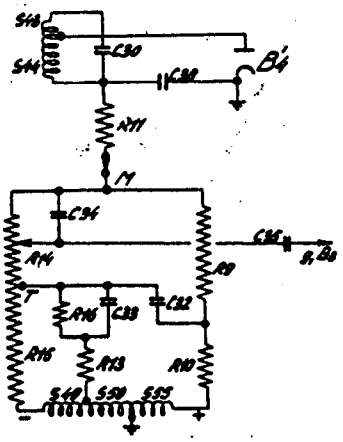


Fig3

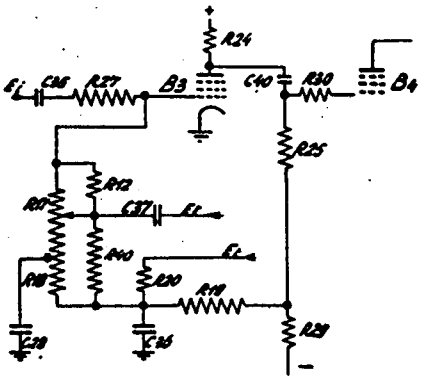


Fig5

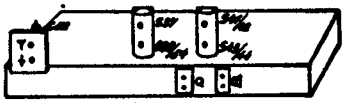


Fig6

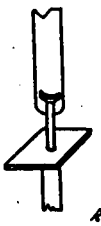


Fig.8

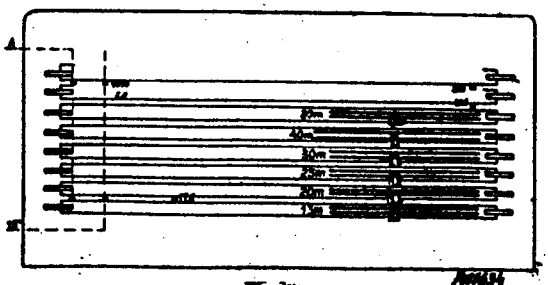


Fig.7

			Va	Vg2(+4)	Vk	Ia	Ig2(+4)
B1	UCH21	Hexode	160	95	-	[illegible]	4,05
		Triode	115	-	-	8,5	
B2	UF21		160	- 80	-	4,3	1,44
B3	UF21		38	40,5	-	0,88	0,29
B4	UBL21		170	160	9,5	46	- 9
			Va	Va1	Va2	Ia	-
B5	UM4		160	37	23	8,9	-
			Volt			mA	

Vc1 : 200 V
Vc2 : 170 V
Itot : 74 mA

W : 48 Watt

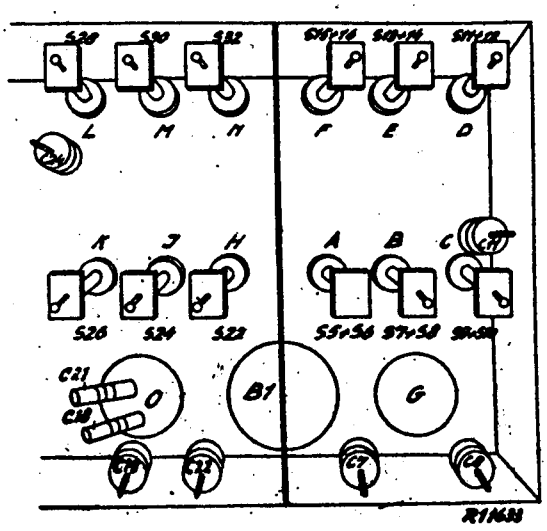
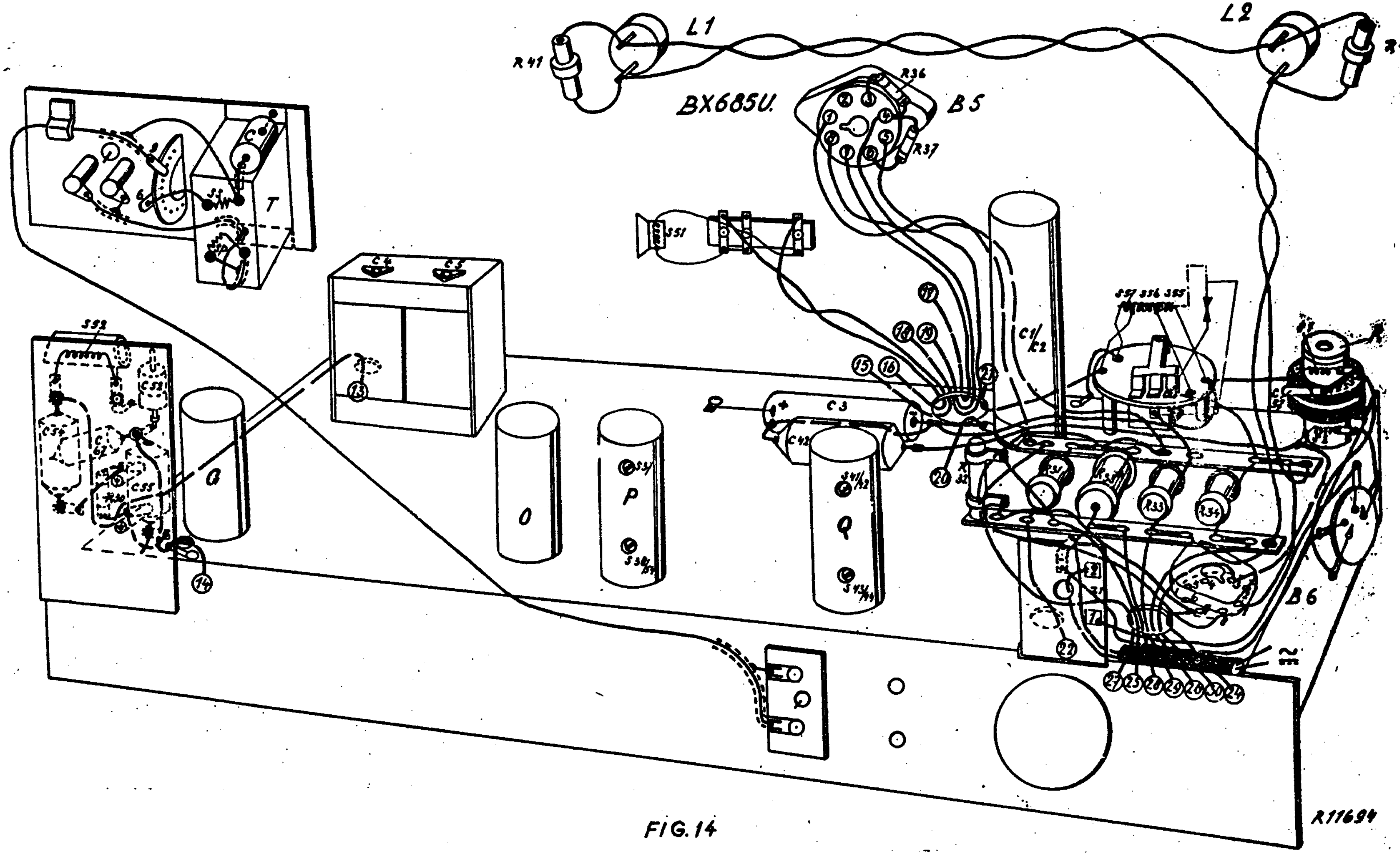


Fig.9


L1
L2
R41
R40
BX685U.
B5
R36
R37
S51
C4
C5
C1/C2
C3
C42
S52
T
O
P
Q
B6
R11694
FIG.14

BX685U

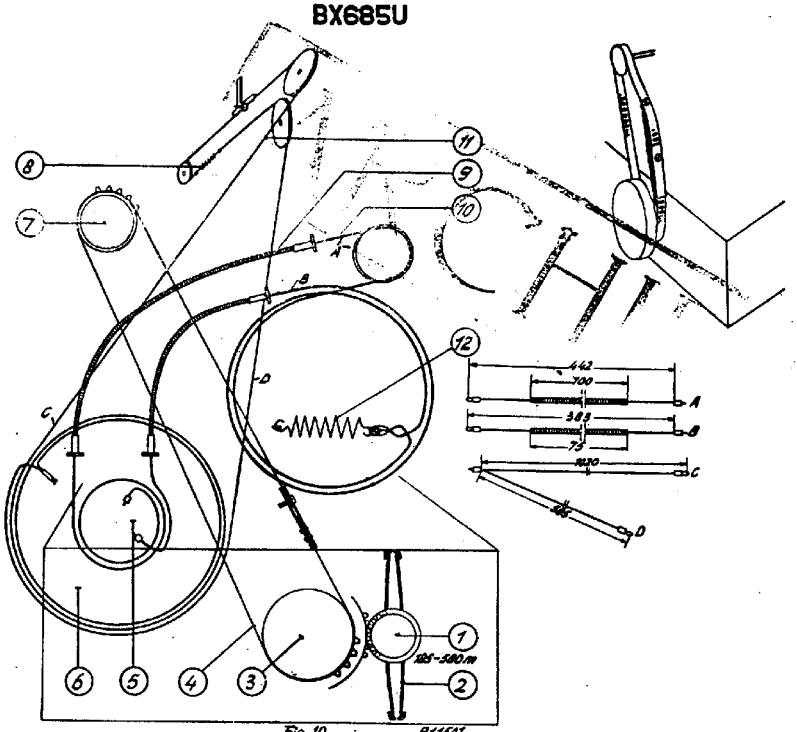


Fig.10 R11507

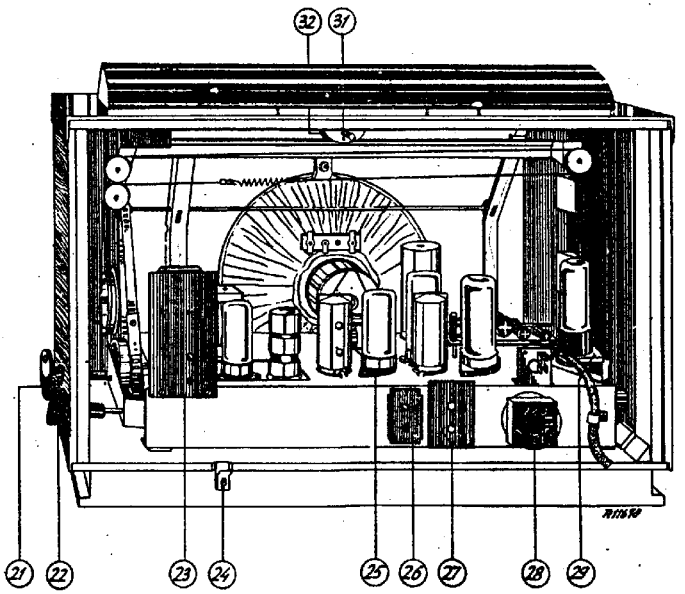


Fig.11

BX685U

BOBINAS - COILS - BOBINES

Nr.	Resistancia Resistance	Codenumber No. de code
S1) S2)	5 Ohm 5 Ohm	A1 000 34.0
S5) S6)	<1 Ohm <1 Ohm	A3 111 10.0
S7) S8)	<1 Ohm <1 Ohm	A3 110 89.0
S9) S10)	<1 Ohm <1 Ohm	A3 110 90.0
S11) S12)	<1 Ohm <1 Ohm	A3 110 91.0
S13) S14)	<1 Ohm <1 Ohm	A3 110 92.0
S15) S16)	<1 Ohm <1 Ohm	A3 110 93.0
S17) S18) S19) S20) S20a)	100 Ohm <1 Ohm 180 Ohm <1 Ohm 6,5 Ohm	A3 122 22.0
S21) S22)	<1 Ohm <1 Ohm	A3 111 12.0
S23) S24)	<1 Ohm <1 Ohm	A3 110 95.0
S45) S46)	700 Ohm 700 Ohm	
S47) S48) S49) S50) S55)	<1 Ohm <1 Ohm <1 Ohm <1 Ohm <1 Ohm	A3 168 71.0

Nr.	Resistancia Résistance	Codenumber No. de code
S25) S26)	<1 Ohm <1 Ohm	A3 110 96.0
S27) S28)	<1 Ohm <1 Ohm	A3 110 97.0
S29) S30)	<1 Ohm <1 Ohm	A3 110 98.0
S31) S32)	<1 Ohm <1 Ohm	A3 110 99.0
S33) S34) S35) S36)	3 Ohm 4 Ohm 5 Ohm 20 Ohm	A3 122 23.0
S37) S38) S54) C25) C26) C27)	8 Ohm 5 Ohm <1 Ohm 115 pF 115 pF 115 pF	A3 122 38.0
S41) S42) S43) S44) C29) C30)	3 Ohm 5 Ohm 3 Ohm 5 Ohm 115 pF 115 pF	A3 121 94.1
S52	43 Ohm	A3 110 60.0
Z1	—	08 100 96.1
S55) S56) S57)	150 Ohm 150 Ohm 150 Ohm	A1 151 17.0

CONDENSADORES - CONDENSERS - CONDENSATEURS

Nr.	Valor Value Valeur	Codenumber No.de code
C1	50 uF	48 317 09/50
C2	50 uF	
C3	100 uF	49 020 39.0
C4		
C5		
C7	30 pF	28 212 36.4
C8	30 pF	28 212 36.4
C9	82 pF	48 406 99/82E
C10	220 pF	48 406 20/220E
C11	30 pF	28 212 36.4
C12	12 pF	48 406 10/12E
C13	56 pF	48 410 10/56E
C14	470 pF	48 411 20/470E
C15	47000 pF	48 750 20/47K
C16	47000 pF	48 751 20/47K
C17	82 pF	48 429 99/82E
C18	350-575 pF	49 005 46.1
C19	30 pF	28 212 36.4
C20	1800 pF	48 429 02/1K8
C21	200 pF	28 212 08.2
C22	30 pF	28 212 36.4
C24	30 pF	28 212 36.4
C25	115 pF	see coils
C26	115 pF	see coils

Nr.	Valor Value Valeur	Code number No. de code
C27	115 pF	see coils
C28	68000 pF	48 750 20/68K
C29	115 pF	see coils
C30	115 pF	see coils
C31	18 pF	48 406 10/18E
C32	3300 pF	48 751 10/3K3
C33	22000 pF	48 750 10/22K
C34	1,6 pF	49 056 21.0
C35	8200 pF	48 750 10/8K2
C36	8200 pF	48 750 10/8K2
C37	330 pF	48 408 20/330E
C38	47 pF	48 406 10/47E
C39	0,33 uF	48 751 20/330K
C40	10000 pF	48 751 20/10K
C41	2200 pF	48 757 20/2K2
C42	10000 pF	48 752 20/10K
C44	10 pF	48 406 99/10E
C45	220 pF	48 601 20/220E
C46	47000 pF	48 751 20/47K
C50	47000 pF	48 751 20/47K
C51	47000 pF	48 750 20/47K
C52	30 pF	28 212 36.4
C54	1000 pF	48 757 20/1K
C55	4700 pF	48 757 20/4K7
C56	4700 pF	48 757 20/4K7
C57	220 pF	48 408 20/220E

RESISTANCIAS - RESISTORS - RESISTANCES

Nr.	Valor Value Valeur	No.de code Code number No.de code
R1	1200 Ohm	48 466 10/1K2
R2	470 Ohm	48 426 10/470E
R4	0,82 MOhm	48 425 10/820K
R5	47000 Ohm	48 425 10/47K
R6	18000 Ohm	48 427 10/18K
R7	15000 Ohm	48 427 10/15K
R8	56000 Ohm	48 425 10/56K
R9	0,47 MOhm	48 425 10/470K
R10	18000 Ohm	48 425 10/18K
R11	0,1 MOhm	48 425 10/100K
R12	0,82 MOhm	48 425 10/820K
R13	0,1 MOhm	48 425 10/100K
R14	0,65 MOhm	49 500 94.0
R15	2 MOhm	
R16	0,22 MOhm	48 425 10/220K
R17	2 MOhm	49 473 52.0
R18	0,2 MOhm	
R19	0,82 MOhm	48 425 10/820K
R20	0,22 MOhm	48 425 10/220K
R21	1,5 MOhm	48 426 10/1M5

Nr.	Valor Value Valeur	No.de code Code number No.de code
R22	22000 Ohm	48 425 10/22K
R23	1,5 MOhm	48 426 10/1M5
R24	0,1 MOhm	48 426 10/100K
R25	0,56 MOhm	48 425 10/560K
R26	1000 Ohm	48 425 10/1K
R27	0,18 MOhm	48 425 10/180K
R28	0,39 MOhm	48 425 10/390K
R29	0,1 MOhm	48 425 10/100K
R30	0,1 MOhm	48 425 10/100K
R31	68 Ohm	48 467 10/68E
R32	180 Ohm	48 494 10/180E
R33	330 Ohm	48 467 10/330E
R34	1800 Ohm	48 467 10/1K8
R35	2,2 MOhm	48 427 10/2M2
R36	1 MOhm	48 426 10/1M
R37	1 MOhm	48 426 10/1M
R38	68 Ohm	48 466 10/68E
R39	33000 Ohm	48 425 10/33K
R40	3,3 MOhm	48 426 10/3M3
R41	300 Ohm	49 379 67.1
R42	300 Ohm	49 379 67.1

Z1 08100 96.

BX685U

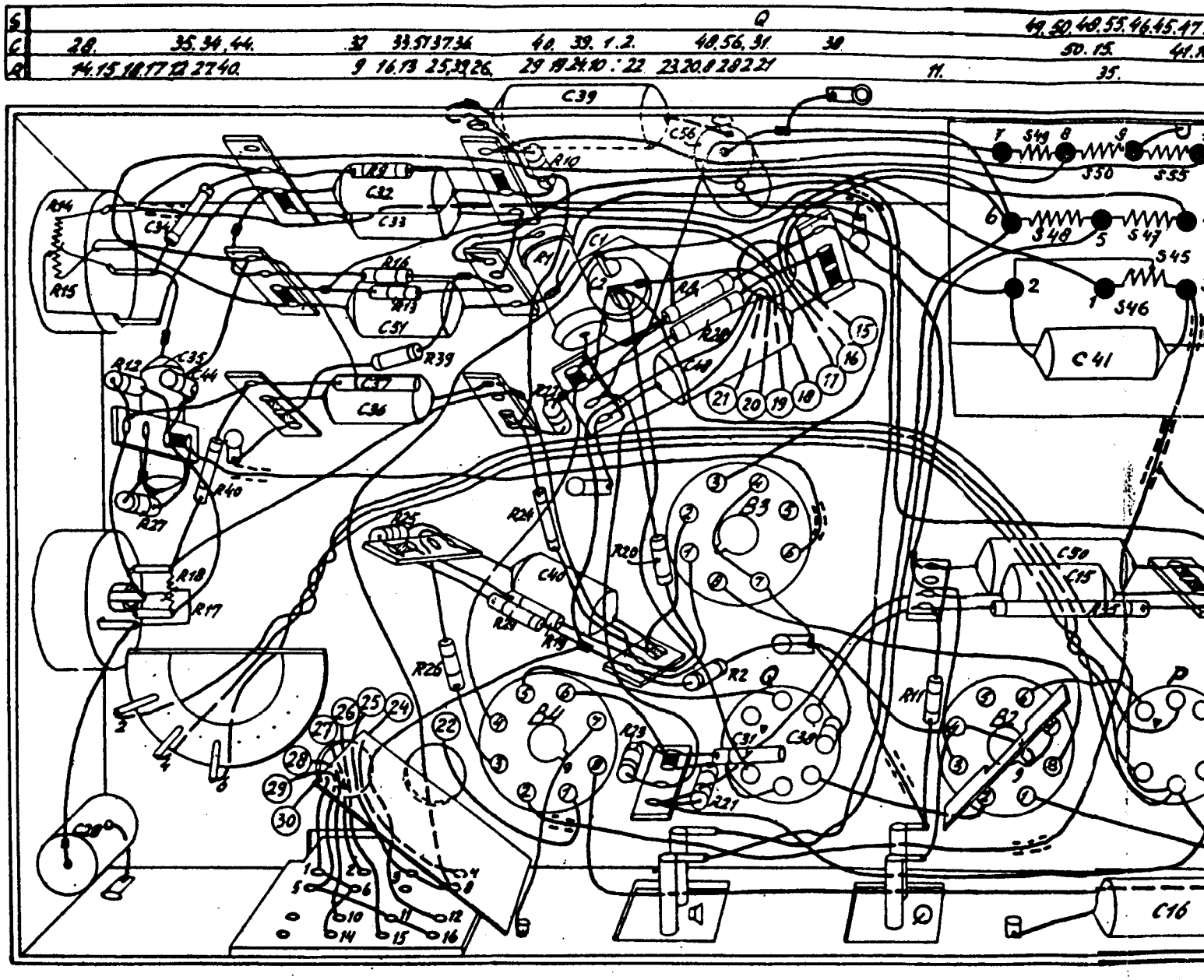
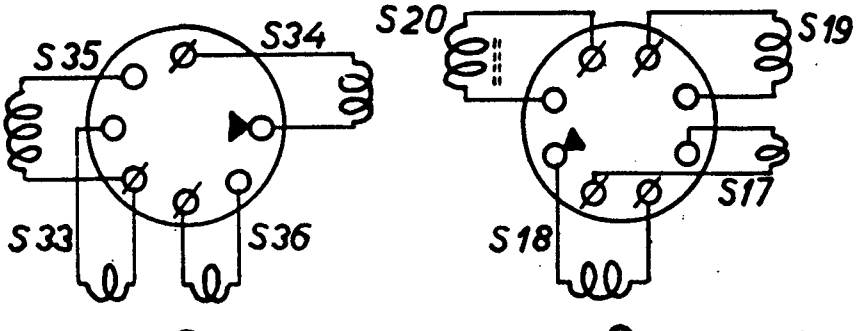


FIG.13



O G

FIG.15

BX685U

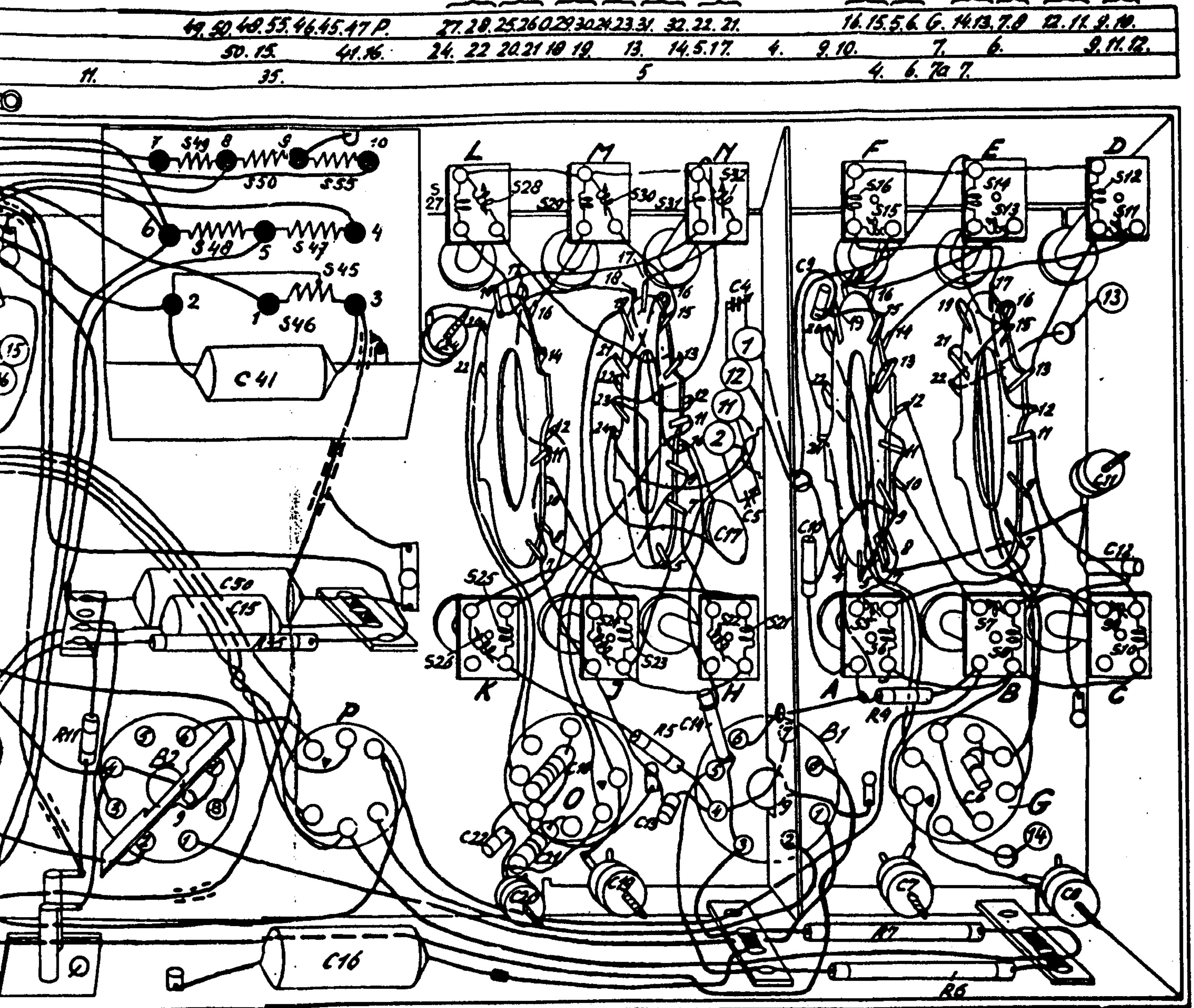


FIG.13

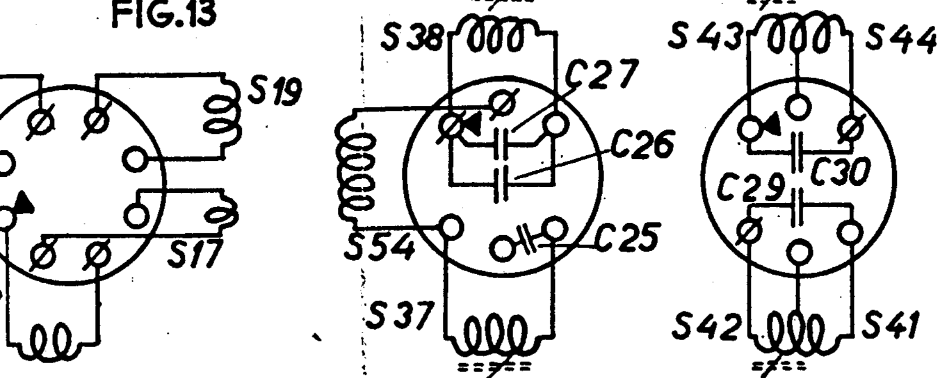


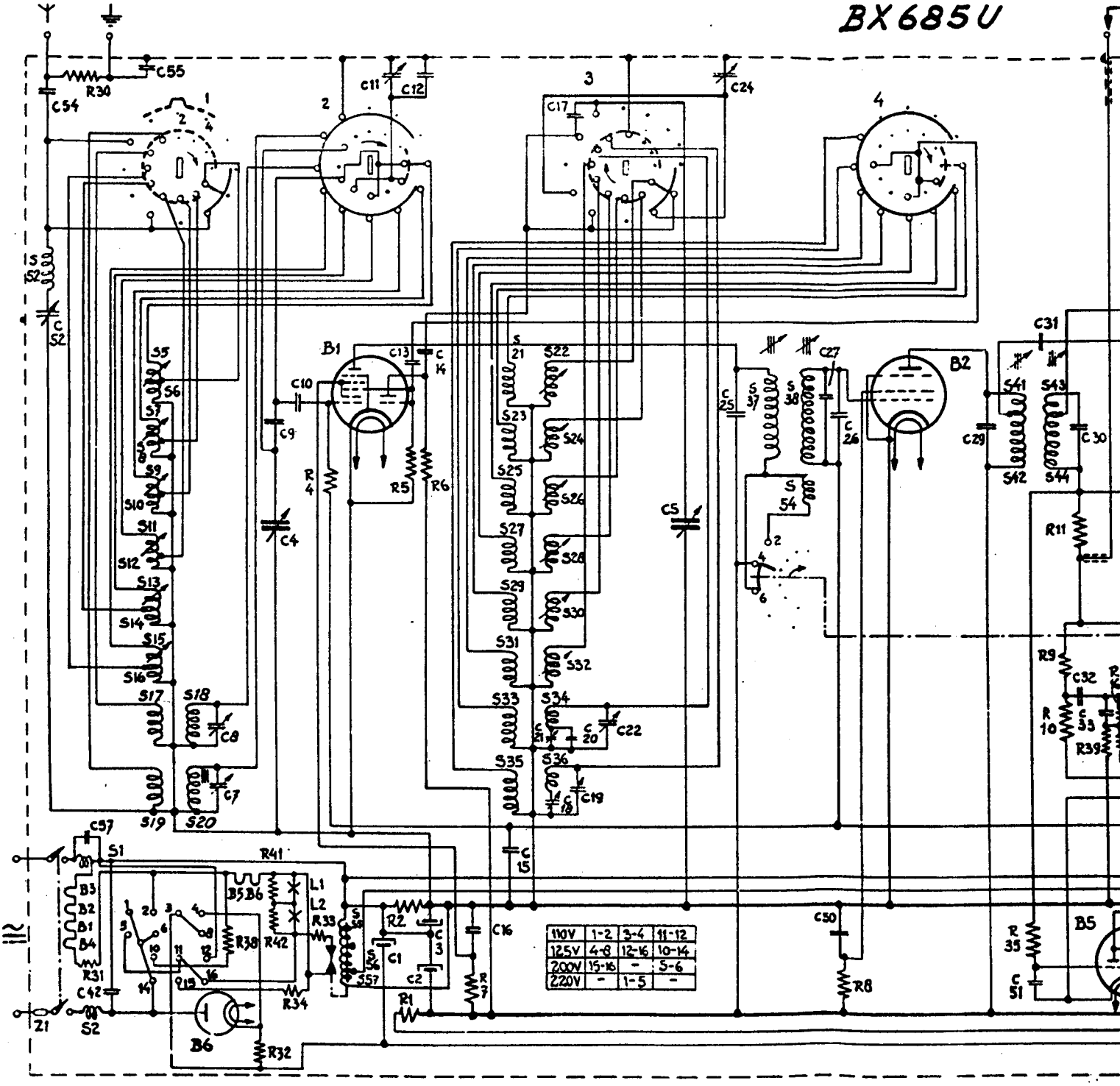
FIG.15

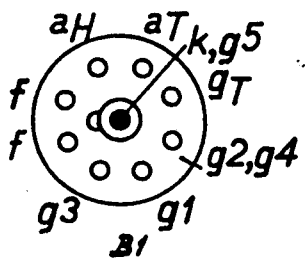
S :52 1.2. 5.6.7.8.9.10.11.12.13 14.15 16.17.18 19 20 55 56.57 21.22.23.24 25 26 27 28.29.30.35.31.32.33.34.36. 37.38. 54 41 42 43. 44.

C :54 52.55 57.6. 42.7.8. 9.10.4.1. 2.3. 11 12.13 14.5.15.16. 17.18 19.20.21.22 24 5. 25. 27 26.50.

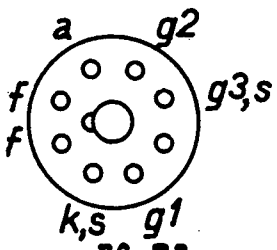
R: 30.31.32.33 34 38 41.42. 1.2. 4.5.6.7. S 27.9 10.11.35.36.

BX685U

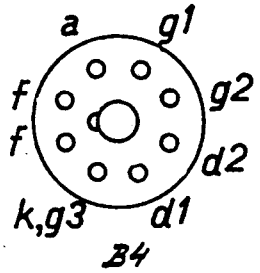




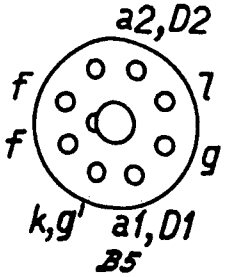
B1
UCH21



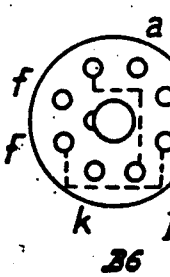
B2-B3
UF21



B4
UBL21



B5
UM4



B6
UY1N

7. 38. 54 41 42 43. 44. 45. 46, 47 48. 49. 50. 55 51
26. 50. 35. 28. 36 37. 40 39. 48. 41 56
S 27. 9 10. 11. 35. 36. 37. 39 13. 14. 15. 16 12. 18 27. 40. 19. 20 28 22. 21. 22. 23 24 25 26. 29

BX685U

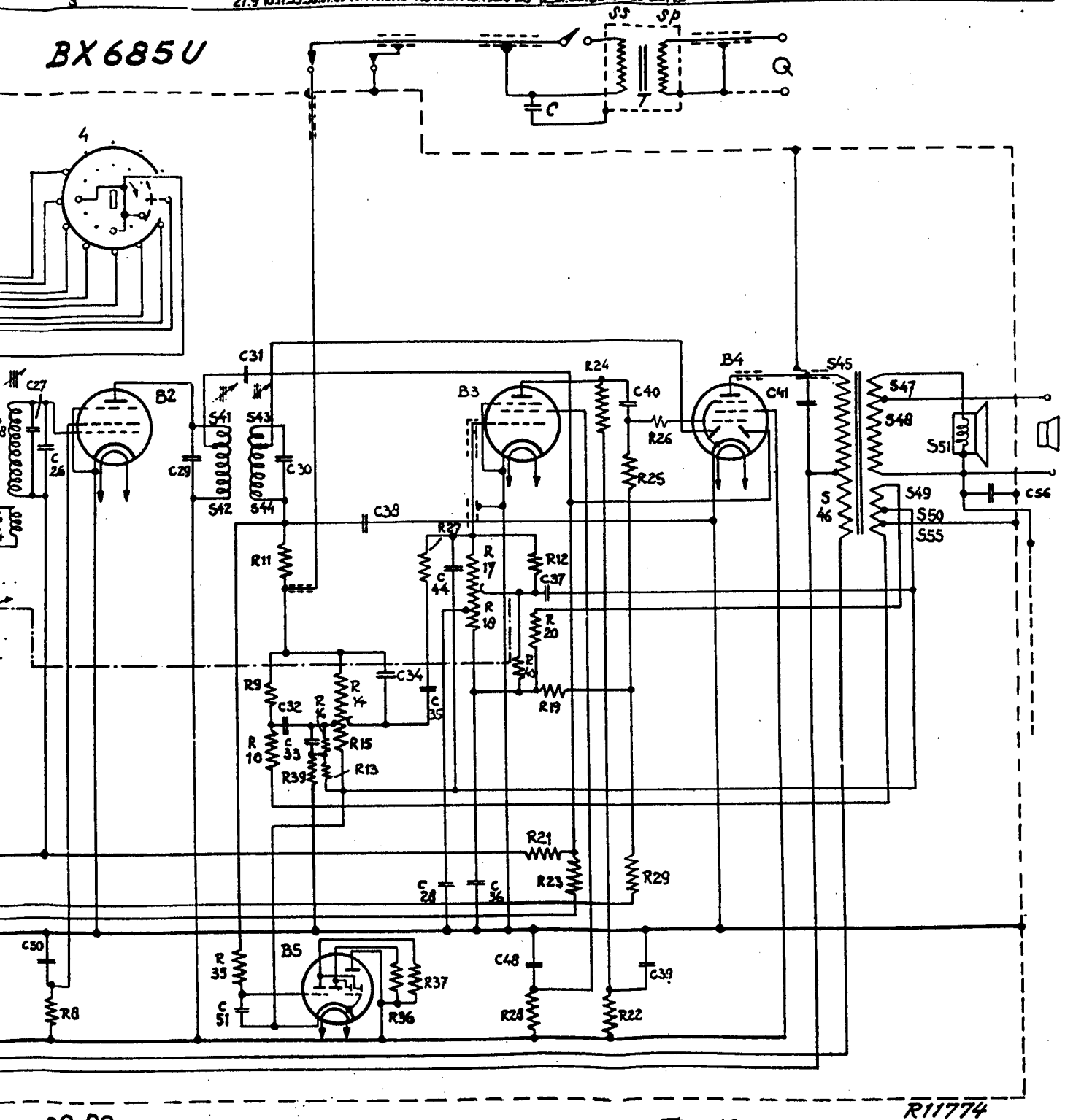
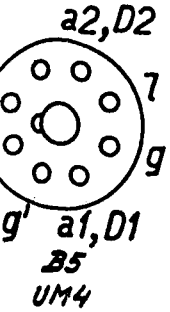


Fig. 12



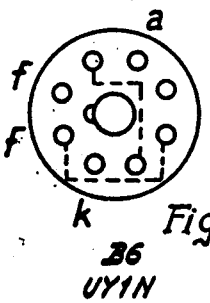


Fig. 16

STRICTLY CONFIDENTIAL

For Philips Service Dealers only

PHILIPS

SUPPLEMENT TO THE SERVICE NOTES FOR THE RECEIVER

BX 685U-02

1949 For A.C. and D.C. mains

GENERAL

The receiver BX685U-02 differ only on a few points on the receiver BX685U-00.

For data not mentioned here please see the Service Notes for the BX685U-00.

DIFFERENCES

The receiver BX685U-02 has been provided with a pick-up switch handled by the knob of the volume control and with a local switch for M.W. mounted on the plug socket plate for aerial and earth connection.

LIST OF ELECTRICAL COMPONENTS

The components are the same as used in the BX685U but instead of the potentiometer R14/15 - 49 500 94.0 is used a potentiometer:

Nr.	Value	Code number
R14 R15	0,65 MOhm 2 MOhm	49 501 48.0
	Added for local switch:	
C67	4700 pF	48 751 20/4K7

LIST OF SPARE PARTS

See the list in the Service Notes for the BX685U only the following part are different:

Fig.	Item	Description	Code number
		Different	
		Rear panel	A3 690 01.0
		Socket plate for aerial connection	A3 380 95.0
		Added	
		Spindle for volume control and pick-up switch	A3 429 28.0
		Bush on spindle above	A3 304 10.0
		Switch section for pick-up switch	A3 181 36.0
		" " " local switch	A1 133 22.0

Printed in the Netherlands 93 972 01.1.05

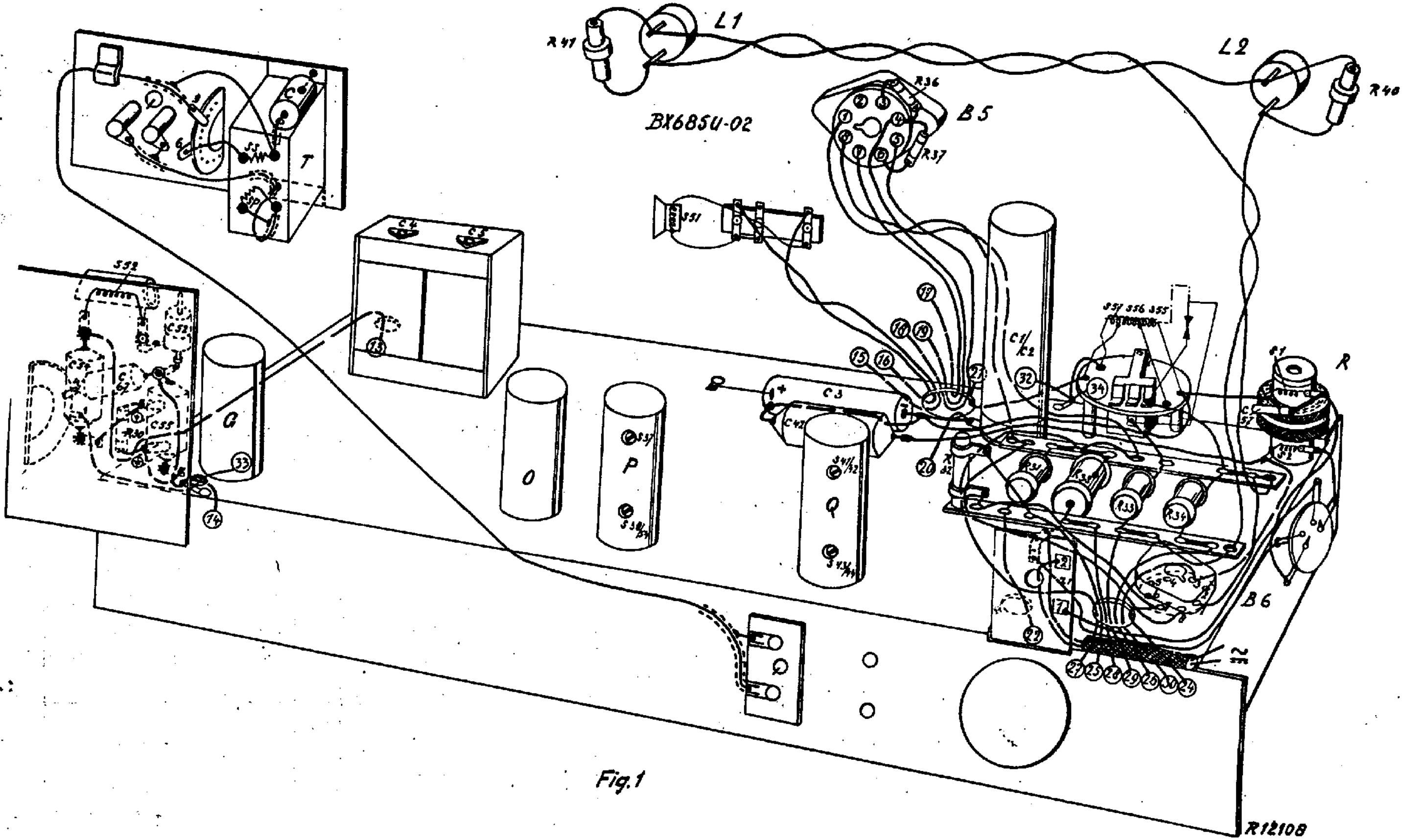
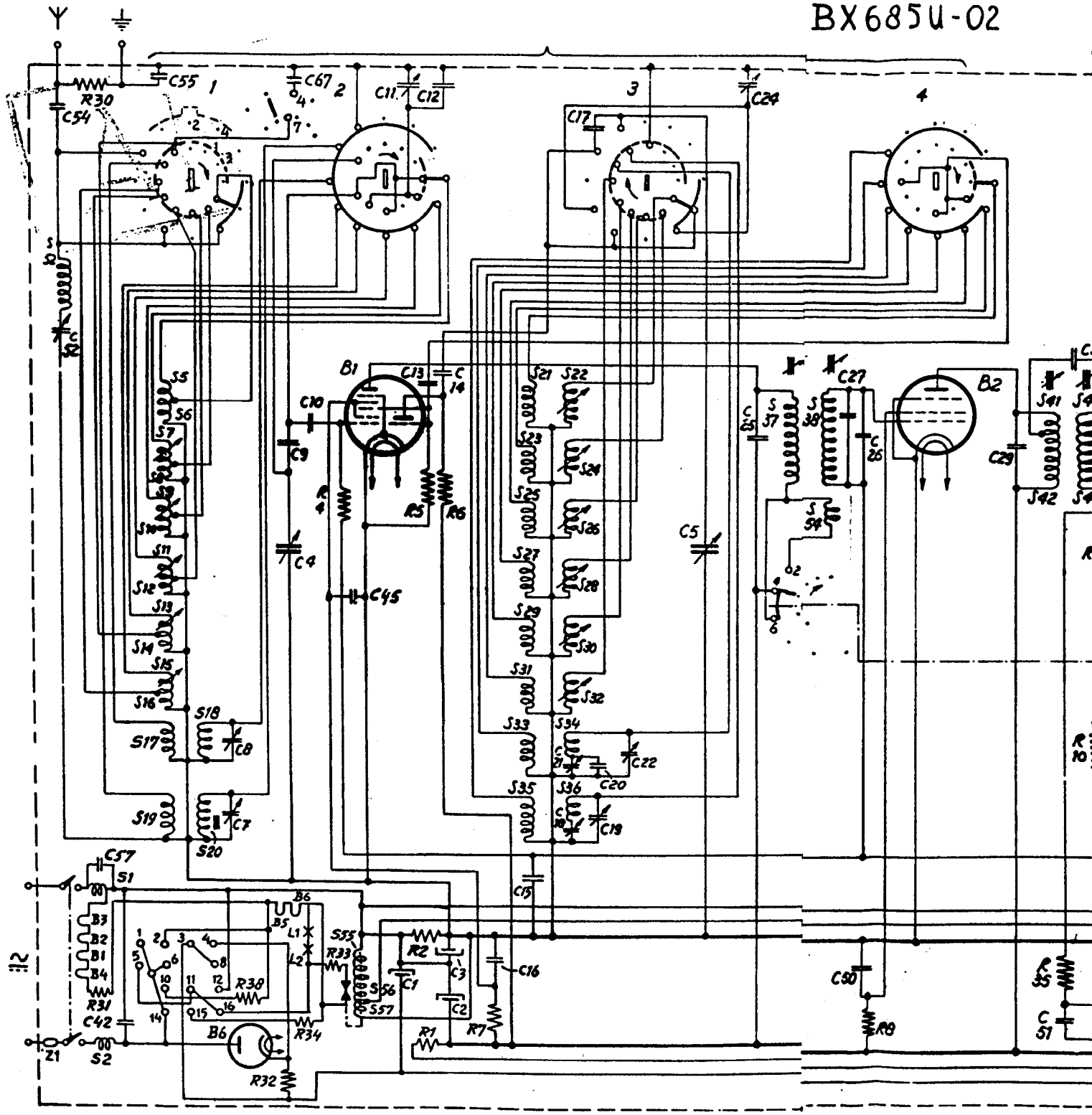

L1
L2
R 41
R 40
BX685U-02
B5
R36
R37
S51
C4
C5
T
S52
C1/C2
C3
C42
G
O
P
Q
R
B6
S57 S56 S55
R12108

Fig.1

S: 52. 1.2. 5.6.7.8.9.10.11.12.13.14.15.16.17.18.19.20. 21.22.23.24.25.26.27.28.29.30.35.31.32.33.34.36. 37. 38.54. 41.42.43

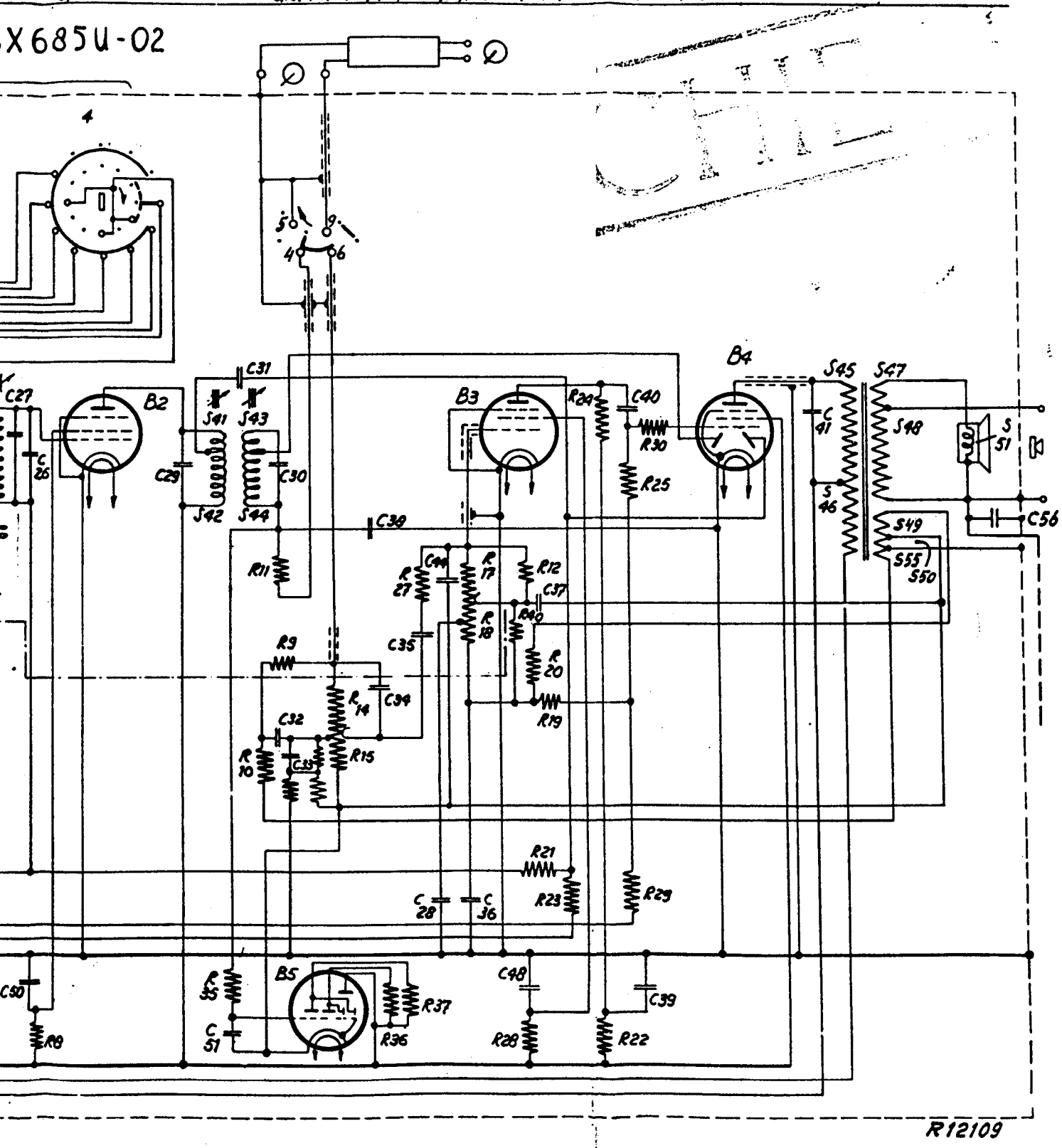
C: 54.52.57.55.6.42.7.8. 9.10.4.1. 2.3.45.11.12.13.14. 15.16. 17.21.18.20.19.22. 5. 24.25. 27. 26.50. 29.31. 30.

R: 30.31. 38.32.34.33. 4.5.6. 3.1.2. 7. 8.



38.54. 41.42.43.44. 45.46.47.48.49.50.51.55.
26.50. 29.31. 30.32.33.34. 51. 38. 44.35.28.36. 37. 40. 39. 48. 41. 56.
8. 9.10.11.16.35.36.57.13.14.15.17.27.18.19.20.28.12.40.21.22.23.24.25.30.29.

X685U-02



R12109

Fig. 2

III

S	Q 49.50.48.5…
C	28 34.35 44.39. .32. 33.51.37.36. 40. 1.2. 48. 51. 56.38. 41.50.15.
R	14.15.18.17.12.27.40. 9. 16.13.39.25.26. 29.19.24.10.1.22.3.23.20.8.28.2.21. 11. 35.

BX685U-0

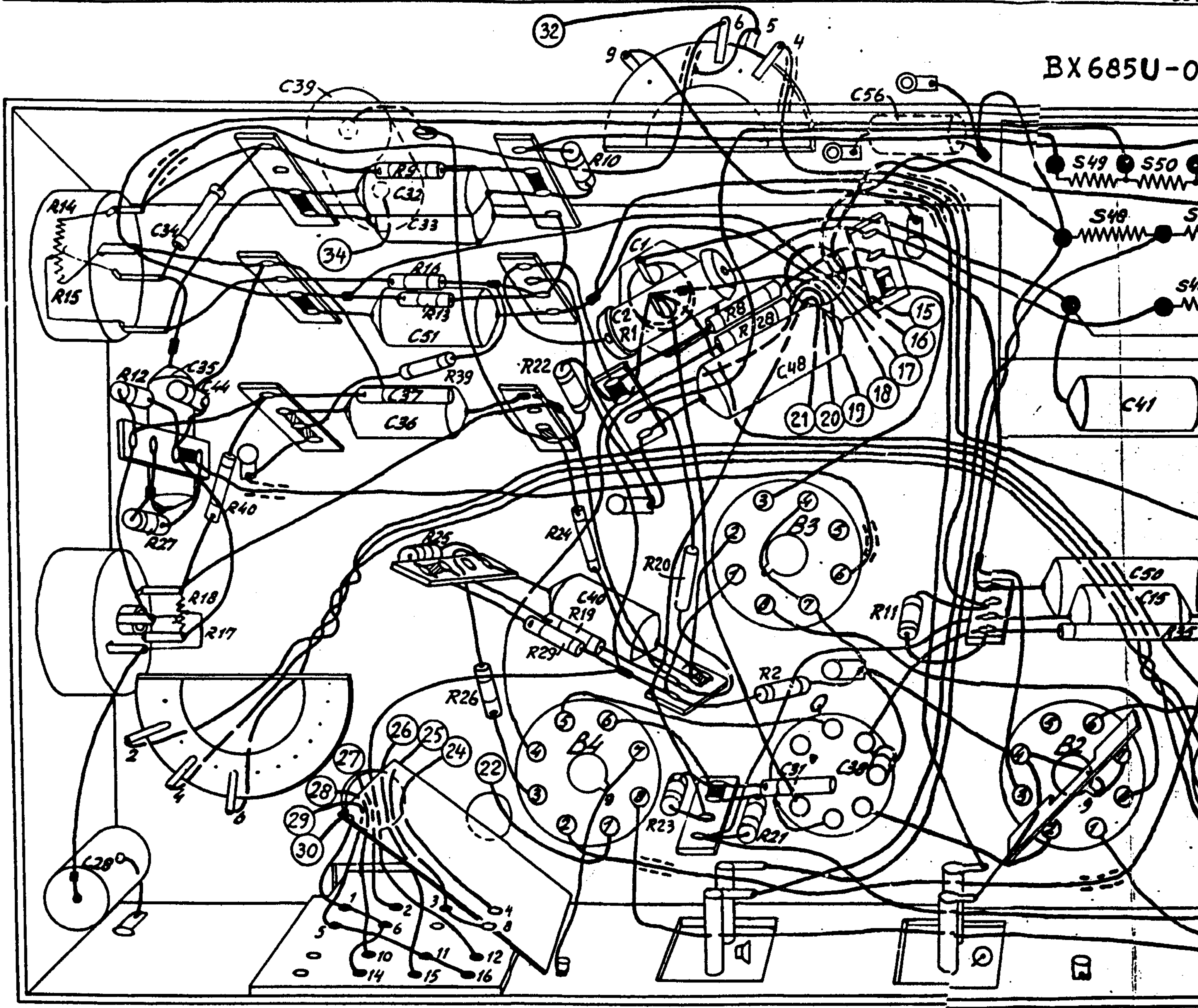


Fig. 3

L	K	M	J	N	H	F	A	E	B	D	C
49.50.48.55.46.45.47.P.	27.28.25.26.29.30.24.23.31.	32.22.21.				16.15.5.6	G.	14.13.7.8		12.11.9.10.	
41.50.15.	41.16.	24. 19. 20.21.18.22.	13.45.14.5.17.		4	9.10.		7.	6.	9.11.12.	
11.	35.		5			4	6.7a.7.				

BX685U-02

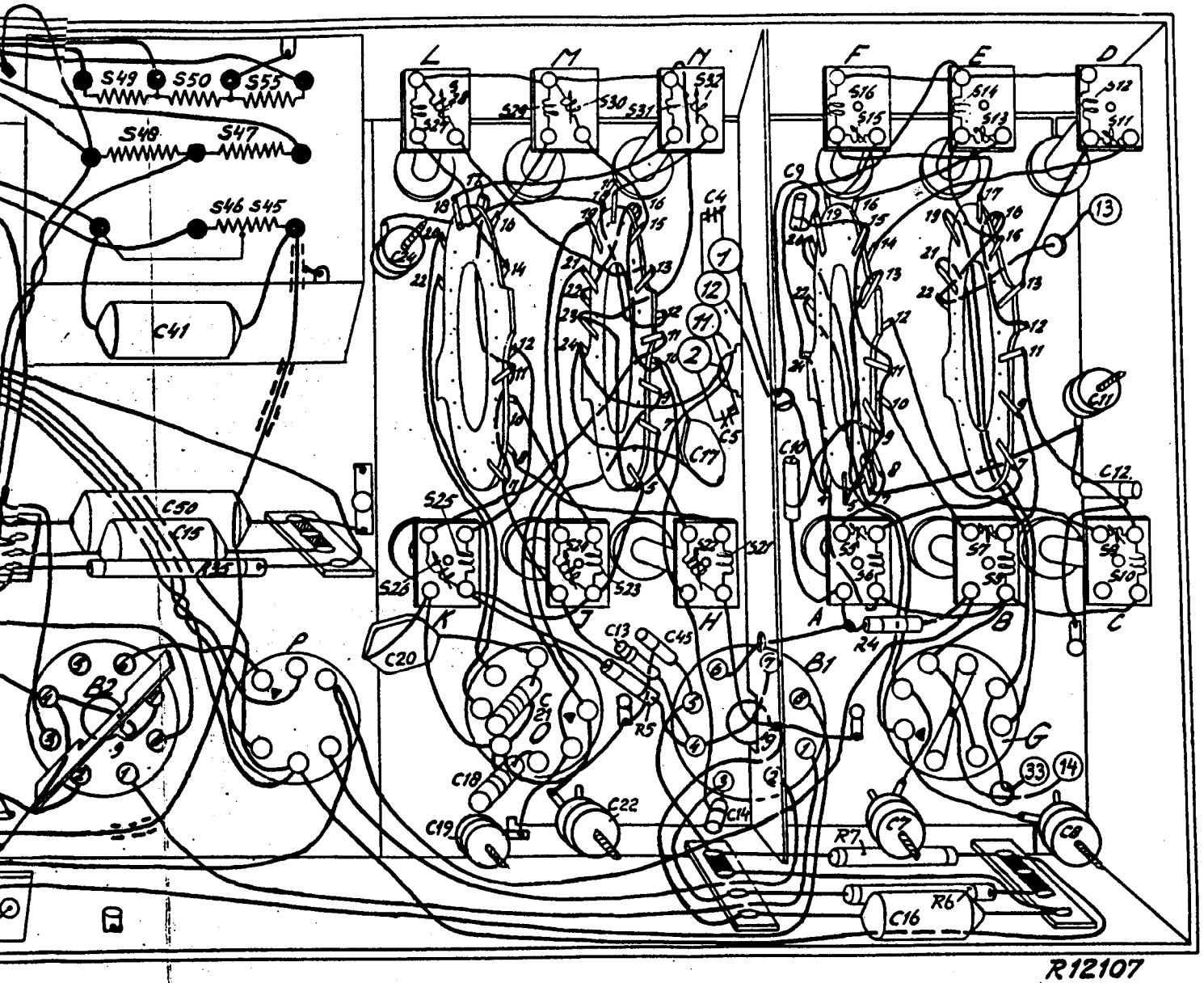


Fig.3