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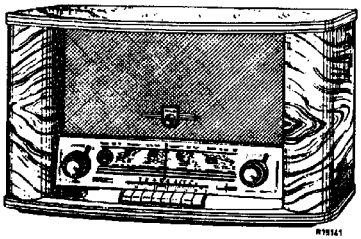
SERVICE NOTES

for the receiver

BX 732 A



1954. For A.C. operation

GENERAL

Waveranges

F.M.	3.0 - 3.43	m	(100 - 87.5	Mc/s)
S.W.1	16.65- 27.3	m	(18 - 11	Mc/s)
S.W.2	30.6 - 50.8	m	(9.8 - 5.9	Mc/s)
S.W.3	50 - 96.8	m	(6 - 3.1	Mc/s)
M.W.	186 - 583	m	(1612 - 515	kc/s)
L.W.	1090 - 2025	m	(275 - 148	kc/s)
Local	186 - 583	m	(1612 - 515	kc/s)

Control knobs

a) 8 push buttons, from left to right:
off; L.W.;M.W.;S.W.3;S.W.2;S.W.1;
Local (selected station); F.M.

b) Dualknob, right:
Large knob: tuning (pushed in: A.M.
(pulled out: F.M.
Small knob: treble control + bandwidth switch.
Lever: radio - P.U. - tape recorder switch.

c) Dual knob, left:
Large knob : volume control.
Small knob : bass control.
Lever : Ferroceptor drive.

Dimensions and weight

Length : 76 cm
Depth : 28 cm
Height : 41 cm
Weight : ca.18 kg.

Valves

B1 : EF80	B5 : EBF80	B9 : EL84
B2 : EC92	B6 : EB41	B10: EM34
B3 : ECH81	B7 : ECC40	B11: EZ80
B4 : EF41	B8 : EL84	B12: EZ80
		B13: EF86

I.F.: for A.M.:452 kc/s
for F.M.:10.7Mc/s

Mains voltages
110, 125, 220 and 245 V~.

Consumption
Approx. 110 W (220V-50 c/s)

Fuses
110-125 V : 1.6 A
220-245 V : 0.8 A

Loudspeakers
2 x 9770 M
Z = 2 x 5 Ω

Dial lamps
L1 : 8045D-00
L2 : 8045D-00

Printed in Holland

DESCRIPTION OF CIRCUIT

A. F.M. Section

The signal arriving via the dipole aerial is fed to the balanced input circuit S52-S52'-C10-C11 and S10. Coil S10 is inductively coupled to S11 which is in the grid circuit of B1. Together with the wiring capacitance and the input capacitance of B1, S11 forms a tuned circuit which resonates in the middle of the band, i.e. 93 Mc/s. The tuned anode circuit of B1 is made up of S12-S12' and C20. B2 functions as mixer. The oscillator circuit consists of an inductive feedback circuit S13-S13' and S14-S14'.

The aerial signal amplified by B1 is injected via C15 into the oscillator, so that across the 1st I.F. band-pass filter (S15-C22 and S16-C24) there appears an I.F. signal with a centre frequency of 10.7 Mc/s.

The heptode section of B3 functions as amplifier; the triode section is rendered inoperative due to the grid being short-circuited. The second I.F. band-pass filter is formed by the tuned circuits S53-C73 and S54-C74. The third stage comprises B4 and the third band-pass filter S61-C91 and S62-C92. After further amplification in B5 the signal is fed to the discriminator.

As detector a ratio detector is used so that no separate limiting stage is needed. The electrolytic capacitor C117 functions as limiter. The A.F. signal appearing across C115 is fed via the volume control R51-R52 to the control grid of B7.

B. A.M. Section

Apart from the normal M.W. band, this receiver has a second M.W. range. This has its own set of coils (S19-S20 and S29-S30) and a separate 2-gang variable capacitor (C40-C41). This capacitor can be adjusted to a desired station (mainly a local station) by means of a knob located at the back of the set. By pressing in the station selector push button, the station is received without having to make use of the normal tuning knob.

On all bands except M.W. and L.W., the aerial signal is coupled inductively to g1B3 as follows:

selected station band	:	via S19-S20
S.W. bands 1,2 and 3	:	via S21-S22; S23-S24 and S25-S26 respectively.

On the M.W. and L.W. bands the aerial signal is fed via S17 and S18 to g1B13. Coils S17 and S18 are mounted on a rotatable ferroxcube rod. This combination, the Ferroceptor, possesses the properties of a loop aerial which can be connected in circuit by means of a switch.

The amplified aerial signal is fed via S27 or S28 in the anode circuit of B13 to the control grid of the mixer (B3).

The first I.F. band-pass filter consists of two symmetrically coupled band-pass filters (S55, C75; S56, C76 and S58, C78; S59, C79). Capacitive coupling is effected by means of C121, C124. S57 and S60 are included for the purpose of bandwidth control. The second I.F. stage is formed by B4 and the second I.F. band-pass filter S63-C93, S64-C94 plus S65 for bandwidth control. The third I.F. stage comprises B5 and the third I.F. band-pass filter S66-C96 and S67-C97.

C. A.F. Section

The A.F. signal coming from the F.M. receiver, the A.M. receiver, the pick-up or from a tape recorder is applied to the volume control R51-R52 via the gramophone switch. Connected across the volume control are filters for physiological tone correction, C100-R49 for the treble and R50-C101 for the bass notes. The A.F. signal reaches g1B7 via C102. In order to obtain current negative feedback, the cathode resistors R57 and R58 are unbypassed. Furthermore negative feedback voltages derived from S73-S74 are fed via C11, R60, C106 and R59 to the cathodes of B7 (voltage feedback).

The tone control is obtained in two ways as follows: a voltage derived from S73-S74 is fed to the potentiometers R71 and R72. The slider of R71 is connected to a low-pass filter so that the low frequency response can be altered with this potentiometer. The slider of R72 is connected to a high-pass filter. This potentiometer thus controls the feedback for the treble response. The A.F. signal is then fed to the push-pull output stage B8 and B9.

No separate phase inverter valve is used for driving the push-pull output stage. The phase difference of 180° between g1B8 and g1B9 is obtained as follows:

The A.F. signal is applied to g1B8 and amplified by that valve. A voltage which is 180° out of phase with the voltage at g1B8 is obtained from the secondary winding S73 of the output transformer and fed to the cathodes of B8 and B9. This voltage serves as signal voltage for B9. By proper dimensioning of the components B9 receives a signal voltage equal to that of B8 180° out of phase.

TRIMMING PROCEDURE

A.M.-SECTION

A. I.F. band-pass filters

1. Volume control to maximum.
2. Bass control to maximum.
3. Treble control to minimum.
4. Bandwidth switch to "narrow".
5. Connect output voltmeter via trimming transformer to extension loudspeaker sockets.
6. Turn Ferroceptor switch to external aerial.
7. Press in M.W. push button and turn the tuning capacitor to maximum.
8. Apply a modulated signal of 452 kc/s via a 33 000-pF capacitor to g1B4.
9. Screw the cores of S67 and S63 almost full out.
10. Trim S66, S67, S64 and S63 in that order for maximum output voltage.

11. Now apply the 452-kc/s signal via the 33.000-pF capacitor to g1B3.
12. Damp S58 with a 33.000-Ω resistor.
13. Trim S59 and S56 for maximum output voltage.
14. Remove damping resistor from S58 and shunt it across S56.
15. Trim S55 and S58 for maximum output voltage.
16. Remove damping resistor from S56 and seal the cores.

B. I.F. Wavetrap

1. Proceed as outlined in the first 7 steps under A.
2. Apply a modulated signal of 452 kc/s via a standard dummy aerial to the aerial socket.
3. Trim S51 to minimum output voltage.
4. Seal the core of S51.

C. R.F. and oscillator circuits

Before beginning to trim these circuits make certain that the pointer is correctly adjusted. The pointer should coincide with the right-hand trimming point when the tuning capacitor is turned to maximum.

All signals are to be applied to the aerial socket for A.M. via a standard dummy aerial.

The Ferroceptor has to be switched to external aerial;
The volume control and bass control both to maximum;
The treble control to maximum and the bandwidth switch to "narrow";
A voltmeter should be connected, via a trimming transformer, to the extension loudspeaker sockets.

The trimming can now be done in accordance with the following table, keeping strictly to the order given:

1.	Press in push button....	M.W.	LOC.	L.W.	S.W.1	S.W.2	S.W.3
2.	Turn pointer to trimming point for.....	550 kc/s	Var. cap to max.	147 kc/s	10.9 Mc/s	5.85 Mc/s	3.0 Mc/s
3.	Apply signal of.....	550 kc/s	510 kc/s	147 kc/s	10.9 Mc/s	5.85 Mc/s	3.0 Mc/s
4.	Adjust for maximum output voltage.....	S41 S27	S30 S20	C62 S28	S33 S22	S36 S24	S39 S26
5.	Apply signal of.....	1550 kc/s	1550 kc/s	260 kc/s	18.3 Mc/s	9.9 Mc/s	6.1 Mc/s
6.	Turn pointer to trimming point for.....	1550 kc/s	tune to approx. 1550 kc/s	tune to approx. 260 kc/s	18.3 Mc/s	9.9 Mc/s	6.1 Mc/s
7.	Adjust for maximum output voltage.....	C59 C43 C27	C37	C44 C28	C54 C38	C56 C39	C58 C42
8.	Repeat the points.....	1-7	-	-	1-7	1-7	1-7
9.	Seal the coils..... and trimmers.....	S41 S27 C59 C43 C27	S30 S20 C37	S28 C62 C44 C28	S33 S22 C54 C38	S36 S24 C56 C39	S39 S26 C58 C42

F.M. SECTION

A. I.F. circuits

1. Turn volume control, bass switch and treble control to maximum.
2. Press in F.M. push button.
3. Turn variable capacitor to maximum.
4. Connect voltmeter via trimming transformer to extension loudspeaker sockets.
5. Connect diode voltmeter between junction of R45-R48 and earth. During trimming the reading of the diode voltmeter should be kept at about -2V; this can be done by constantly reducing the strength of the input signal.

With F.M. service oscillator

1. Apply a signal of 10.7 Mc/s, modulated with 500 c/s and sweep of 15 kc/s, via a 10 000 pF capacitor to g1B4.
2. Screw core of S62 almost full in.

With A.M. service oscillator

1. Apply an unmodulated signal of 10.7 Mc/s via a 10 000 pF capacitor to g1B4.
2. Screw core of S62 almost full in.

3. Trim S68, S61 and S62 for max. deflection of the diode voltmeter.	3. Trim S68, S61 and S62 for max. deflection of the diode voltmeter.
4. Trim S69 for max. output voltage.	4. Connect the diode voltmeter between junction of C115-C116 and the mid-point of two series-connected resistors (220 kΩ, tol.1%) which have to be shunted across C115-C116. The core of S69 has to be adjusted for minimum deflection of the diode voltmeter.
5. Feed the modulated signal via a 10 000 pF capacitor to g1B1.	5. Reconnect the diode voltmeter between junction of R45-R48 and earth, and feed the modulated signal via a 10 000 pF capacitor to g1B1.
6. Screw in the cores of S54 and S16.	6. Screw in the cores of S54 and S16.
7. Trim S53, S54, S15 and S16, in that order, for max.deflection of the diode voltmeter.	7. Trim S53, S54, S15 and S16, in that order, for max. deflection of the diode voltmeter.
8. Repeat step 4.	8. Repeat step 4.
9. Connect an oscilloscope between junction of C119-R46 and earth. Feed a balanced 10.7 Mc/s signal, modulation frequency 50 c/s, sweep 150 kc/s, to the dipole aerial sockets. Adjust the strength of the input signal so that the diode voltmeter reads - 5 V.	9. Reconnect the diode voltmeter between junction of R45-R48 and earth. Vary the tuning of the service oscillator to find the max. deflection of the diode voltmeter. Adjust the strength of the input signal so that the diode voltmeter reads -2V. The frequency at which max. deflection is found should be between 10.68 and 10.72 Mc/s.
10. The discriminator curve should be flat over a range of + and - 75 kc/s. Switch in an A.M. signal of 100 c/s 30% modulated. The flat part of the curve should now remain unaltered.	10. Connect the diode voltmeter between mid-point of the 220 kΩ resistors and junction of C115-C116. Vary the frequency found under 9 to + and - 75 kc/s. In both cases the deflection of the diode voltmeter must be the same. If this is not the case S68 and S69 must be retrimmed.
11. Seal the coil cores.	11. Remove the 220 kΩ resistors and seal the coil cores.

B. R.F. and oscillator circuits

Set volume, bass and treble controls to maximum.
Press in F.M. push button.
Feed the balanced F.M. signal from the service oscillator to the F.M. aerial sockets and modulate with 500 c/s (frequency sweep 15 kc/s).
Trimming is carried out in accordance with the following table:

With F.M. service oscillator	With A.M. service oscillator
1. Connect voltmeter via trimming transformer to extension speaker sockets.	1. Connect diode voltmeter between junction of R45-R48 and earth.
2. Turn pointer to the trimming point for 87.5 Mc/s.	2. Turn pointer to the trimming point for 87.5 Mc/s.
3. Apply a modulated signal of 87.5 Mc/s.	3. Apply an unmodulated signal of 87.5 Mc/s to one of the F.M. aerial sockets.
4. Trim S13 and S12 for max. output voltage.	4. Trim S13 and S12 for max. deflection of the diode voltmeter.
5. Apply a modulated signal of 100 Mc/s.	5. Apply an unmodulated signal of 100 Mc/s to one of the F.M. aerial sockets.
6. Turn pointer to trimming point for 100 Mc/s.	6. Turn pointer to trimming point for 100 Mc/s.
7. Trim C18 for max. output voltage.	7. Trim C18 for max. deflection of diode voltmeter.
8. Repeat steps 1 to 7 a few times.	8. Repeat steps 1 to 7 a few times.
9. Apply a modulated signal of 93 Mc/s and tune receiver to this signal.	9. Apply an unmodulated signal of 93 Mc/s and tune receiver to this signal.
10. Trim S11 for max. output voltage.	10. Trim S11 for max. deflection of diode voltmeter.
11. Seal S11, S12, S13 and C18.	11. Seal S11, S12, S13 and C18.

REPAIRS AND REPLACEMENT OF PARTS

Removing the chassis

1. Remove back panel and bottom plate.
2. Turn tuning capacitor to maximum.
3. Unsolder the leads from the loudspeaker.
4. Unsolder the built-in F.M. aerial.
5. Unscrew the 6 fixing screws (with red washers) underneath and take the chassis out of the cabinet.

Replacing a switch section

At the rear of the waverange switching unit is a guide plate mounted in front of the contact strips. This is fixed by 2 screws accessible through holes in the chassis. By undoing these screws, the guide plate can be removed.
Remove the screening plates by carefully bending back the 4 twisted fixing tags and unsoldering the 2 earth tags. The switch sections can now be taken out.

Replacing the dial scale

1. Remove the chassis from the cabinet.
2. Take off the knobs.
3. The dial scale can now be replaced.

Removing the potentiometers

Volume and bass control

1. Remove the chassis from the cabinet.
2. Remove the knobs.
3. Take off the dial and dial tray.
4. Unsolder the leads to the potentiometers and remove the driving drum of the Ferroceptor.
5. Unscrew the potentiometer fixing nut.
6. Take off the driving roller.

Treble control

1. Take the chassis out of the cabinet.
2. Remove the knobs.
3. Take off the dial and tray.
4. Unsolder the leads to the potentiometer.
5. Unscrew the driving roller.
6. Unscrew the potentiometer fixing nut.
7. Remove the 4 screws fixing the drive unit.
8. Pull the unit obliquely upwards from the back.
9. The potentiometer can now be removed.

Cable drive

In fig.7 the various cable drives are shown with the tuning capacitor in its maximum capacitance position.
The length of the various cables is also indicated in this diagram.

Fitting the driving cord for the F.M. tuning capacitor

1. Cut the cord to correct length.
2. Make a loop at one end of the cord.
3. Push the cord through the hole in the driving spindle.
4. Make a loop at the other end of the cord.
5. Turn tuning capacitor to maximum.
6. Pull the cord loops until they are equal (i.e. the length of cord to the left of the hole is the same as that to the right).
7. Hold the loops, then turn the driving spindle 3 turns anti-clockwise and secure it (see also drawing).
8. Wind back the end of the cord at the back, lead it to the right of the guide stud and bring it to the top.
9. The end of the cord which has not been wound back is passed to the left of the guide stud and brought to the top.
10. Pass the ends of the cord around the capacitor drum as shown in the drawing and hook them into the tension spring.

Power transformer

If the original power transformer in this receiver becomes defective it has to be replaced with the standard service transformer specified in the List of Electrical Parts.
For connections see fig.5.

LIST OF PARTS AND TOOLS

When ordering always state:
1. Description (and colour code).
2. Code number.
3. Type no. of the receiver.

		Description	Code number
		Cabinet (wooden)	WE 000 28.0
		Emblem	WE 308 09.0
		Dipole	R 210KN/03AA
		Valve feeder socket (EL84, EBF80, ECH81, EF80, EF85, EZ80)	B1 505 22.0
		Valve socket (ECC40, EB41, EF41)	49 231 84.1
		Valve socket (EM34)	B1 505 26.1
		Valve socket (EC92)	B1 506 55.0
		Tuning capacitor drums (FM and LOC.band)	WE 712 24.0
		Spring clip for fasting coil cans	A3 652 58.3
		Spring (in capacitor drum)	A3 646 26.0
		Spring (for cable)	A3 652 75.1
		Knob (at rear)	23 722 42.0
		Knob (Ferroceptor)	WE 713 33.0
		Knob (tone switch)	WE 713 34.0
		Knob (large)	WE 713 07.0
		Knob (small)	WE 713 24.0
		Scale (glass)	WE 217 68.0
		Dial lamp holder	A3 359 16.1
		Switch lever (loudspeaker switch)	WE 208 03.0
		Toggle switch	WE 186 03.0
		Contact tags) waverange switch	A9 021 73.0
		Contact blades) section	A9 021 74.0
		Push button	WE 713 18.0
		Coil core	WE 324 00.0
		Drum for tuning capacitor	WE 713 09.0
		Pulley wheel (Ferroceptor)	WE 713 12.0
		TOOLS	
		Service oscillator	GM 2882 or GM 2883 or GM 2884
		Universal measuring instrument	GM 4256 or GM 4257
		Diode voltmeter	GM 6004 or GM 7635
		Vaseline compound	X 009 47.0

BX 732 A

C1	100	µF	WN 601 43/100+
C2	50	µF	50
C4	4,7	pF	A9 999 04/4E7
C5			
C6			A9 999 05/3K
C7	150	pF	A9 999 04/150E
C8	82	pF	A9 999 04/82E
C9	100	pF	A9 999 04/100E
C10	22	pF	A9 999 04/22E
C11	22	pF	A9 999 04/22E
C12	120	pF	A9 999 04/120E
C13			
C14	1500	pF	A9 999 04/1K5
C15	150	pF	zie spoelen
C16	1200	pF	A9 999 05/1K2
C17	6,8	pF	A9 999 04/6E8
C18	30	pF	28 212 36.4
C19			49 001 86.0
C20			
C21			
C22	12	pF	A9 999 04/12E
C23	10000	pF	A9 999 04/10K
C24	56	pF	zie spoelen
C25	390	pF	A9 999 05/390E
C26	3000	pF	A9 999 05/3K
C27	18	pF	49 005 59.3
C28	30	pF	28 212 36.4
C29	220	pF	A9 999 04/220E
C30			49 001 83.0
C31			
C32			
C33	0,1	µF	A9 999 06/100K
C34	27000	pF	A9 999 06/27K
C35	220	pF	A9 999 04/220E
C36	3000	pF	A9 999 05/3K
C37	12,5	pF	49 005 48.2
C38	30	pF	28 212 36.4
C39	30	pF	28 212 36.4
C40	10	pF	WN 400 40.0
C41	415	pF	
C42	30	pF	28 212 36.4
C43	10	pF	49 005 64.1
C44	30	pF	28 212 36.4
C45	1000	pF	A9 999 05/1K
C46	220	pF	A9 999 04/220E
C47	1500	pF	A9 999 04/1K5
C48	82	pF	A9 999 04/82E
C49	220	pF	A9 999 04/220E
C50	56	pF	A9 999 04/56E
C51	68	pF	A9 999 04/68E
C52	220	pF	A9 999 04/220E
C53			
C54	30	pF	28 212 36.4
C55	100	pF	A9 999 04/100E
C56	30	pF	28 212 36.4
C57	82	pF	A9 999 04/82E
C58	30	pF	28 212 36.4

C59	18	pF	49 005 59.3
C60	360	pF	A9 999 05/360E
C61	360	pF	A9 999 05/360E
C62	50	µF	49 005 50.2
C63	10000	pF	A9 999 06/10K
C64	470	pF	A9 999 04/470E
C65	1000	pF	A9 999 05/1K
C66	100	pF	A9 999 04/100E
C67	100	pF	A9 999 04/100E
C68	10000	pF	A9 999 04/10K
C69	4	µF	48 313 09/10
C70	1000	pF	A9 999 05/1K
C71	10000	pF	A9 999 04/10K
C72	10000	pF	A9 999 04/10K
C73	56	pF	zie spoelen
C74	56	pF	
C75	230	pF	
C76	115	pF	
C77	9100	pF	A9 999 05/9K1
C78	115	pF	zie spoelen
C79	230	pF	
C80	6800	pF	A9 999 04/6K8
C81	12	µF	A9 999 04/12K
C82	82	pF	A9 999 04/82E
C83	1500	pF	A9 999 04/1K5
C84	1500	pF	A9 999 04/1K5
C85	12	pF	A9 999 04/12E
C86	100	pF	A9 999 04/100E
C87	47000	pF	A9 999 06/47K
C88	1500	pF	A9 999 04/1K5
C89	6800	pF	A9 999 04/6K8
C90	68	pF	A9 999 04/68E
C91	56	pF	zie spoelen
C92	56	pF	
C93	230	pF	
C94	115	pF	
C95	390	pF	A9 999 04/390E
C96	110	pF	zie spoelen
C97	110	pF	
C98	33000	pF	A9 999 06/33K
C99	33	pF	zie spoelen
C100	39	pF	A9 999 04/39E
C101	6800	pF	A9 999 06/6K8
C102	10000	pF	A9 999 06/10K
C103	47000	pF	A9 999 06/47K
C104	0,33	µF	A9 999 06/330K
C105	15000	pF	A9 999 06/15K
C106	12000	pF	A9 999 06/12K
C107	15000	pF	A9 999 06/15K
C108	390	pF	A9 999 04/390E
C109	22000	pF	A9 999 06/22K
C110	22000	pF	A9 999 06/22K
C111	33000	pF	A9 999 06/33K
C112	820	pF	A9 999 04/820E
C113	10000	pF	A9 999 06/10K
C114	2200	pF	A9 999 06/2K2
C115	330	pF	A9 999 04/330E

C116	330	pF	A9 999 04/330E
C117	5	µF	AC 5104/4
C118	10000	pF	A9 999 04/10K
C119	470	pF	A9 999 04/470E
C120	56	pF	zie spoelen
C121	12	pF	A9 999 04/12E
C122	10000	pF	A9 999 04/10K
C123	10000	pF	A9 999 04/10K
C124	12	pF	A9 999 04/12E
C125	33	pF	A9 999 04/33E
S1			
S2			
S3			
S4			
S5			A3 141 40.4
S5'			
S6			
S6'			
S7			
S15			
S16			WE 120 34.0
S24			
S19			
S20			A3 125 35.0
S29			
S30			WE 110 92.0
S21			
S22			A3 125 28.0
S23			
S24			A3 125 27.0
S25			
S26			A3 125 30.0
S27			
S28			WE 120 52.0
S17			
S17'			
S18			WE 358 09.0
S18'			
S32			
S33			A3 125 58.0
S35			
S36			WE 111 04.0
S37			
S38			WE 125 08.0
S39			
S40			
S41			WE 125 08.0
S50			A3 110 60.1

S51			WE 110 94.0
S52			
S52'			WE 110 61.0
S53			
C73			
S54			WE 120 38.0
C74			
S55			
C75			
S56			A3 122 38.0
C76			
S57			
S58			
C78			
S59			A3 122 38.0
C79			
S60			
S61			
C91			
S62			WE 120 38.0
C92			
S63			
C93			
S64			A3 122 38.0
C94			
S65			
S66			
C96			
S67			A3 124 25.4
C97			
S68			
S69			
S69'			
C99			WE 120 50.0
C70			
C120			
S71			
S72			
S73			WE 151 23.0
S74			
S75			WE 110 60.0
S42			
S43			10 windingen
S44			van Podurdraad
R1	8200	Ω	48 767 05/820E
R10	150	Ω	A9 999 00/150E
R11	22000	Ω	A9 999 00/22K
R12	5600	Ω	A9 999 00/5K6
R13	1	MΩ	A9 999 00/1M
R14	33	Ω	A9 999 00/33E
R15	15000	Ω	A9 999 00/15K

R16	1	MΩ	A9 999 00/1M
R17	18000	Ω	A9 999 00/18K
R18	180	Ω	A9 999 00/180E
R19	56000	Ω	A9 999 00/56K
R20	560	Ω	A9 999 00/560E
R21	1	MΩ	A9 999 00/1M
R22	10000	Ω	A9 999 00/10K
R23	22	Ω	A9 999 00/22E
R24	10000	Ω	A9 999 00/1K
R25	1	MΩ	A9 999 00/1M
R26	0,1	MΩ	A9 999 00/100K
R27	560	Ω	A9 999 00/560E
R28			
R30	150	Ω	A9 999 00/150E
R31	33000	Ω	A9 999 00/33K
R32	220	Ω	A9 999 00/220E
R33	0,47	MΩ	A9 999 00/470K
R34	82000	Ω	A9 999 00/82K
R35	220	Ω	A9 999 00/220E
R36	0,47	MΩ	A9 999 00/470K
R37	0,1	MΩ	A9 999 00/100K
R38	220	Ω	A9 999 00/220E
R39	0,15	MΩ	A9 999 00/150K
R40	0,22	MΩ	A9 999 00/220K
R41	2,7	MΩ	A9 999 00/2M7
R42	33	Ω	A9 999 00/33E
R43	1	MΩ	A9 999 00/1M
R44	1	MΩ	A9 999 00/1M
R45	33000	Ω	A9 999 00/33K
R46	0,1	MΩ	A9 999 00/100K
R47	1,5	MΩ	A9 999 00/1M5
R48	560	Ω	A9 999 00/560E
R49	0,39	MΩ	A9 999 00/390K
R50	68000	Ω	A9 999 00/68K
R51	1,8	MΩ	
R52	0,2	MΩ	WE 362 85.0
R71	1000	Ω	
R53	1,8	MΩ	A9 999 00/1M8
R54	0,12	MΩ	A9 999 00/120K
R55	0,22	MΩ	A9 999 00/220K
R56	0,1	MΩ	A9 999 00/100K
R57	68	Ω	A9 999 00/68E
R58	2200	Ω	A9 999 00/2K2
R59	120	Ω	A9 999 00/120E

R60	10000	Ω	A9 999 00/10K
R61	0,18	MΩ	A9 999 00/180K
R62	0,12	MΩ	A9 999 00/120K
R63	15000	Ω	A9 999 00/15K
R64	0,47	MΩ	A9 999 00/470K
R65	47000	Ω	A9 999 00/47K
R66	0,82	MΩ	A9 999 00/820K
R67	47000	Ω	A9 999 00/47K
R68	1000	Ω	A9 999 00/1K
R69	68	Ω	A9 999 00/68E
R70	1,2	MΩ	A9 999 00/1M2
R71			zie R51,R52,R71
R72	1000	Ω	WE 362 94.0
R73	33000	Ω	A9 999 00/33K
R74	18000	Ω	48 766 10/18K
R75	18	Ω	48 494 10/18E
R76	0,1	MΩ	A9 999 00/100K
R77	1,8	MΩ	A9 999 00/1M8
R78	27000	Ω	A9 999 00/27K
R79	33	Ω	A9 999 00/33E
R80	1500	Ω	A9 999 00/1K5
R81	150	Ω	A9 999 00/150E
R82	22000	Ω	A9 999 00/22K

WM/MZ

BX 73

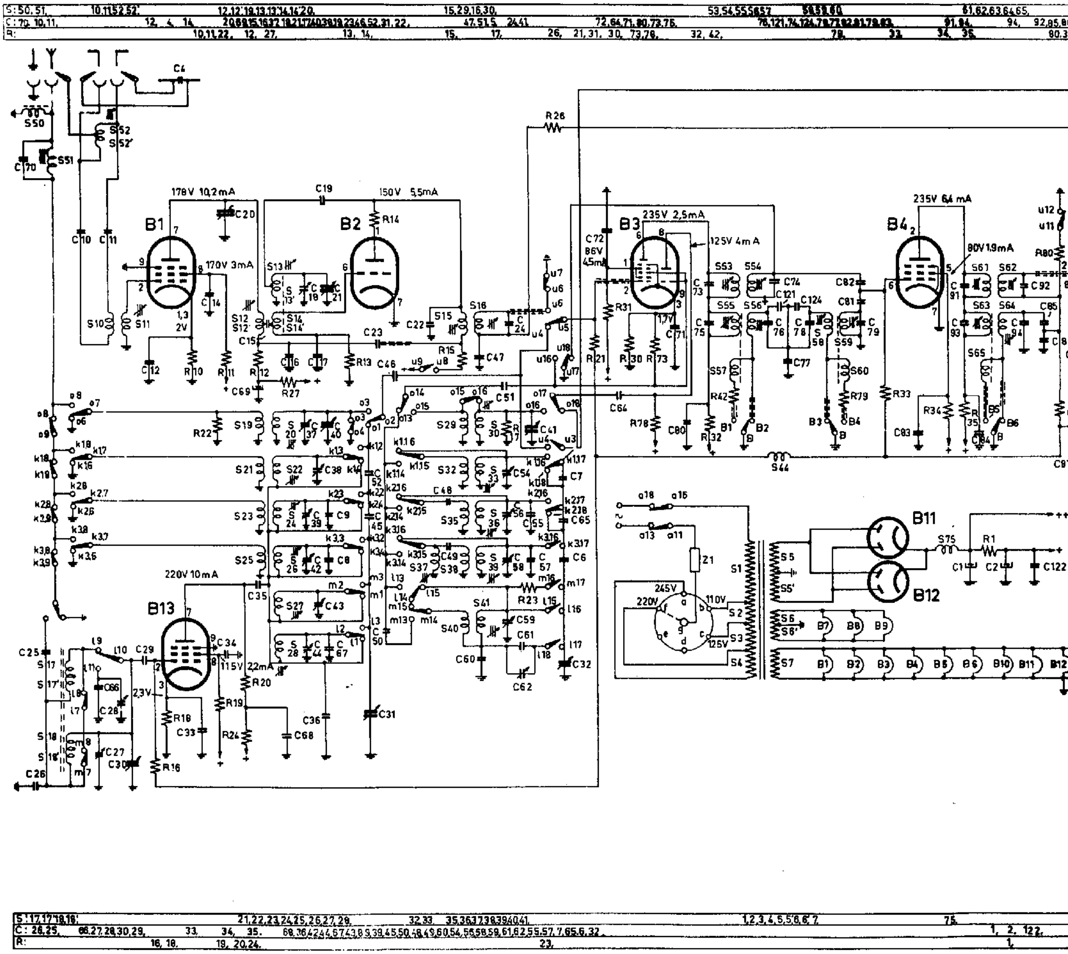
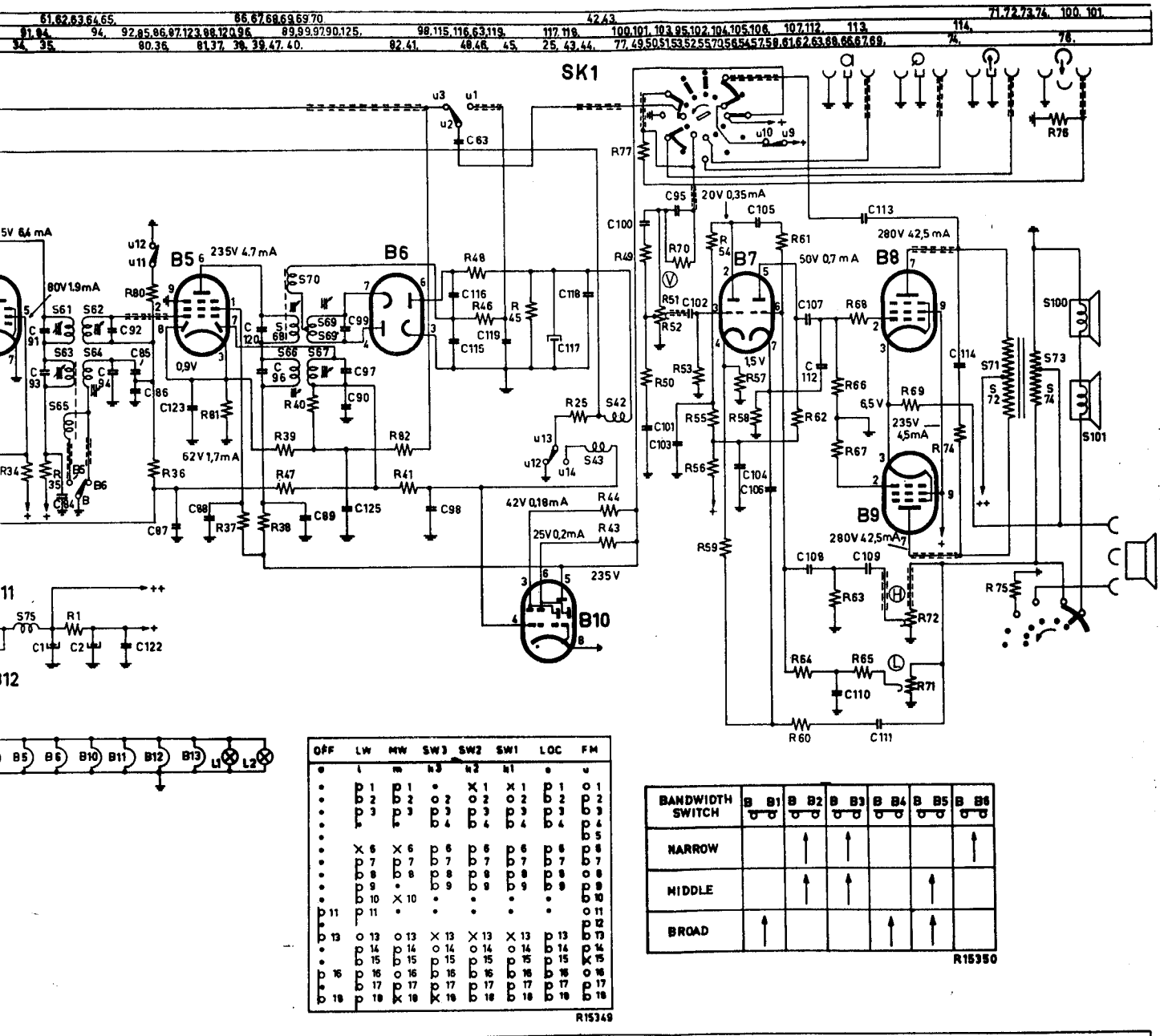

B1
B2
B3
B4
B11
B12
B13
178V 10,2mA
150V 5,5mA
235V 2,5mA
125V 4mA
235V 6,4 mA
220V 10mA
245V
220V
110V
125V

Fig.4



OFF	LW	MW	SW3	SW2	SW1	LOC	FM
a	i	m	k3	k2	k1	e	u
•	b 1	b 1	•	X 1	X 1	b 1	o 1
•	b 2	b 2	o 2	o 2	o 2	b 2	b 2
•	b 3	b 3	b 3	b 3	b 3	b 3	b 3
•	•	•	b 4	b 4	b 4	b 4	b 4
•							b 5
•	X 6	X 6	b 6	b 6	b 6	b 6	b 6
•	b 7	b 7	b 7	b 7	b 7	b 7	b 7
•	b 8	b 8	b 8	b 8	b 8	b 8	o 8
•	b 9	•	b 9	b 9	b 9	b 9	b 9
•	b 10	X 10	•	•	•	•	b 10
b 11	b 11	•	•	•	•	•	o 11
•							b 12
b 13	o 13	o 13	X 13	X 13	X 13	b 13	b 13
•	b 14	b 14	o 14	o 14	o 14	b 14	b 14
•	b 15	b 15	b 15	b 15	b 15	b 15	X 15
b 16	b 16	o 16	b 16	b 16	b 16	b 16	o 16
•	b 17	b 17	b 17	b 17	b 17	b 17	b 17
b 18	b 18	X 18	X 18	b 18	b 18	b 18	b 18

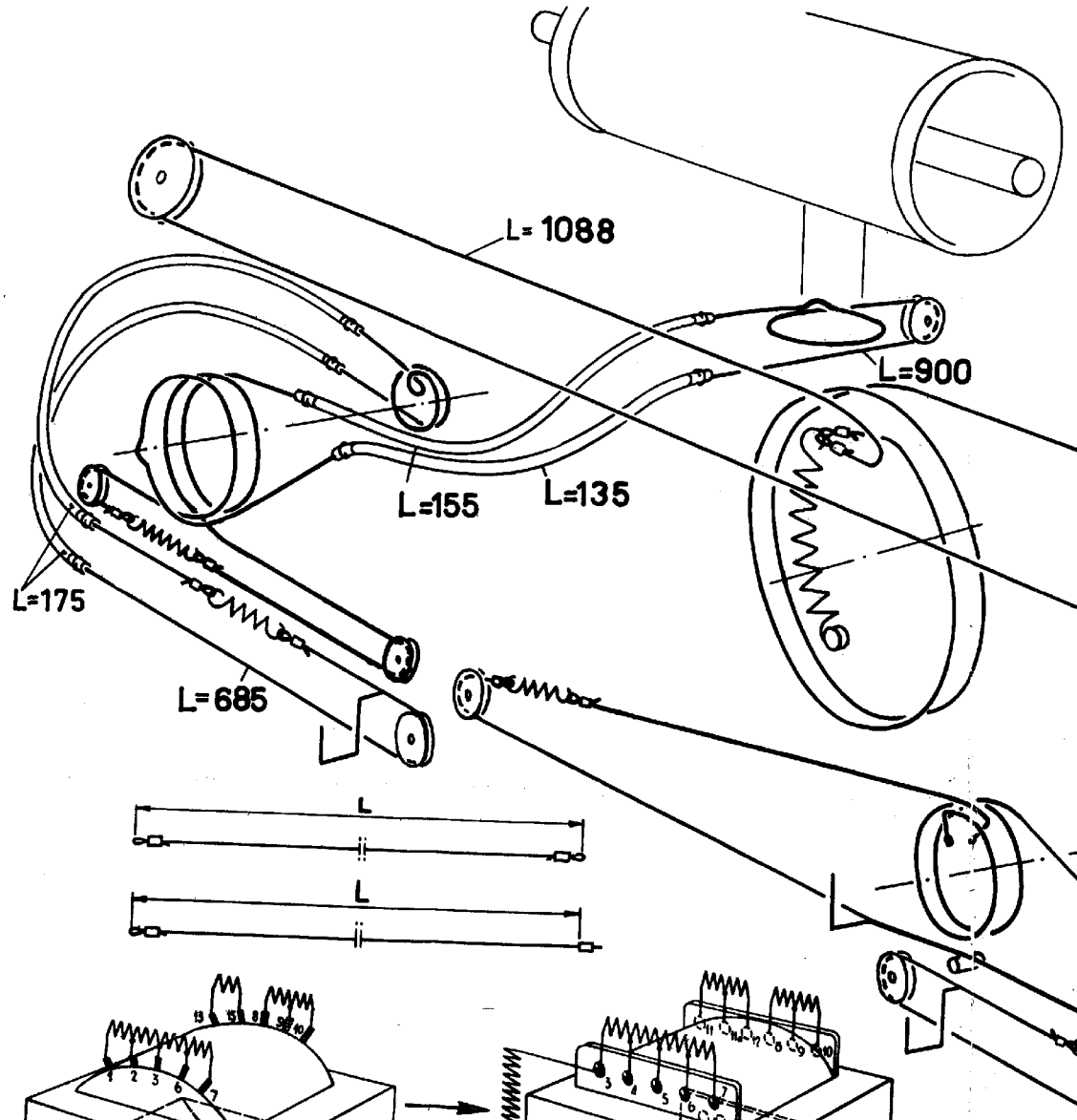
R15349

BANDWIDTH SWITCH	B B1	B B2	B B3	B B4	B B5	B B6
NARROW		↑	↑			↑
MIDDLE		↑	↑		↑	
BROAD	↑			↑	↑	

R15350

R15136

Fig.4



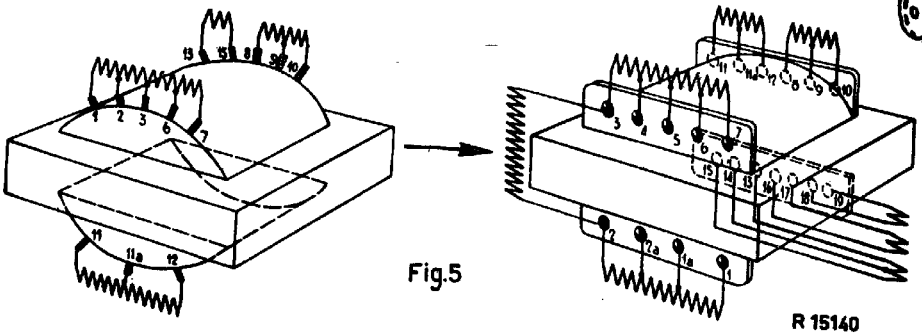


Fig.5

R 15140

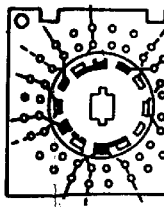
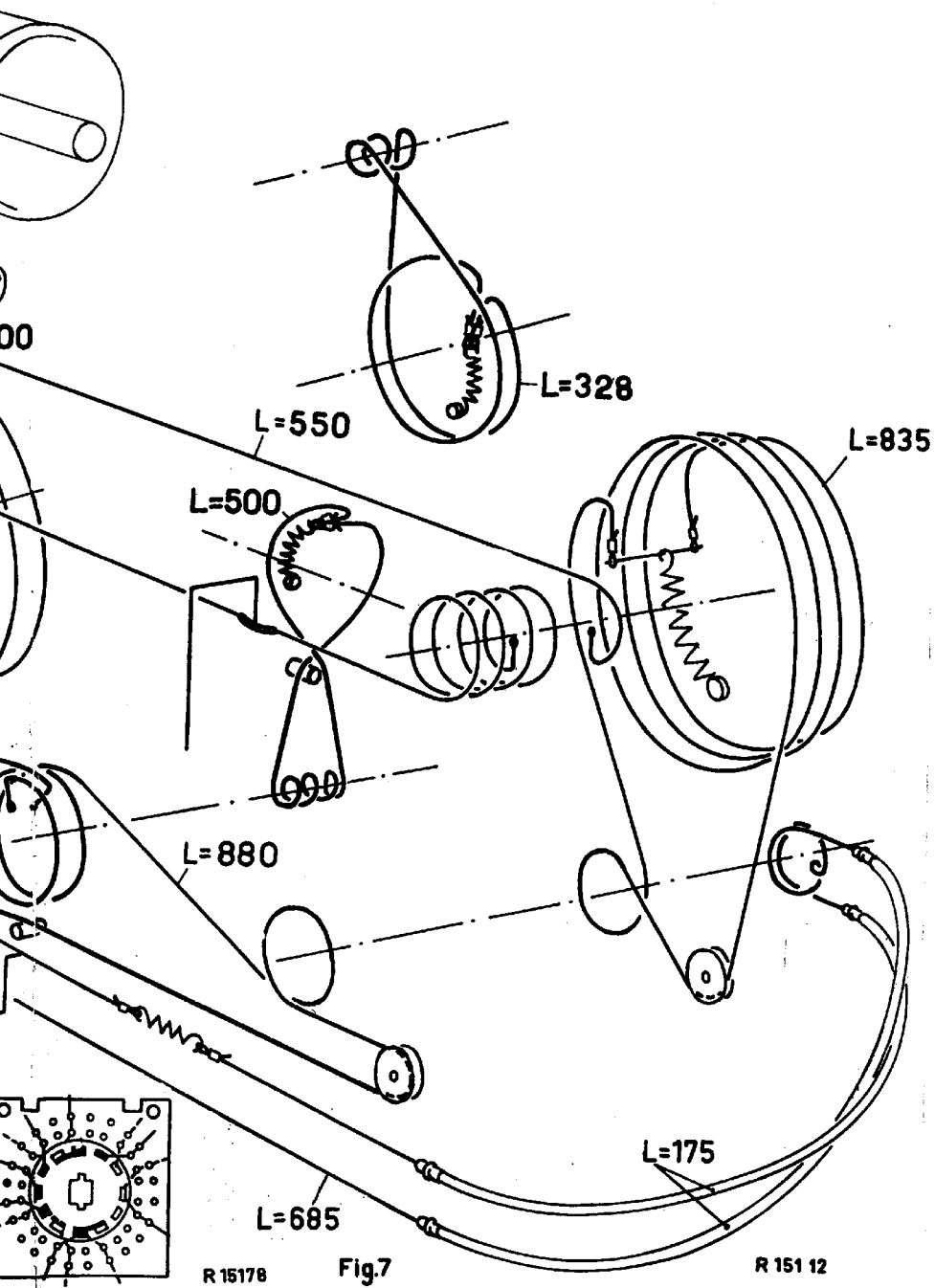


Fig.6 sk1

A



R 15178

Fig.7

R 151 12

g.6 sk1