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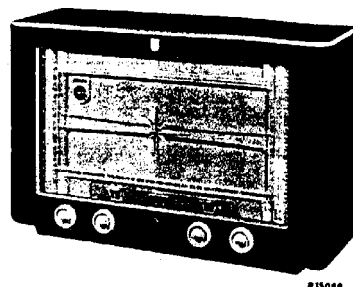
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SERVICE NOTES

for the receiver

BX 638 Z



R15066

For A.C. mains supply and 6 V battery supply via the vibrator unit AU 1004
1953 AU 1004

GENERAL

WAVE RANGES

1. M.W.	: 185 - 580	m	{ 1622 - 517	kc/s)
2. S.W.3	: 60 - 187	m	{ 5 - 1.604	Mc/s)
3. S.W.2d	: 32.25 - 60	m	{ 9.3 - 5	Mc/s)
4. S.W.2c	: 23.07 - 32.96	m	{ 13.0 - 9.1	Mc/s)
5. S.W.2b	: 17.00 - 25.87	m	{ 17.6 - 11.6	Mc/s)
6. S.W.2a	: 10.98 - 17.00	m	{ 27.3 - 17.6	Mc/s)

I.F. : 452 kc/s

CONTROLS

From left to right :

1. Knob : volume control + mains switch
Lever : radio P.U. switch
2. Knob : tone control
Lever : bass switch
3. Knob : vernier tuning
4. Knob : waverange switch
5. Knob : main tuning
6. On rear panel : mains-off-vibrator- charging switch

SUPPLY VOLTAGE

90, 110, 125, 180
200, 220 V (50 c/s)
and 6 V =

CONSUMPTION

50 W approx. (a.c.)
21 W approx. (6V d.c.)

LOUDSPEAKER

type 9770 Z = 5 Ω

VALVES

B1 : EF41
B2 : ECH81
B3 : EBF80
B4 : EBC41
B5 : EL42
B6 : EZ80
B7 : EM34

DIMENSIONS

Length : 55 cm)
Depth : 26 cm) knobs
Height : 34.5 cm) included

BANDWIDTH

The I.F. bandwidth (1:10)
measured from g_1 of B2 is
approx. 11 kc/s. The "over-
all" bandwidth (1:10) mea-
sured from the aerial
socket is about 9.5 kc/s at
1622 kc/s and 9kc/s at
1000 kc/s

DIAL LAMPS L1 : 8045D-00 ; L2 : 8045D-00

Printed in Holland

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LIST OF ILLUSTRATIONS

- Fig. 1 Trimming points on the dial
- Fig. 2 Pointer and gang capacitor drive
- Fig. 3 Switch wafers
- Fig. 4 Coil connections
- Fig. 5 Circuit diagram
- Fig. 6 Wiring diagram (under)
- Fig. 7 Wiring diagram (above)

TRIMMING THE RECEIVERA. The I.F. Part

1. Set the waverange switch to M.W.
2. Turn the variable condenser to minimum
3. Set the volume control to maximum
4. Set the P.U. radio switch to radio
5. Unscrew the iron cores of the I.F. coils
6. Connect a voltmeter via a trimming transformer to the extension loudspeaker socket.
7. Apply to g1 of B2 a modulated signal of 452 kc/s via a capacitor of 33000 pF
8. Trim the I.F. circuits in the following order :

4th I.F. circuit	S45-S46-C48	(coil U)
3rd I.F. circuit	S43-S44-C47	(coil U)
1st I.F. circuit	S39-S40-C44	(coil T)
2nd I.F. circuit	S41-S42-C45	(coil T)
3rd I.F. circuit	S43-S44-C47	(coil U)

After the last circuit has been trimmed the cores of the I.F. coils must be left as they are.

9. Seal the cores

Note

The iron cores of the I.F. bandfilters have been sealed with "Vaseline Compound" (see list of parts and tools). This compound can easily be removed in the cold state with the aid of a screw-driver. Heating of the core damages the core holder and makes trimming impossible.

B. R.F. and oscillator circuits

Trimming is done with the aid of trimming points on the dial (see fig. 2).

There is no need to uncage the apparatus. Before starting to trim, be sure that the pointers are in the right positions at minimum capacitance of the variable condenser.

The positions of the pointers are (at minimum position of the variable capacitor).

For range M.W. on trimming point (1)
 For range S.W. 3 on trimming point (4)
 For range S.W. 2b on trimming point (5)
 For range S.W. 2a on trimming point (5)
 For range S.W. 2c on trimming point (3)
 For range S.W. 2d on trimming point (3)

For all waveranges the following applies :

1. Set the volume control to maximum
2. Turn the tone control to the "quality" position
3. Connect a voltmeter via a trimming transformer to the extension loudspeaker socket.

Trim as indicated in the following table strictly observing the order given :

1	Waverange switch in position	M.W.	S.W.3	S.W.2b	S.W.2a	S.W.2c	S.W.2d
2	Pointer on trimming point by means of tuning knob	2	2	6 ⁺	2 ⁺	2 ⁺	2 ⁺
3	Apply modulated signal of to aerial socket via a capacitor of 33000 pF	547 kc/s	-	-	-	-	-
4	Apply modulated signal of to aerial socket via a capacitor of 125 pF	-	1.72 Mc/s	11.6 Mc/s	17.6 Mc/s	9.0 Mc/s	4.91 Mc/s
5	Trim for maximum output voltage	S38 S24 S16	S36 S21 S14	S27 S18 S8	S26 S17 S6	S28 S19 S10	S34 S20 S12
6	Pointer on trimming point by means of tuning knob	1	4	5 ⁺	-	-	-
7	Apply modulated signal of to aerial socket via a capacitor of 33000 pF	1630 kc/s	-	-	-	-	-
8	Apply modulated signal of via a capacitor of 125 pF	-	5.1 Mc/s	18 Mc/s	-	-	-
9	Trim for maximum output voltage	C43 C24 C13	C39 C23 C12	C33 C19 C8	-	-	-
10	Repeat the points	2-9	2-9	2-9	-	-	-
11	Seal the trimmers and cores	S38 S24 S16 C43 C24 C13	S36 S21 S14 C39 C23 C12	S27 S18 S8 C33 C19 C8	S26 S17 S6	S28 S19 S10	S34 S20 S12

+ Place vernier-tuning in the middle position on the dial

REPAIRS AND REPLACEMENTS

Uncasing

1. Remove rear panel and bottom plate
2. Remove knobs (they pull off except the knob of the vernier-tuning which has to be unscrewed).
3. Unscrew loudspeaker baffle (4 screws).
4. Unscrew the four bottom screws
5. Carefully draw the chassis out of the cabinet

Variable capacitor and pointer drive

The path and the lengths of the cables are indicated in fig. 2, the variable capacitor being set to maximum.

A. Variable capacitor drive

1. Remove the chassis from the cabinet.
2. Remove the broken cables.
3. Assemble the new cables "A" and "B".
4. Push the nipple a of the cable A into the slit A1 of the small drum and pass the cable ± 2 x in a clockwise direction around the drum.
5. Place the cable guide into position.
6. Pass the cable $\pm \frac{1}{2}$ x in an anti-clockwise direction around the drum of the variable capacitor.
7. Fix the cable temporarily with a crocodile clip.
8. Push the nipple b of the cable B into the slit B1.
9. Pass the cable B $\pm \frac{1}{2}$ x in an anti-clockwise direction around the small drum.
10. Place the cable guide into position.
11. Pass the cable around the pulley and $\pm 1\frac{1}{2}$ x in a clockwise direction around the variable capacitor drum.
12. Hook the spring into the cable loops, pass the ends through the drum opening and lay one end in the right direction around the pin of the drum.
13. Fix the spring on its bracket and remove the crocodile clip.

Pointer drive

1. Remove the chassis from the cabinet.
2. Remove the dial scale and if desired also the baffle.
3. Put cable D with nipple d in slit D1 on the cable drum, turn $\pm 1\frac{1}{2}$ turns to the left and clip temporarily with a crocodile clip on the friction wheel.
4. Put cable C with nipple c in slit C1 on the cable drum and turn $\pm 2\frac{1}{2}$ turns to the right and clip temporarily with a crocodile clip on the friction wheel.
5. Put the baffle back in place.
6. Remove the crocodile clip from cable D and put the cable on its pulleys (see fig. 2).
7. Remove the crocodile clip from cable C and put the cable on its pulleys (see fig. 2).
8. Hook the two cable ends together with hook H as indicated in fig. 2.
9. Fix the pointer carriers and pointers to the cable.
10. Check the tension in the cables, it must be taken up entirely by the spring on the side of the chassis.

Repair of the vernier control

For the repair of this part unscrew the bracket from the chassis after which it will be easy to remove both the driving spindle and the cores. Keep always free of grease the rubber driving rolls and core rods.

After repair the cores must be moved to and fro once or twice against their stop points, after which they come automatically in the right position.

CURRENTS AND VOLTAGES

			V _a	V _{g2} (+4)	V _k	I _a	I _{g2} (+4)
B1	EF41	Pentode	178	62	-	4.8	1.4
B2	ECH81	Hexode	226	62	-	1.8	4.0
		Triode	126	-	-	4.0	-
B3	EBF80	Pentode	226	62	-	4.6	1.6
B4	EBC41	Triode	74	-	-	0.72	-
B5	EL42	Pentode	231	226	9.5	25	4.1
B7	EM34	Tuning Indicator	226	d1=26	-	-	d1=0.2
				d2=16			d2=0.21
			Volts	Volts	Volts	mA	mA

VC1 = 260 V

VC2 = 226 V

Imprim 225 mA (220 V, 50 c/s)

These measurements have been taken with the Universal Measuring Instrument GM 4257 with the receiver connected to 220 V a.c. and no signal on the aerial socket.

BX 638 Z

LIST OF PARTS AND TOOLS

When ordering always quote

1. Codenumber
2. Description
3. Type number of the set

	Description	Code number
	Cabinet	A3 737 24.0
	Rubber grommet (fixing chassis) 4x	A3 327 14.0
	Knobs (4x)	A3 736 57.0
	Levers (colour MC) bass-switch and radio/P.U. switch	23 952 95.5
	Knob vernier control (colour MC)	23 610 54.1
	Knob on rear panel (colour AA)	23 993 10.0
	<u>Chassis</u>	
	Valve holder (3x)	B1 505 22.0
	Spring for fixing coil cans 8x	A3 652 58.3
	Pick-up radio switch	A3 402 44.0
	Waverange indication disc	A3 404 08.0
	Indication disc for vernier tuning	A3 404 09.2
	Indication disc tone control	A3 390 04.0
	Spring at side of chassis	A3 646 17.0
	Pointer carrier	A3 372 35.0
	Valve holder (1x)	B1 505 26.1
	Dial lamp holder (2x)	A3 359 16.1
	Spring in drum variable capacitor	A3 646 09.3
	Large vertical pulley for cable drive	P4 095 04/01
	Large horizontal pulley for cable drive	P4 095 05/01
	Ornamental window for tuning indicator	A3 357 12.1
	Spring for fixing coilcan 1x	A3 652 75.1
	Bass-switch	A3 186 57.0
	Battery on-off switch	A3 181 45.0
	Spindle for potentiometers	A3 432 95.0
	Nut for fixing potentiometers	49 758 21.0
	Mounting plate for potentiometers	A3 537 90.0
	Dial (overseas)	A3 740 23.0
	Dial (mediterranean)	A3 740 24.0
	<u>Tools</u>	
	Service oscillator	GM 2883 or GM 2883/02 or GM 2884
	Universal Measuring Instrument	GM 4257
	Vaseline Compound	X 009 47.0

S1	-		S43	5 Ω	
S2	-		S44	2.5 Ω	
S2a	-	A3 142 16.0	S45	2 Ω	
S3	-		S46	3 Ω	A3 121 94.2
S4	-		C47	115 pF	
S5	1.5 Ω		C48	115 pF	
S6	< 1 Ω	A3 125 79.0	S47	-	
S9	1.6 Ω		S48	-	
S10	< 1 Ω	A3 125 28.0	S49	-	A3 169 59.0
S7	1.5 Ω		S51	-	
S8	< 1 Ω	A3 125 26.0	C1	50 μ F	
S11	1.6 Ω		C2	50 μ F	48 317 63/50+50
S12	< 1 Ω	A3 125 28.0	C3	11-498 pF	
S13	13 Ω		C4	11-498 pF	49 001 66.2
S14	1.7 Ω	A3 125 33.0	C5	11-498 pF	
S15	45 Ω		C6	1500 pF	A9 999 04/1K5
S16	3 Ω	A3 125 35.0	C7	1500 pF	A9 999 04/1K5
S17	< 1 Ω	A3 125 38.0	C8	60 pF	49 005 58.0
S19	< 1 Ω	A3 125 41.0	C9	1500 pF	A9 999 04/1K5
S18	< 1 Ω	A3 125 39.0	C10	120 pF	A9 999 04/120E
S20	< 1 Ω	A3 125 41.0		18 pF	A9 999 04/18E
S21	1.7 Ω		C11	0.22 μ F	A9 999 06/220K
S22	< 1 Ω	A3 125 46.0	C12	30 pF	28 212 36.4
S23	45 Ω		C13	30 pF	28 212 36.4
S24	3 Ω	A3 125 35.0	C14	150 pF	A9 999 04/150E
S25	26 Ω	A3 110 66.0	C15	150 pF	A9 999 04/150E
S26	< 1 Ω	A3 113 10.0	C16	150 pF	A9 999 04/150E
S28	< 1 Ω	A3 125 44.0	C17	150 pF	A9 999 04/150E
S27	< 1 Ω	A3 125 42.0	C19	60 pF	49 005 58.0
S32	< 1 Ω		C21	120 pF	A9 999 04/120E
S33	< 1 Ω	A3 125 60.0		18 pF	A9 999 04/18E
S34	< 1 Ω		C23	30 pF	28 212 36.4
S29	< 1 Ω	A3 117 43.0	C24	30 pF	28 212 36.4
S30	< 1 Ω	A3 117 43.0	C25	150 pF	A9 999 04/150E
S35	< 1 Ω	A3 125 68.0	C26	150 pF	A9 999 04/150E
S36	< 3 Ω		C27	0.22 μ F	A9 999 06/220K
S37	4.7 Ω		C29	220 pF	A9 999 04/220E
S38	10 Ω	A3 125 72.0	C30	470 pF	A9 999 05/470E
S39	5 Ω			30 pF	A9 999 05/30E
S40	2.5 Ω		C31	180 pF	A9 999 05/180E
S41	2 Ω		C33	60 pF	49 005 58.0
S42	3 Ω	A3 121 94.2	C34	100 pF	A9 999 04/100E
C44	115 pF		C35	100 pF	A9 999 04/100E
C45	115 pF		C36	100 pF	A9 999 04/100E
			C37	150 pF	A9 999 04/150E
			C39	30 pF	28 212 36.4
			C40	1500 pF	A9 999 05/1K5
				75 pF	A9 999 05/75E
			C42	470 pF	A9 999 04/470E
				15 pF	A9 999 04/15E
			C43	30 pF	28 212 36.4
			C44	See coils	
			C45	Véase bobinas	
				Voir bobines	
			C46	10 pF	A9 999 04/10E