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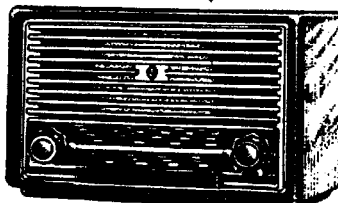
16/5/52

SERVICE NOTES

RS 2111

for the receiver

270B-05



RISOG

1952

For battery supply

GENERAL

WAVERANGES

S.W.2 : 16,5 - 50,5 m (18,2 - 5,92 Mc/s)
M.W. : 185 - 580 m (1622 - 517 kc/s)
L.W. : 1170 - 2000 m (257 - 150 kc/s)

CONTROL KNOBS

Left : on-off switch and volume control
Right: Tuning
Lever: Waverange switch

VALVES

B1 : DK 40
B2 : DF 91
B3 : DAF 91
B4 : DL 41

DIMENSIONS

Length : 27 cm)
Depth : 14 cm) knobs
Height : 17 cm) included

WEIGHT

Approx. 2,6 kg.

I.F. : 452 kc/s

BATTERY TENSIONS

VB : 90 V
VF : 1,5 V

CONSUMPTION

Ia tot.: 10,5 mA
If tot.: 250 mA

LOUDSPEAKER

Type : 9742 Z
Z = 5 ohms

I.F. BANDWIDTH

The I.F. bandwidth (1:10), measured from g4 of B1 is about 11 kc/s. The "overall" bandwidth, measured from the aerial socket is about 10 kc/s at 1000 kc/s and about 9,5 kc/s at 540 kc/s.

93 975 73.1.05

TRIMMING

The trimming points are given in fig.2.

It is not necessary to remove the chassis from the cabinet.

A. I.F. CIRCUIT

1. Switch to M.W.
2. Turn tuning capacitor to minimum.
3. Turn volume control to maximum.
4. Connect an output-meter via a trimming transformer to the loudspeaker terminals.
5. Unscrew cores of all I.F. coils
6. Apply a modulated signal of 452 kc/s via a capacitor of 33000 pF to g4 of B1.
7. Align the I.F. coils in the following order:
 - 4th I.F. circuit S16
 - 3rd I.F. circuit S15
 - 1st I.F. circuit S11/S12
 - 2nd I.F. circuit S13/S14
8. Seal all cores.

B. R.F. AND OSCILLATOR CIRCUIT

Trimming is done with the aid of trimming points on the dial. Before starting to trim, the pointer must be set to the left trimming point, with the tuning capacitor at minimum.

For all waveranges the following applies:

1. Turn volume control to maximum.
2. Connect an output meter via a trimming transformer to the loudspeaker terminals.
3. Apply the required modulated signals via a dummy aerial to the aerial socket.

Trim as indicated in the following table, strictly observing the order of the adjustments:

1.	Waverange switch in position...	M.W.	S.W.2	L.W.
2.	Pointer on trimming point	2	2	2
3.	Apply modulated signal of	548 kc/s	6,1 Mc/s	150 kc/s
4.	Trim for maximum output	S10, S4	S8,S2	C31
5.	Pointer on trimming point	1	1	-
6.	Apply a modulated signal of ...	1630 kc/s	18,4 Mc/s	- -
7.	Trim for maximum output	C13,C7	C12	-
8.	Repeat the points	2-8	2-8	-
9.	Seal the trimmers	S10, S4,C13, C7	S8,S2 C12	C31

Note C12 must be unscrewed before starting to trim.

REPAIRS AND REPLACEMENTSA. Removing the chassis from the cabinet.

1. Remove back- and base plate.
2. Unsolder the loudspeaker connections.
3. Unscrew the pointer from its cable.
4. Remove the control knobs.
5. Remove the two screws holding the two chassis clamps at the rear of the cabinet.
6. The chassis may now be removed.

When replacing, care should be taken that the 4 rubber buffers are in position on the chassis lugs. The two large buffers should be placed at the rear side of the chassis.

B. Replacing scale.

The scale is held by two spring-loaded studs. Place a knife under the plated heads of the lugs and prise them off. The scale can now be removed after removing the control knobs.

C. Replacing drive cord.

The path and length of the cord are indicated in fig.3 for the position where the variable capacitor is set to maximum.

D. Loudspeaker.

This type (9742Z) cannot be repaired.

CURRENTS AND VOLTAGES

Valve			Va	Vg2	Vg5	Vg1	Ia	Ig2
B1	DK40	octode	83	63	62	-8,5	1	2,4
B2	DF91	pentode	83	42	-	-	1,6	0,5
B3	DAF91	pentode	19	17	-	-	0,054	0,014
B4	DL41	pentode	78	83	-	-5	4,4	0,65
			Volt	Volt	Volt	Volt	mA	mA

VC1 = 83 V

VC2 = 62 V

VC3 = -5 V

These measurements were taken with the universal measuring instrument GM 4257, and no signal on the aerial socket. All voltages were measured with respect to the chassis.

LIST OF PARTS AND TOOLS

(see also General Spare Parts List)

When ordering always quote:

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

Description	Code number
Cabinet	A3 366 54.0
Backplate	A3 253 24.0
Dial (South)	A3 224 42.0
Securing buttons fixing dial 2x	A3 676 04.0
Wire springs for above 2x	A3 652 59.0
Pointer	A3 424 41.0
Control knob (colour 041) 2x	23 607 36.0
Lever (colour MD) for waveband switch	23 643 31.0
Variable capacitor	see cond.
Rubber bushes fixing variable capacitor	49 922 26.2
Tension spring in drum variable capacitor	A3 646 40.0
Valve holder for B2	B1 505 15.0
Valve holder for B3	A3 360 12.0
Aerial socket plate	A3 389 07.0
Single pole plug (red)	49 289 36.0
Single pole plug (black)	49 289 35.0
Retaining clip for coil can	A3 652 58.2
<u>LOUDSPEAKER</u>	
Type 9742 Z	
<u>TOOLS</u>	
Service oscillator	GM 2882 or GM 2883 or GM 2884
Universal measuring apparatus	GM 4256 or GM 4257
Vaseline compound	X 009 47.0

Coils - Bobines

S1)	1,7 ohm	A3 124 60.0	S11)	3 ohm	A3 121 94.2
S2)	0,3 ohm		S12)	4,5 ohm	
S3)	40 ohm		S13)	3 ohm	
S4)	3 ohm		S14)	4,5 ohm	
S5	34 ohm	A3 115 24.0	C15)	115 pF	A3 124 25.4
S6)	< 1 ohm	A3 124 74.0	C16)	115 pF	
S7)	< 1 ohm		S15)	14 ohm	
S8)	< 1 ohm		S16)	14 ohm	
S9)	10,5 ohm		C17)	110 pF	
S10)	15 ohm	A3 152 44.0	C18)	110 pF	
S19	5 ohm		S17)	1100 ohm	
			S18)	<1 ohm	

Condensers - Condensateurs

C1)	50 uF	48 317 58/50+50	C15)		coils-bobines
C2)	50 uF		C16)		
C3)	100 uF		C17)		
C4)	12-500 pF		C18)		
C5)	12-500 pF	49 001 56.0	C19	47000 pF	48 750 20/47K
C6	30 pF	48 203 05/30E	C20	100 pF	48 203 20/100E
C7	30 pF	28 212 36.4	C21	100 pF	48 203 20/100E
C8	100 pF	48 203 20/100E	C22	1000 pF	48 751 20/1K
C9	470 pF	48 203 20/470E	C23	47000 pF	48 750 20/47K
C10	0,47uF	48 750 20/470K	C24	2700 pF	48 751 20/2K7
C11	68 pF	48 203 02/68E	C25	4700 pF	48 751 20/4K7
C12	30 pF	23 212 36.4	C26	56 pF	48 203 10/56E
C13	30 pF	28 212 36.4	C27	120 pF	48 203 10/120E
C14	470 pF	48 203 01/470E	C28	47000 pF	48 750 20/47K
			C29	1800 pF	48 429 05/1K8
			C30	115 pF	48 203 02/115E
			C31	400-575 pF	49 005 55.2

Resistors - Résistances

R1	33000 ohm	48 555 10/33K	R11	4,7 Mohm	48 555 10/4M7
R2	8200 ohm	48 555 10/8K2	R12	1,8 Mohm	48 555 10/1M8
R3	0,18 Mohm	48 555 10/180K	R13	470 ohm	48 555 10/470E
R4	1,5 Mohm	48 555 10/1M5	R14	0,1 Mohm	48 555 10/100K
R5	0,82 Mohm	48 555 10/820K	R15	56000 ohm	48 555 10/56K
R6	0,5 Mohm	49 500 11.0	R16	82000 ohm	48 555 10/82K
R7	4,7 Mohm	48 555 10/4M7	R18	12000 ohm	48 555 10/12K
R10	1 Mohm	48 555 10/1M			

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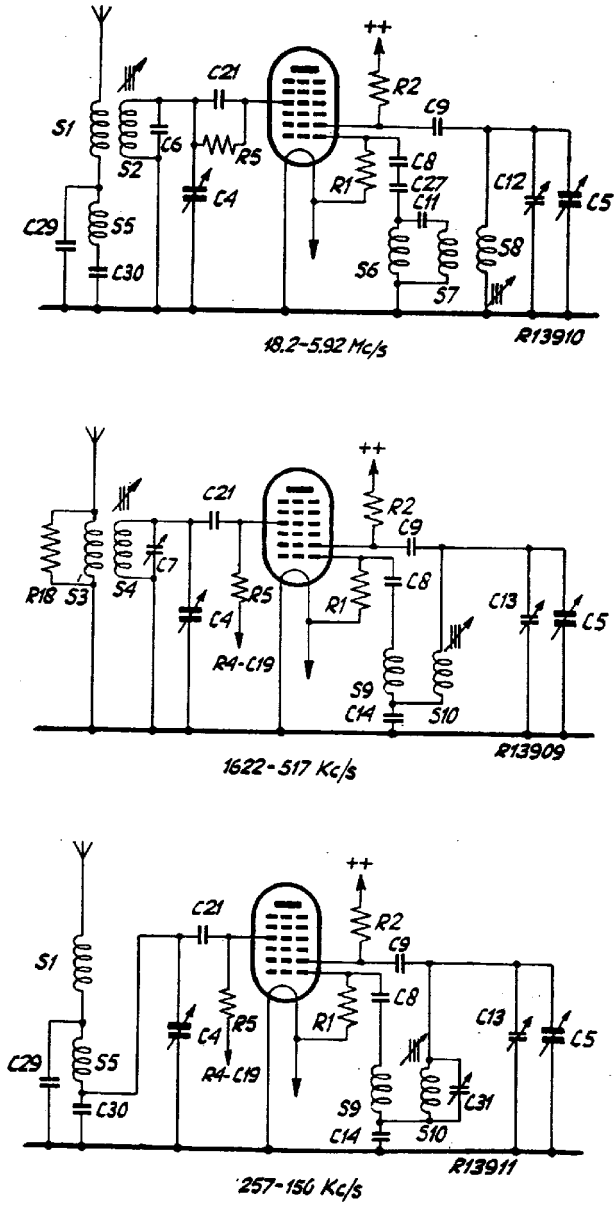


Fig.1

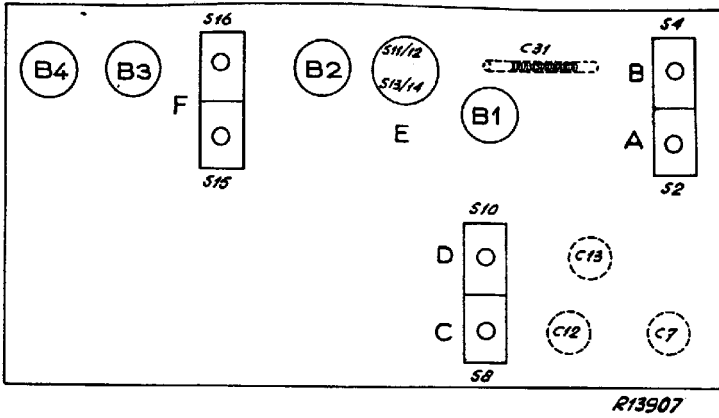


Fig.2

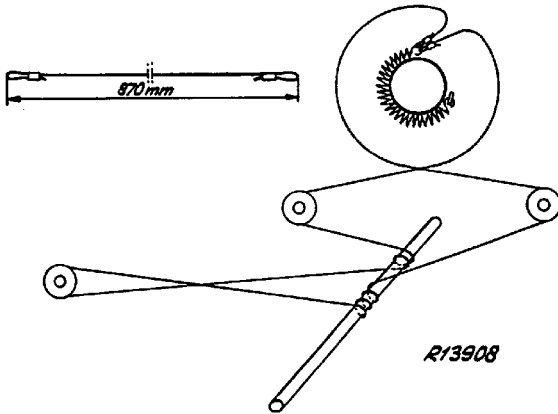
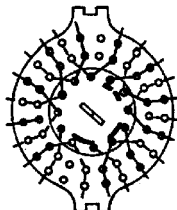


Fig.3



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Fig.4

3	1, 2, 3, 4, 5	6, 7, 8, 9, 10	11, 12, 13, 14	15, 16	17, 18, 19
C	20, 21, 22, 23, 24, 25	26, 27, 28, 29, 30	31, 32, 33, 34, 35	36, 37, 38, 39, 40	41, 42, 43, 44, 45
R	1, 2, 3, 4, 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, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100			

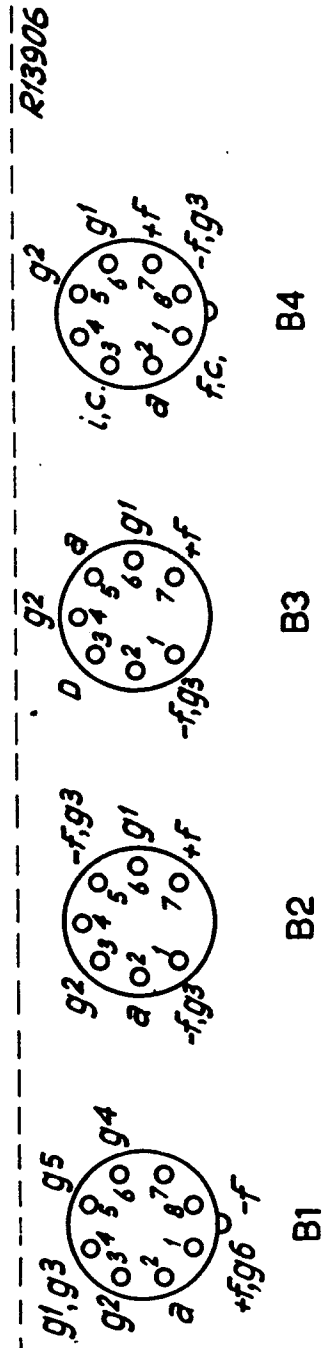
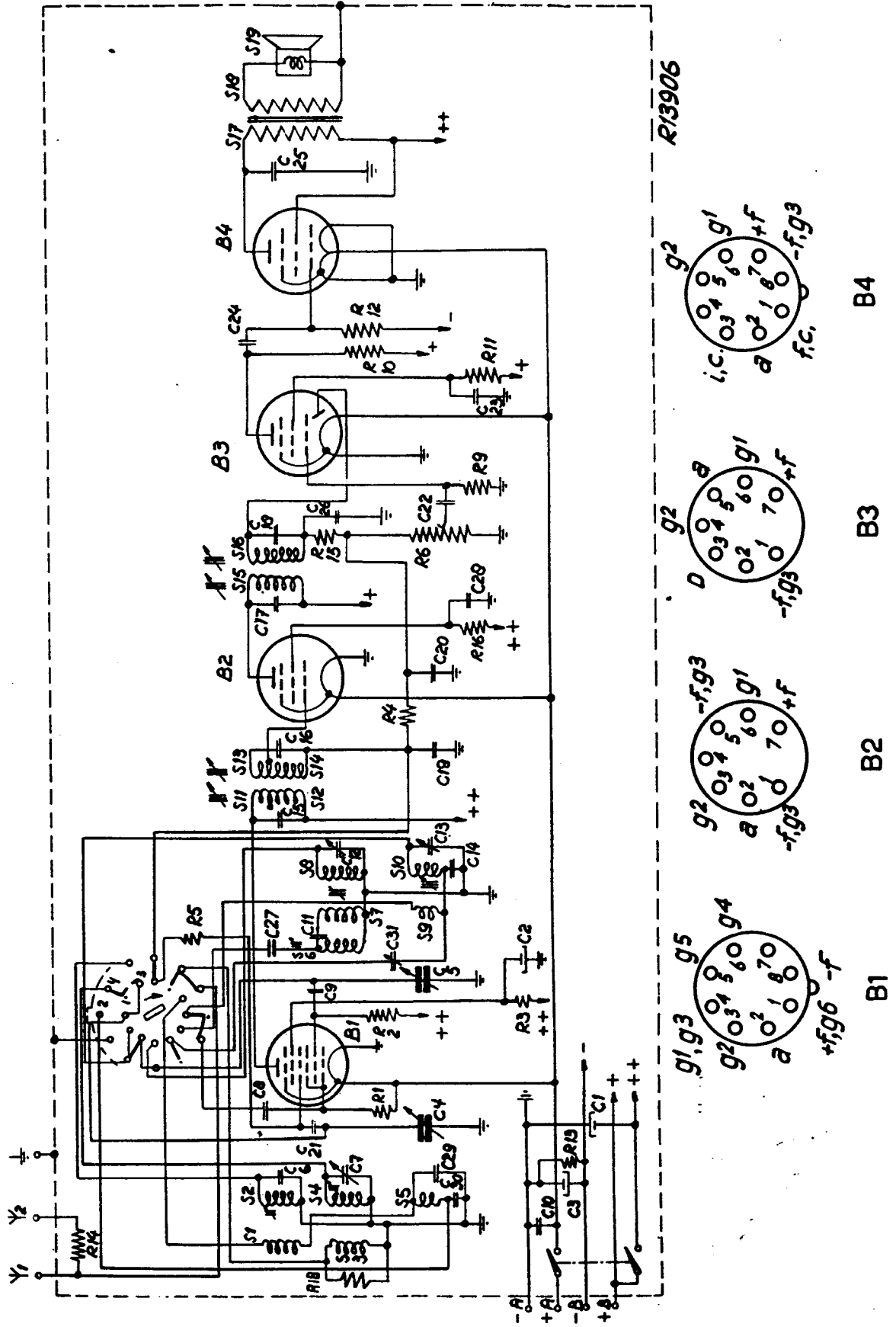
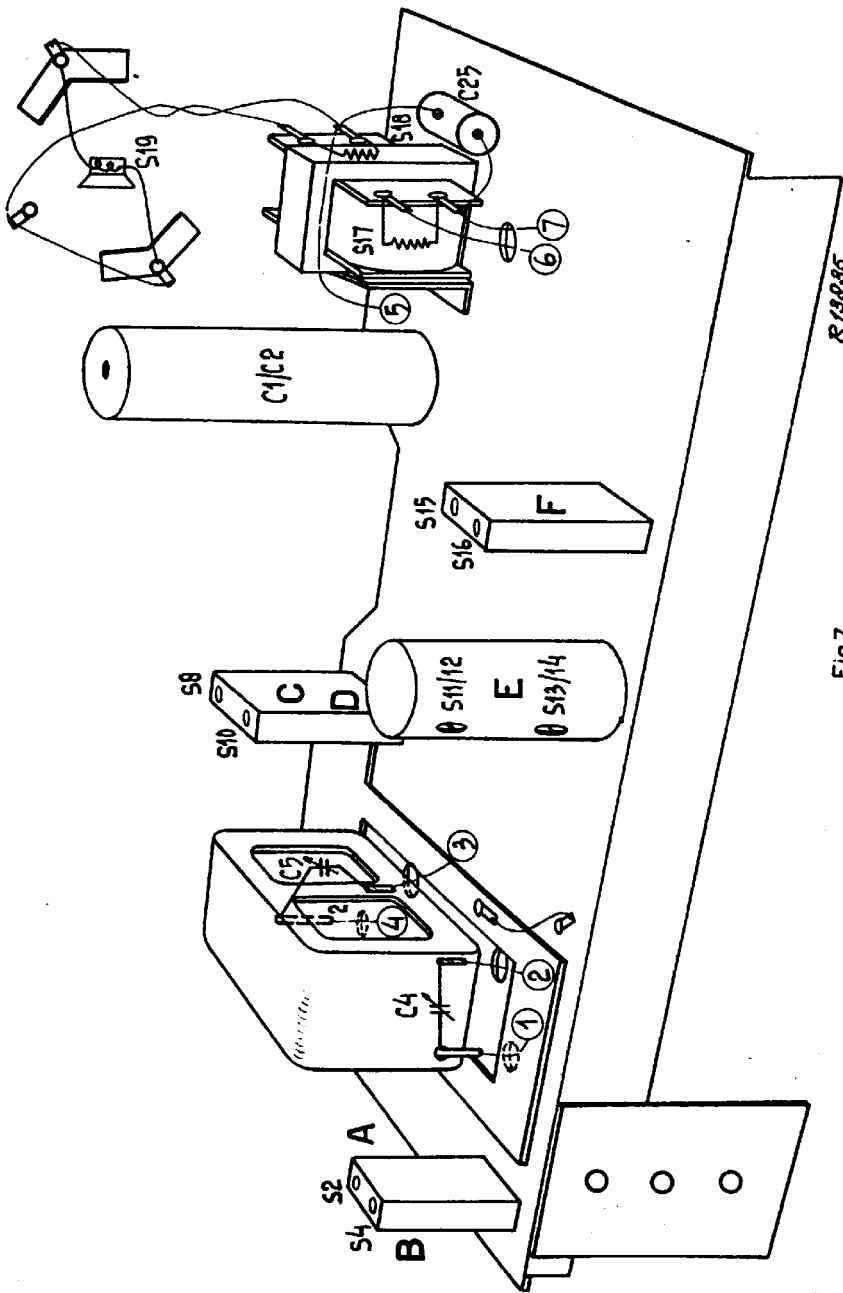


Fig. 5



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Fig.7

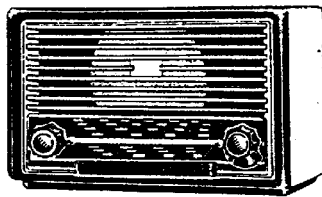
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R13509

SERVICE NOTES

for the receiver

270B-07

1952 For battery supply

GENERAL

WAVERANGES

S.W.2 : 16.5 - 50.6 m (18.2 - 5.92 Mc/s)
M.W. : 185 - 580 m (1622 - 517 kc/s)
L.W. : 1172 - 2000 m (257 - 150 kc/s)

CONTROL KNOBS

Left : On-off switch and volume control
Right : Tuning
Lever: Waverange switch

VALVES

B1 : DK 92
B2 : DF 91
B3 : DAF 91
B4 : DL 94

DIMENSIONS

Length : 27 cm) knobs
Depth : 14 cm) included
Height : 17 cm)

WEIGHT

Approx. 2.6 kg.

I.F. : 452 kc/s

BATTERY TENSIONS

Va : 90 V
Vf : 1.5 V

CONSUMPTION

Ia tot.: 11.5 mA
If tot.: 250 mA

LOUDSPEAKER

Type: 9742 Z
Z = 5 ohms

I.F. BANDWIDTH

The I.F. bandwidth (1:10), measured from g3 of B1 is about 11 kc/s. The "overall" bandwidth, measured from the aerial socket is about 10 kc/s at 1000 kc/s and about 9 kc/s at 540 kc/s.

ILLUSTRATIONS

- Fig. 1 Position of the coils and trimmers
- Fig. 2 Cable drive
- Fig. 3 Switch segment
- Fig. 4 Circuit diagram
- Fig. 5 Wiring diagram (under) and coil connections
- Fig. 6 Wiring diagram (above)

GENERAL

The positions of the waverange switch are respectively M.W., SW2 and L.W. In the circuit diagram the waverange switch is set in the position M.W.

WARNING

By incidental short circuiting the +HT and +LT battery plugs, with the battery switch in position "on", the possibility exists that a resting charge of capacitor C1 flows via the filaments to the chassis by which these filaments will be damaged. Therefore it is always necessary to discharge C1 by short circuiting the +H.T. plug to the chassis.

Trimming the receiver

A. THE I.F. PART

1. Waverange switch to M.W.
2. Variable capacitor to minimum
3. Volumecontrol to maximum
4. Connect a voltmeter via a trimming transformer to the loudspeaker terminals.
5. Unscrew the cores of the I.F. coils nearly full out.
6. Apply to g3 of B1 a modulated signal of 452 kc/s via a capacitor of 33000 pF.
7. Trim the I.F. circuits in the following order:
 - 4th. I.F. circuit S16-C18
 - 3rd. I.F. circuit S15-C17
 - 1st. I.F. circuit S11-S12-C15
 - 2nd. I.F. circuit S13-S14-C16
8. Seal the cores

NOTE

The cores of the I.F. band-pass filters have been sealed with "Vaseline Compound" (see the List of Parts and Tools). This compound can easily be removed in the cold state with a small screwdriver. Heating of the core damages the core holder and makes trimming impossible.

B. R.F. AND OSCILLATORCIRCUITS

Trimming is done with the aid of trimming points on the dial. Before starting to trim, the pointer must be set to the left trimming point (no. 1), with the tuning capacitor at minimum. For all waveranges the following applies:

1. Volume control to maximum
2. Connect a voltmeter via trimming transformer to the loudspeaker terminals
3. Apply the modulated signals via a dummy aerial to the aerial socket. Trim as indicated in the following table, strictly observing the order given.

1	Waverange switch in position	M.W.	S.W. 2	L.W.
2	Unscrew nearly full out	-	C12	-
3	Pointer on trimming point	2	2	2
4	Apply a modulated signal of	548 kc/s	6.1 Mc/s	150 kc/s
5	Trim for maximum output voltage	S10, S4	S8, S2	C31
6	Pointer on trimming point	1	1	-
7	Apply a modulated signal of	1630 kc/s	18.4 Mc/s	-
8	Trim for maximum output voltage	C13, C7	C12	-
9	Repeat the points	3 - 8	3 - 8	-
10	Seal the trimmers	S10 S4 C13 C7	S8 S2 C12	C31

REPAIRS AND REPLACEMENT OF PARTS

A. REMOVING THE CHASSIS FROM THE CABINET

1. Remove the rear panel
2. Set the variable capacitor to maximum
3. Unsolder the loudspeaker connections
4. Unscrew the pointer from its cable
5. Remove the knobs
6. Remove the two screws holding the two chassis clamps at the rear of the cabinet.
7. Take the chassis carefully out of the cabinet.

When replacing, care should be taken that the 4 rubber buffers are in position on the chassis lugs. The two large buffers should be placed at the rear side of the chassis.

B. REPLACING THE DIAL

The dial is held by two spring-loaded studs. Place a knife under the plated heads of the studs and pull them off. The dial can now be replaced after removing the knobs.

C. REPLACING THE DRIVING CORD

The path and length of the cord are indicated in fig. 2 for the position where the variable capacitor is set to maximum.

D. LOUDSPEAKER

The loudspeaker cannot be repaired and has to be replaced entirely

CURRENTS AND VOLTAGES

Valve's		Va	Vg2	Ia	Ig2(+4)
B1	DK 92	85	67(Vg2)	0.45	0.1
	Oscillator	23(Vg2)	-	1.7	-
B2	DF 91	85	44	1.5	0.5
B3	DAF 91	20	19	0.065	0.014
B4	DL 94	79.5	85	6	1
		Volts	Volts	mA	mA

C1 = 85 V

These values have been measured with the universal Measuring Instrument GM 4257, the waverange switch set for M.W., no signal applied to the aerial socket.

All voltages have been measured with respect to the chassis.

LIST OF PARTS AND TOOLS

(see also General Spare Parts List)

When ordering always quote:

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

Description	Code number
Cabinet (colour M.D.)	A3 366 54.0
Rear panel	A3 253 24.0
Dial	A3 224 42.0
Button for fixing dial (2x)	A3 676 04.0
Wire spring for button (2x)	A3 652 59.0
Knob (2x)	23 607 36.0
Lever for waverange switch (colour M.D.)	23 643 31.0
Pointer	A3 424 41.0
Rubber block for fixing chassis (rearside) 2x	A3 480 47.0
Rubber block for fixing chassis (front side) 2x	A3 480 48.0
Variable capacitor	see capacitors
Spring in drum of variable capacitor	A3 646 40.0
Valve holder (4x)	B1 505 15.0
Spring clip for fixing coil cans (3x)	A3 652 58.3
Socket plate (aerial-earth)	A3 389 07.0
Identification plate (blank) 4x	25 600 96.0
Battery plug (red)	49 289 36.0
Battery plug (black)	49 289 35.0
<u>Tools</u>	
Service oscillator	GM 2882 or GM 2883 or GM 2884
Universal Measuring Instrument	GM 4256 or GM 4257
Vaseline compound	X 009 47.0

S1)	1		C19	47000 pF	48 750 20/47K
S2)	1,5		C20.	100 pF	48 203 20/100E
S3)	45	A3 124 60.0	C21	100 pF	48 203 20/100E
S4)	3		C22	1000 pF	48 751 20/1K
S5	38	A3 115 24.0	C23	47000 pF	48 750 20/47K
S6)	1		C24	2700 pF	48 751 20/2K7
S7)	1		C25	4700 pF	48 751 20/4K7
S8)	1	A3 124 74.0	C26	56 pF	48 203 10/56E
S9)	10		C28	47000 pF	48 750 20/47K
S10)	12		C29	1800 pF	48 429 05/1KB
S11)	3		C30	123 pF	48 203 01/123E
S12)	5		C31	400-575 pF	49 005 55.0
S13)	3		C32	1,8 pF	48 200 20/1E8
S14)	5	A3 121 94.2	R1	27000 ohm	48 557 10/27K
C15)	115 pF		R2	33000 ohm	48 557 10/33K
C16)	115 pF		R3	0,18 MOhm	48 557 10/180K
S15)	14		R4	1,5 MOhm	48 557 10/1M5
S16)	14	A3 124 25.4	R5	0,82 MOhm	48 557 10/820K
C17)	110 pF		R6	0,5 MOhm	49 500 11.0
C18)	110 pF		R9	4,7 MOhm	48 557 10/4M7
S17)	900	A3 152 52.0	R10	1 MOhm	48 557 10/1M
S18)	1		R11	4,7 MOhm	48 557 10/4M7
C1)	50 uF	48 317 58/50+	R12	1 MOhm	48 557 10/1M
C2)	50 uF	50	R13	470 ohm	48 557 10/470E
G3)	100 uF	48 313 22/100	R14	0,1 MOhm	48 557 10/100K
C4)	12-489 pF	49 001 56.1	R15	56000 ohm	48 557 10/56K
C5)	12-489 pF		R16	82000 ohm	48 557 10/82K
C6	30 pF	48 203 05/30E	R18	12000 ohm	48 557 10/12K
C7	30 pF	28 212 36.4	R19	27000 ohm	48 557 10/27K
C8	100 pF	48 203 10/100E			
C9	470 pF	48 203 20/470E			
C10	0,47 uF	48 750 20/470K			
C11	68 pF	48 203 02/68E			
C12	30 pF	28 212 36.4			
C13	30 pF	28 212 36.4			
C14	470 pF	48 203 01/470E			
C15	115) pF				
C16	115) pF	zie spoelen			
C17	110) pF	see coils			
C18	110) pF	voir bobines			