

With F.M. service oscillator

1. Connect voltmeter via trimming transformer to extension speaker sockets.
2. Turn pointer to the trimming point for 87.5 Mc/s.
3. Apply a modulated signal of 87.5 Mc/s.
4. Trim S13 and S12 for max. output voltage.
5. Apply a modulated signal of 100 Mc/s.
6. Turn pointer to trimming point for 100 Mc/s.
7. Trim C18 for max. output voltage.
8. Repeat steps 1 to 7 a few times.
9. Apply a modulated signal of 93 Mc/s and tune receiver to this signal.
10. Trim S11 for max. output voltage.
11. Seal S11, S12, S13 and C18.

With A.M. service oscillator

1. Connect diode voltmeter between junction of R45-R48 and earth.
2. Turn pointer to the trimming point for 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. deflection of the diode voltmeter.
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.
7. Trim C18 for max. deflection of diode voltmeter.
8. Repeat steps 1 to 7 a few times.
9. Apply an unmodulated signal of 93 Mc/s and tune receiver to this signal.
10. Trim S11 for max. deflection of diode voltmeter.
11. Seal S11, S12, S13 and C18.

REPAIRS AND REPLACEMENT OF PARTSRemoving 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
	<u>TOOLS</u>	
	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

C1	100	μF	) WN 601 43/100+	C59	18	pF	49 005 59.3
C2	50	μF		50	C60	360	pF
C4	4,7	pF	A9 999 04/4E7	C61	360	pF	A9 999 05/360E
C5				C62	50	μF	49 005 50.2
C6			A9 999 05/3K	C63	10000	pF	A9 999 06/10K
C7	150	pF	A9 999 04/150E	C64	470	pF	A9 999 04/470E
C8	82	pF	A9 999 04/82E	C65	1000	pF	A9 999 05/1K
C9	100	pF	A9 999 04/100E	C66	100	pF	A9 999 04/100E
C10	22	pF	A9 999 04/22E	C67	100	pF	A9 999 04/100E
C11	22	pF	A9 999 04/22E	C68	10000	pF	A9 999 04/10K
C12	120	pF	A9 999 04/120E	C69	4	μF	48 313 09/10
C13				C70	1000	pF	A9 999 05/1K
C14	1500	pF	A9 999 04/1K5	C71	10000	pF	A9 999 04/10K
C15	150	pF	zie spoelen	C72	10000	pF	A9 999 04/10K
C16	1200	pF	A9 999 05/1K2	C73	56	pF	) zie spoelen
C17	6,8	pF	A9 999 04/6E8	C74	56	pF	
C18	30	pF	28 212 36.4	C75	230	pF	) zie spoelen
C19				C76	115	pF	
C20			) 49 001 86.0	C77	9100	pF	A9 999 05/9K1
C21					C78	115	pF
C22	12	pF	A9 999 04/12E	C79	230	pF	
C23	10000	pF	A9 999 04/10K	C80	6800	pF	A9 999 04/6K8
C24	56	pF	zie spoelen	C81	12	μF	A9 999 04/12K
C25	390	pF	A9 999 05/390E	C82	82	pF	A9 999 04/82E
C26	3000	pF	A9 999 05/3K	C83	1500	pF	A9 999 04/1K5
C27	18	pF	49 005 59.3	C84	1500	pF	A9 999 04/1K5
C28	30	pF	28 212 36.4	C85	12	pF	A9 999 04/12E
C29	220	pF	A9 999 04/220E	C86	100	pF	A9 999 04/100E
C30				C87	47000	pF	A9 999 06/47K
C31			) 49 001 83.0	C88	1500	pF	A9 999 04/1K5
C32					C89	6800	pF
C33	0,1	μF	A9 999 06/100K	C90	68	pF	A9 999 04/68E
C34	27000	pF	A9 999 06/27K	C91	56	pF	) zie spoelen
C35	220	pF	A9 999 04/220E	C92	56	pF	
C36	3000	pF	A9 999 05/3K	C93	230	pF	) zie spoelen
C37	12,5	pF	49 005 48.2	C94	115	pF	
C38	30	pF	28 212 36.4	C95	390	pF	A9 999 04/390E
C39	30	pF	28 212 36.4	C96	110	pF	) zie spoelen
C40	10	pF		C97	110	pF	
C41	415	pF	) WN 400 40.0	C98	33000	pF	A9 999 06/33K
C42	30	pF		28 212 36.4	C99	33	pF
C43	10	pF	49 005 64.1	C100	39	pF	A9 999 04/39E
C44	30	pF	28 212 36.4	C101	6800	pF	A9 999 06/6K8
C45	1000	pF	A9 999 05/1K	C102	10000	pF	A9 999 06/10K
C46	220	pF	A9 999 04/220E	C103	47000	pF	A9 999 06/47K
C47	1500	pF	A9 999 04/1K5	C104	0,33	μF	A9 999 06/330K
C48	82	pF	A9 999 04/82E	C105	15000	pF	A9 999 06/15K
C49	220	pF	A9 999 04/220E	C106	12000	pF	A9 999 06/12K
C50	56	pF	A9 999 04/56E	C107	15000	pF	A9 999 06/15K
C51	68	pF	A9 999 04/68E	C108	390	pF	A9 999 04/390E
C52	220	pF	A9 999 04/220E	C109	22000	pF	A9 999 06/22K
C53				C110	22000	pF	A9 999 06/22K
C54	30	pF	28 212 36.4	C111	33000	pF	A9 999 06/33K
C55	100	pF	A9 999 04/100E	C112	820	pF	A9 999 04/820E
C56	30	pF	28 212 36.4	C113	10000	pF	A9 999 06/10K
C57	82	pF	A9 999 04/82E	C114	2200	pF	A9 999 06/2K2
C58	30	pF	28 212 36.4	C115	330	pF	A9 999 04/330E

C116	330	pF	A9 999 04/330E	S51			
C117	5	μF	AC 5104/4	S52			WE 110 94.0
C118	10000	pF	A9 999 04/10K	S52'			WE 110 61.0
C119	470	pF	A9 999 04/470E	S53			
C120	56	pF	zie spoelen	C73			
C121	12	pF	A9 999 04/12E	S54			WE 120 38.0
C122	10000	pF	A9 999 04/10K	C74			
C123	10000	pF	A9 999 04/10K	S55			
C124	12	pF	A9 999 04/12E	C75			
C125	33	pF	A9 999 04/33E	S56			A3 122 38.0
S1				C76			
S2				S57			
S3				S58			
S4				C78			
S5			A3 141 40.4	S59			A3 122 38.0
S5'				C79			
S6				S60			
S6'				S61			
S7				C91			
S15				S62			WE 120 38.0
S16			WE 120 34.0	C92			
S24				S63			
S19				C93			
S20			A3 125 35.0	S64			A3 122 38.0
S29				C94			
S30			WE 110 92.0	S65			
S21				S66			
S22			A3 125 28.0	C96			
S23				S67			A3 124 25.4
S24			A3 125 27.0	C97			
S25				S68			
S26			A3 125 30.0	S69			
S27				S69'			
S28			WE 120 52.0	C99			WE 120 50.0
S17				C70			
S17'				C120			
S18			WE 358 09.0	S71			
S18'				S72			
S32				S73			WE 151 23.0
S33			A3 125 58.0	S74			
S35				S75			WE 110 60.0
S36			WE 111 04.0	S42			
S37				S43			10 windingen
S38				S44			van Podurdraad
S39			WE 125 08.0	R1	8200	Ω	48 767 05/820E
S40				R10	150	Ω	A9 999 00/150E
S41			WE 125 08.0	R11	22000	Ω	A9 999 00/22K
S50			A3 110 60.1	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

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R16	1	MΩ	A9 999 00/1M	R60	10000	Ω	A9 999 00/10K
R17	18000	Ω	A9 999 00/18K	R61	0,18	MΩ	A9 999 00/180K
R18	180	Ω	A9 999 00/180E	R62	0,12	MΩ	A9 999 00/120K
R19	56000	Ω	A9 999 00/56K	R63	15000	Ω	A9 999 00/15K
R20	560	Ω	A9 999 00/560E	R64	0,47	MΩ	A9 999 00/470K
R21	1	MΩ	A9 999 00/1M	R65	47000	Ω	A9 999 00/47K
R22	10000	Ω	A9 999 00/10K	R66	0,82	MΩ	A9 999 00/820K
R23	22	Ω	A9 999 00/22E	R67	47000	Ω	A9 999 00/47K
R24	10000	Ω	A9 999 00/1K	R68	1000	Ω	A9 999 00/1K
R25	1	MΩ	A9 999 00/1M	R69	68	Ω	A9 999 00/68E
R26	0,1	MΩ	A9 999 00/100K	R70	1,2	MΩ	A9 999 00/1M2
R27	560	Ω	A9 999 00/560E	R71			zie R51, R52, R71
R28				R72	1000	Ω	WE 362 94.0
R30	150	Ω	A9 999 00/150E	R73	33000	Ω	A9 999 00/33K
R31	33000	Ω	A9 999 00/33K	R74	18000	Ω	48 766 10/18K
R32	220	Ω	A9 999 00/220E	R75	18	Ω	48 494 10/18E
R33	0,47	MΩ	A9 999 00/470K	R76	0,1	MΩ	A9 999 00/100K
R34	82000	Ω	A9 999 00/82K	R77	1,8	MΩ	A9 999 00/1M8
R35	220	Ω	A9 999 00/220E	R78	27000	Ω	A9 999 00/27K
R36	0,47	MΩ	A9 999 00/470K	R79	33	Ω	A9 999 00/33E
R37	0,1	MΩ	A9 999 00/100K	R80	1500	Ω	A9 999 00/1K5
R38	220	Ω	A9 999 00/220E	R81	150	Ω	A9 999 00/150E
R39	0,15	MΩ	A9 999 00/150K	R82	22000	Ω	A9 999 00/22K
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				

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