Mullard

Radio

MKB3034

MODELS MBS 208 / MBS 210
AND MBS 207 / MBS 209

MULLARD OVERSEAS LTD.

SERVICE DEPT.
WADDON FACTORY ESTATE,
CROYDON, SURREY, ENGLAND

Errata

MULLARD SERVICE MANUALS

for Receivers

TYPES MBS 207/8/9/10

Page 2. Dimensions of Cabinet

Height and width dimensions are reversed.

Page 4. Cabinet Assembly

Add: Ornamental screws for scale ... A3.713.10

Page 5. Transformers and Coils (MBS207/9)

Code number for loudspeaker should read 49.240.61

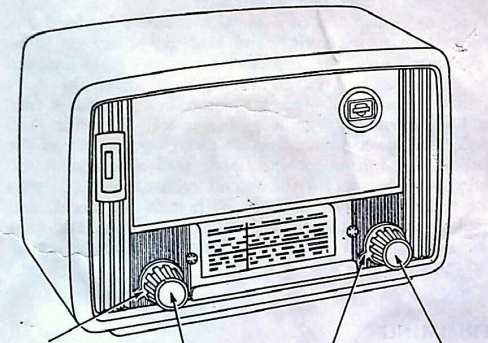
Page 5. Transformers and Coils (MBS208/10)

Code number for loudspeaker should read 49.240.61

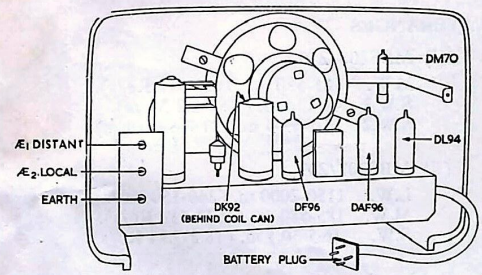
FORM 2181/MO.130

SERVICE MANUAL

MULLARD RECEIVER TYPE MBS 208/MBS 210 AND MBS 207/MBS 209



Front view of Receiver



Rear view of Receiver

The MBS208 and MBS210 are similar receivers in different coloured cabinets (i.e., the former, ivory and gold; the latter, maroon and gold).

The MBS 207 and MBS 209 are similar receivers in different coloured cabinets.

BATTERY VOLTAGES

H.T. = 90 V.
L. T. = 1.5 V.

CONSUMPTION

With 90 V. H.T. and 1.5 V. L.T., the battery drain on M.W. with no signal is approx.:—
H. T. —11 mA.
L.T. —225 mA.

VALVE COMBINATION

V1	DK92	Frequency changer
V2	DF96	I.F. Amplifier
V3	DAF96	Detector and A.F. Amplifier
V4	DL94	Output
V6	DM70	Tuning Indicator

WAVERANGES

(i) MBS208/210

M.W. 185-580 m. (1622-517 Kc/s).
S.W.3 44-136 m. (6.82-2.2 Mc/s).
S.W.2 13.7-45.5 m. (21.9-6.6 Mc/s).

(ii) MBS207/209

L.W. 1150-2000 m. (260-150 Kc/s).
M.W. 185-580 m. (1622-517 Kc/s).
S.W. 16.5-50.5 m. (18.2-5.94 Kc/s).

I.F. FREQUENCY

470 Kc/s.

TRIMMING FREQUENCIES

(i) MBS208/210

I.F. 470 Kc/s.
M.W. 550 and 1630 Kc/s.
S.W.3 2.3 Mc/s.
S.W.2 7.1 and 22 Mc/s.

(ii) MBS207/209

I.F. 470 Kc/s.
L.W. 157 Kc/s.
M.W. 550 Kc/s. 1630 Kc/s.
S.W. 6.1 Mc/s 18.4 Mc/s.

DIMENSIONS OF CABINET

W, Height 12". H. Width 7¾". Depth 5½".

REMOVING THE CHASSIS

Remove back/base cover (6 screws).
Disconnect speaker.
Remove knobs (set screws).
Remove scale (2 screws).
Release tuning indicator from its clips.
Remove the two chassis fixing bolts and, guiding the pointer through the slot in the cabinet, withdraw the chassis.

DRIVE CORD REPLACEMENT

Make up the cord as shown in Fig. 1.
Turn gang to maximum capacitance.
Pass one end of the cord through the hole in the drum, hook it on to the spring, and hook the spring on to its anchorage. Lead the cord clockwise round the drum, and fit cable sheath "A." Wind the cord round the drive spindle as indicated (the end of the drive spindle is free, and the turns may be looped over it). Pass the cord under the lower stud, across to and clockwise round the pulley. Lead it under the upper stud and around the spindle as shown. Fit the second cable sheath, and pass the end of the cord through the hole in the drum, and hook it on to the spring. Stretch the spring, and pass the loop of cord round the drum and top pulley as indicated.

TRIMMING

(a) I.F. Circuits

Switch to M.W., gang at minimum, V.C. at maximum, T.C. at brilliant.
Apply a signal of 470 Kc/s to g3 V1 via a capacitor of 47 KpF. Unscrew all cores a few turns and trim as follows, using a damper of 47 KpF + 47KΩ:—

Damp S18 and trim S19.
Damp S19 and trim S18.
Damp S14/15 and trim S16/17.
Damp S16/17 and trim S14/15.

(b) Pointer Setting

(i) MBS208/210

With the gang at minimum, the pointer should line up with the zero block on the log scale.

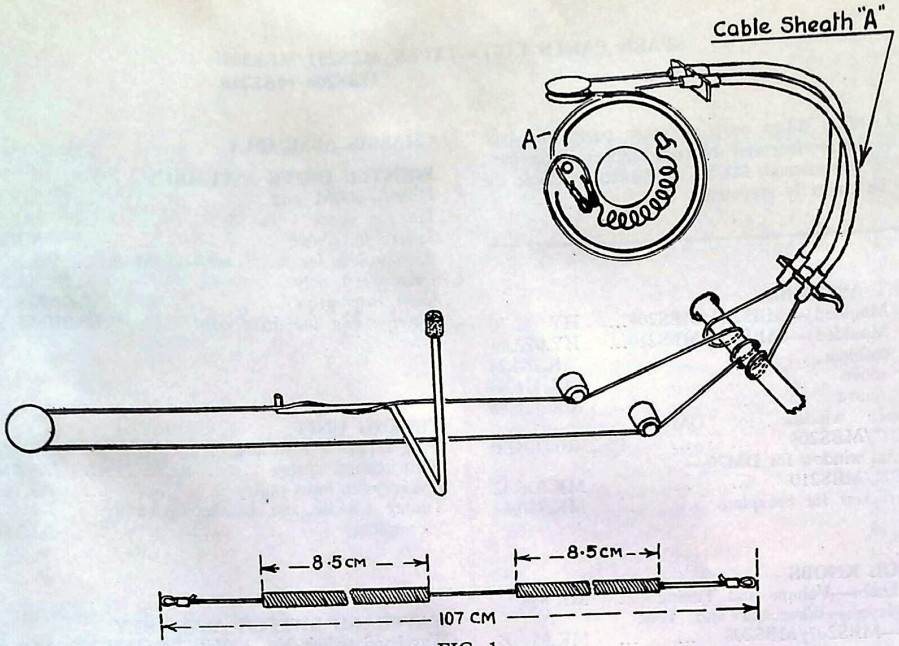


FIG. 1

(ii) MBS207/209

With the gang capacitor at mechanical minimum, the pointer should line up with the left-hand edge of the 16 m. block.

(c) **R.F. Trimming**

(i) MBS208/210

Range	Pointer setting (Log scale)	Applied Frequency	Trim	
M.W.†	81	550 Kc/s	S13	S6
	0	1630 Kc/s	C12	C4
S.W.3	77	2.33 Mc/s	S11	S4
S.W.2†	84	7.1 Mc/s	S9	S2
	0	22 Mc/s	C13	

†Repeat operation as necessary

(ii) MBS207/209

(a) Medium Wave (trimmed first)

With the pointer set to "M" in "Simferpol," apply a signal of 550 Kc/s, and trim S11 and S4 for maximum output.
With the gang at mechanical minimum, apply a signal of 1630 Kc/s and trim C29 and C4 for maximum output.
Repeat the above as necessary.

(b) Long Wave

With the pointer set to "i" in "Tel Aviv," apply a signal of 157 Kc/s, and trim C15 and S6 for maximum output.

(c) Short Wave 2

With the pointer set to "m" in Simferpol, apply a signal of 6.1 Mc/s, and trim S9 and S2 for maximum output.
With the gang capacitor set to mechanical minimum, apply a signal of 18.4 Mc/s and trim C13 for maximum output.
Repeat the above as necessary.

SPARE PARTS LIST—TYPES MBS207/MBS209 MBS208/MBS210

IMPORTANT. When ordering spare parts, the type number of the receiver and the code number of the part, as given in this manual, MUST be quoted to enable the order to be correctly executed.

CABINET ASSEMBLY

Cabinet (Moulded)—MBS207/MBS208...	HY.072.76
Cabinet (Moulded)—MBS209/MBS210...	HY.072.80
Mullard emblem	MK.704.28
Disc for above	MK.476.84
Pins for above	MK.926.88
Ornamental window for DM70—MBS207/MBS208	P5.230.00/04FB
Ornamental window for DM70—MBS209/MBS210	MK.836.42
Fixing brackets for backplate	MK.750.68

CONTROL KNOBS

Control knobs—Volume and Tuning ...	MK.854.52
Control levers—Waveband and Tone switch—MBS207/MBS208	MK.956.05
Control levers—Waveband and Tone switch—MBS209/MBS210 ...	MK.922.16/MJ
Grub screws for knobs	A3.324.16

BACKPLATE	MK.399.65
Screws for above	MK.946.88

STATION SCALE (Plastic)— MBS207/MBS209	
Station scale—Middle East/S. Europe ...	MK.704.68

STATION SCALES (Plastic)— MBS208/MBS210	
Station scale—Neutral	MK.704.70

POINTER only	A3.693.96
Felt ring for above	A3.561.66

BAFFLE ASSEMBLY	MK.873.98
Speaker holding clamps	A3.458.32

CHASSIS ASSEMBLY

POINTER DRIVE ASSEMBLY

Pulley—200M end	MK.931.12
Pin for above	MK.616.08
Spacer for above	MK.448.70
Brass guides for drive cord—550M end...	A3.600.42
Drive cord only	K.803.ZZ/900
Cord loop grips	MK.908.99
Outer casing for drive cord ...	08.010.54/85mm.

TUNING UNIT

Gang capacitor with large drum	49.001.42
Cord tension spring	A3.646.26
Bracket with brass pulley	A3.344.62
Tuning spindle and bracket assembly complete	A3.344.63

WAVEBAND SWITCH ASSEMBLY

Waveband switch No. 1	MBS207/MBS209 only	A3.202.82
Waveband switch No. 2		A3.202.81
Waveband switch No. 1	MBS208/MBS210 only	A3.202.52
Waveband switch No. 2		A3.202.53

WAVEBAND SPINDLE ASSEMBLY...	A3.662.61
Metal washer for above	49.922.12
Felt washer for above	A3.562.81
Retaining clip	A3.652.72
Steel ball for stop plate ($\frac{7}{32}$")	89.205.05
Phosphor bronze leaf spring (5)	A3.648.79
Small holding bracket for above	A3.452.52
Moulded operating gear	MK.912.02

TONE SWITCH	A3.401.79
Moulded trip operator	MK.922.17

MISCELLANEOUS

Aerial/Earth socket plate assembly ...	MK.875.52
Single-pin plug—Black	MK.875.34
Single-pin plug—Red	MK.875.54
Valveholders	MK.225.44

SPARE PARTS LIST—(Contd.)

Holder for DM70	B1.505.03
Retaining spring for DM70	A3.700.14
Fixing clips for S14/17	28.084.83
Retaining spring for S5-6A (MBS207/MBS209 only)	A3.652.92
Retaining springs for other coils	MK.730.23
Rubber bushes for DAF96 holder ...	A3.642.19
Rubber bushes for chassis	A3.563.01
Chassis fixing screws (4 × 8 mm.) ...	07.804.08
Nut for electrolytic capacitor	07.093.02
Battery plug	MK.868.76
Nut for volume control	49.758.21

VALVES

V1	DK92
V2	DF96
V3	DAF96
V4	DL94
V6	DM70

TRANSFORMERS AND COILS—MBS207/MBS209 only

S1/2	Aerial coil S.W.2	MK.565.40
S3/4	Aerial coil M.W.	MK.565.41
S5/6/6A	Aerial coil L.W.	MK.565.42
S7-9	Oscillator coil S.W.2	MK.565.44
S10/11	Oscillator coil M.W. and L.W....	MK.565.45
S14-17	1st I.F. coil	MK.565.98
S18/19	2nd I.F. coil	A3.124.47
S20/21	Speaker transformer	MK.514.16
S22	Loudspeaker	MK.956.28

CORES FOR COILS—MBS207/MBS209 only

Cores for S2, S9, S11	23.643.06
Core for S4	A3.367.33
Core for S6	MK.976.60
Cores for S14-17	23.644.67
Cores for S18/19	A3.367.77

TRANSFORMERS AND COILS—MBS208/MBS210 only

S1/2	Aerial coil S.W.2	MK.566.27
S3/4	Aerial coil S.W.3	MK.565.43
S5/6	Aerial coil M.W.	MK.565.41
S7-9	Oscillator coil S.W.2	MK.566.28
S10/11	Oscillator coil S.W.3	MK.565.47
S12/13	Oscillator coil M.W.	MK.565.46
S14-17	1st I.F. coil	MK.565.98
S18/19	2nd I.F. coil	A3.124.47
S20/21	Speaker transformer	MK.514.18
S22	Loudspeaker	~~MK.956.28~~ NG
	207/9 only, 208/10 "	49240611

CORES FOR COILS—MBS208/MBS210 only

Cores for S2, S4, S11, S13	23.643.06
Core for S6	A3.367.33
Core for S9	P4.380.61/99
Cores for S14-17	23.644.67
Cores for S18/19	A3.367.77

SPARE PARTS LIST—(Contd.)

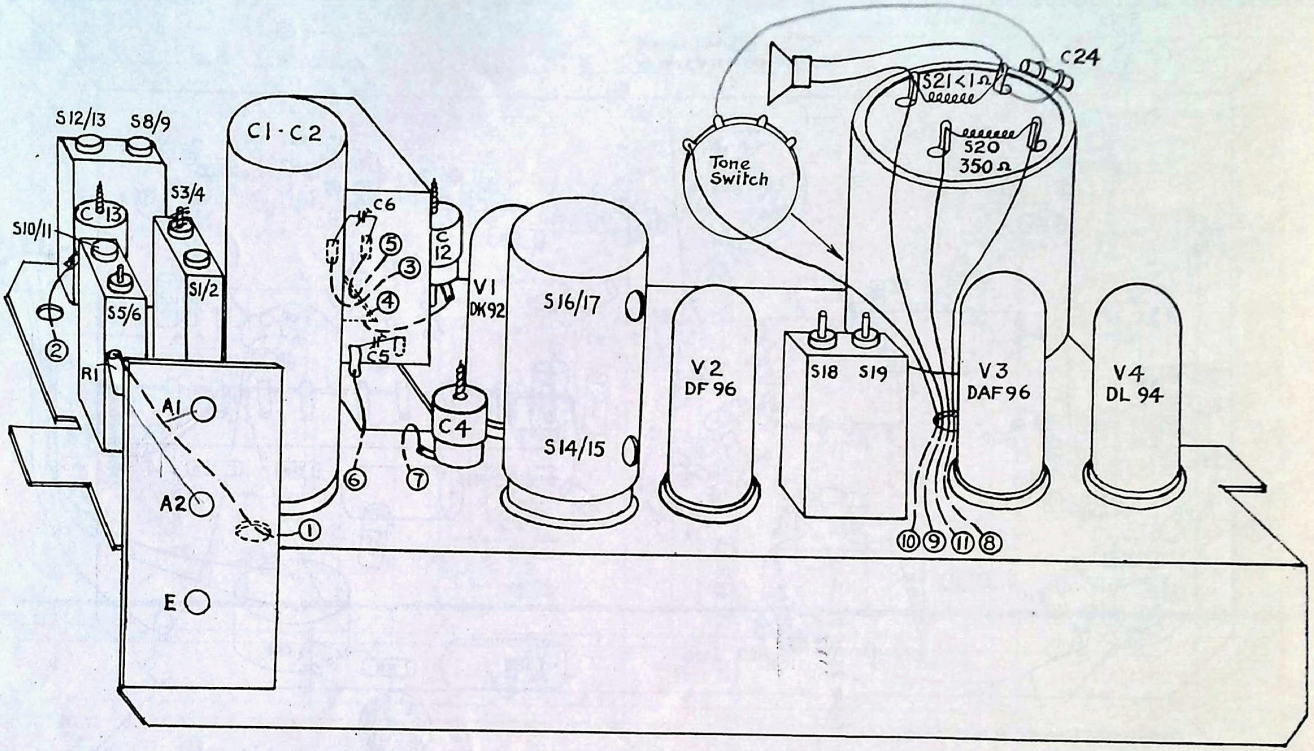
CAPACITORS

			Working Voltage	Permitted Tolerance	
C1/2	Electrolytic	50 + 50 uF	200V		48.317.09/50+50
C3	Ceramic—MBS207/MBS209	47 pF		20%	48.406.10/47E
C4	Trimmer	3-30 pF			28.212.36
C5/6	Gang	11-500 pF			49.001.42
C7	Paper	0.47 uF	125V	20%	48.751.10/470K
C8	Ceramic	100 pF		20%	48.406.10/100E
C9	Ceramic	470 pF		20%	48.406.10/470E
C10	Ceramic	100 pF		10%	48.406.10/100E
C11	Ceramic—MBS207/MBS209	68 pF		2%	48.406.02/68E
C11	Ceramic—MBS208/MBS210	53 pF		2%	48.406.02/53E
C12	Ceramic—MBS207/MBS209	8.2 pF		20%	48.406.99/8E2
C12	Trimmer—MBS208/MBS210	3–30 pF			28.212.36
C13	Trimmer	3-30 pF			28.212.36
C14	Ceramic—MBS207/MBS209	487 pF		1%	48.406.01/487E
C14	Mica—MBS208/MBS210	2,100 pF		2%	MK.193.02/2K1
C15	Trimmer—MBS207/MBS209	400-575 pF			HT.205.02
C15	Ceramic—MBS208/MBS210	487 pF		1%	48.406.01/487E
C16		115 pF			In 1st I.F. coil
C17		115 pF			
C18		110 pF			In 2nd I.F. coil
C19		110 pF			
C20	Paper	47,000 pF	125V	20%	48.751.10/47K
C21	Electrolytic	100 uF	12V		MK.181.01/100
C22	Paper	47,000 pF	125V	20%	48.751.10/47K
C23	Ceramic	100 pF		20%	48.406.10/100E
C24	Ceramic	47 pF		10%	48.406.10/47E
C25	Paper	2,200 pF	400V	20%	48.751.10/2K2
C26	Paper	47,000 pF	125V	20%	48.751.10/47K
C27	Paper—MBS207/MBS209	10,000 pF	125V	20%	48.751.10/10K
C27	Paper—MBS208/MBS210	1,500 pF	400V	20%	48.751.10/1K5
C28	Paper	4,700 pF	400V	20%	48.751.10/4K7
C29	Trimmer—MBS207/MBS209	3-30 pF			28.212.36
C29	Ceramic—MBS208/MBS210	22 pF		5%	48.406.05/22E
C30	Ceramic	1.8 pF		20%	48.406.99/1E8
C31	Ceramic	10 pF		10%	48.406.99/10E
C32	Ceramic—MBS207/MBS209	114 pF		1%	48.406.01/114E
C32	Ceramic—MBS208/MBS210	2.2 pF		20%	MK.205.24

RESISTORS

N.B.—Wattage is based upon an ambient temperature of 70°C.

			Wattage	Permitted Tolerance	
R1		0.1M Ohm	½ watt	20%	48.426.10/100K
R2		0.82M Ohm	½ watt	10%	48.426.10/820K
R3		27,000 Ohm	½ watt	10%	48.426.10/27K
R4	MBS207/MBS209	33,000 Ohm	½ watt	10%	48.426.10/33K
R4	MBS208/MBS210	27,000 Ohm	½ watt	10%	48.426.10/27K
R5		0.18M Ohm	½ watt	10%	48.426.10/180K
R6		560 Ohm	½ watt	10%	48.426.10/560E
R7		1.5M Ohm	½ watt	10%	48.426.10/1M5
R8		82,000 Ohm	½ watt	10%	48.426.10/82K
R9		0.1M Ohm	½ watt	20%	48.426.10/100K
R10	Potentiometer	0.5M Ohm			48.904.60/DL500K
R11		4.7M Ohm	½ watt	20%	48.426.10/4M7
R12		4.7M Ohm	½ watt	10%	48.426.10/4M7
R13		1.0M Ohm	½ watt	10%	48.426.10/1M
R14		1.0M Ohm	½ watt	20%	48.426.10/1M
R15	MBS207/MBS209	27,000 Ohm	½ watt	10%	48.426.10/27K
R18	MBS208/MBS210	12,000 Ohm	½ watt	10%	48.426.10/12K
R25		5.6M Ohm	½ watt	20%	48.426.10/5M6


S12/13
S8/9
C1·C2
S3/4
C13
S10/11
S5/6
S1/2
R1
A1
A2
E
C6
C12
C5
C4
V1
DK92
S16/17
S14/15
V2
DF96
Tone
Switch
S21<1Ω
C24
S20
350Ω
S18
S19
V3
DAF96
V4
DL 94
1
2
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MBS208/210

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