RECEIVER OUTFITS CHB AND CHC SERIES

SUMMARY OF DATA

PURPOSE

General purpose communication receivers for use in shore stations. Slightly modified versions of the receiver are used in other outfits, e.g. CHD, CGR, CGS and FAG.

TYPE OF RECEPTION

On-Off telegraphy and a.m. voice. In conjunction with other outfits f.s.t. or s.s.b.

FREQUENCY RANGE

Outfits CHB(1), (2), (5) and (6),	12.5 kc/s to 30 Mc/s.
Outfits CHB(3), (4), (7) and (8),	10 kc/s to 30 Mc/s.
Outfits CHC(1), (2), (3), (5) and (6),	980 kc/s to 30 Mc/s.
Outfit CHC(4)	12.5 kc/s to 30 Mc/s.

MAJOR UNITS

Outfit CHB(5)

The outfits comprise various combinations of units; as listed under VARIANTS, from the following:-

A.P.103380	Receiver Radio	Type RA17 Receiver
5820-99-943-2775	Receiver Radio	Type RA17 MK. 2 Receiver
5820-99-999-9292	Receiver Radio	Type RA17L Receiver
A.P.103381	Mixer Stage, Frequency	Type RA37 Adaptor LF/MF
5820-99-943-3464	Mixer Stage, Frequency	Type RA37A Adaptor LF/MF
5829-99-580-0744	Mixer Stage, Frequency	Type RA137 Adaptor LF/MF
5975-99-972-8566	Cabinet, Electrical Equipment	DA5795 or DA15476
5975-99-972-8567	Cabinet, Electrical Equipment	DA5792 or 15468
5820-99-971-9168	Cabinet, Electrical Equipment	DA17346

NOTE: The following versions of the receiver and adaptor form the outfits indicated.

Receiver Outfit CHD(1) - See B.R.2353

5820-99-971-8702	Receiver Radio	RA17K
5820-99-971-8701	Mixer Stage, Frequency	

Receiver Outfit CHD(2) - See B.R.2356

5820-99-971-8323	Receiver Radio	RA17R
5820-99-971-8324	Mixer Stage, Frequency	

Receiver Adaptor Outfit FAG - see B.R.2356

5820-99-580-1676	Receiver Radio	modified RA17 MK. 2

VARIANTS

NSN or A.P. No.	Maker's No.	CHB Series								CHC Series					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
103380 or 5820-99-943-2775	RA17 or RA17A	x		x		x		x		x		See B.R.2356 Ch. 2	See B.R.2353 Ch. 4	x	
103381 or 5820-99-943-3464	RA37 RA37A	x	x			x	x								
5820-99-999-9292	RA17L		x		x		x		x		x				x
5820-99-580-0744	RA137			x	x			x	x						
5820-99-971-9168	DA17346							x	x						
5820-99-972-8567	DA7987 or DA15468					x	x								
5820-99-972-8566	DA5795 or DA15476													x	x

PHYSICAL DIMENSIONS

OUTFITS	HEIGHT	WIDTH	DEPTH	WEIGHT
CHB(1) & (2)	12¼ in	19 in	20 in	78 lb
CHB(3) & (4)	14 in	19 in	20 in	80 lb
CHB(5) & (6)	14¼ in	20½ in	21 in	110 lb
CHB(7) & (8)	16 in	20½ in	22 in	112 lb
CHC(1) & (2)	10½ in	19 in	20 in	67 lb
CHC(5) & (6)	12½ in	20½ in	21 in	97 lb

BRIEF TECHNICAL DESCRIPTION

Incoming signals between 980 kc/s and 30 Mc/s are mixed with the output of a variable frequency oscillator operating in the range 40.5 to 69.5 Mc/s to produce an output of 40 Mc/s ± 650 kc/s. Megacycle harmonics up to 32 Mc/s, derived from a 1 Mc/s crystal oscillator, are also mixed with the output from the v.f.o. to give an output acceptable to a filter toned to 37.5 Mc/s ± 150 kc/s. The 40 Mc/s and 37.5 Mc/s signals are mixed in a further mixer stage to produce an output between 2 and 3 Mc/s which is acceptable to the conventional superheterodyne receiver stages.

Frequencies below 980 kc/s (Outfits CHB and CHC(4)) are converted to signals between 2 and 3 Mc/s (acceptable to the bandpass filter preceding the interpolation receiver.) by mixing with the second harmonic of the 1 Mc/s crystal oscillator. While receiving these low frequencies the HF circuits in the main receiver are muted.

ELECTRICAL CHARACTERISTICS

Sensitivity: For 18 dB signal-to-noise ratio and 3 kc/s bandwidth:
c.w. 1 μV input
Voice, 30% a.m., 3μV input.

Selectivity:

Bandwidths for Outfits CHB(1),(3),(5) & (7) and CHC(1) & (5)		Bandwidths for Outfits CHB(2),(4),(6) & (8) and CHC(2) & (6)	
−6 dB	−66 dB	−6 dB	−66 dB
Crystal { 100 c/s	{ less than	Crystal { 100 c/s	Less than 1.5 kc/s
Crystal { 300 c/s	{ 3.5 kc/s	Crystal { 300 c/s	Less than 2 kc/s
Crystal { 750 c/s		1.2 kc/s	8 kc/s
1.2 kc/s	8.0 kc/s	3.0 kc/s	15 kc/s
3.0 kc/s	12 kc/s	6.5 kc/s	20 kc/s
8.0 kc/s	20 kc/s	13 kc/s	28 kc/s

The centre frequency frequency on crystal bandwidths does not change by more than 50 c/s when the bandwidth switch is operated.

I.F. Outputs : 100 kc/s. Two low impedance outputs are provided. If both outputs are required simultaneously, one should be connected to a low impedance and the other to a high impedance load.

A.F. Outputs : (i) Local Outputs controlled by A.F. GAIN. one 3 ohms 50 mW
three 600 ohms 3 mW
(ii) Remote outputs controlled by A.F. LEVEL, one 600 ohms 10 mW.
Distortion is less than 5% on all outputs.

Overall Setting Accuracy: Better than 500 c/s

Stability : The average receiver, after warm-up time of 1 to 2 hours, will remain tuned to within 50 c/s of the selected frequency under conditions of constant supply voltage and ambient temperature.

Calibration : The receiver is directly calibrated in frequency and check points are provided at 100 kc/s intervals.

POWER REQUIREMENTS

100 to 125V or 200 to 250V, 45 to 65 c/s, 90W approx.

AERIAL

Input impedance for outfits of both series is 75 ohms unbalanced.

TEST JIGS

5820-99-943-5927, 1st v.f.o. Test Jig (Type MA89) provides such circuitry as is necessary for simulating the conditions affecting the module (r.f. amplifier, first v.f.o. and first mixer) while under test.

5820-99-943-5928, 2nd v.f.o. Test Jig (Type MA90) simulates the condition of the receiver as determined by the KILOCYCLES scale of the receiver.

5820-99-943-5929, I.F. Strip Test Jig (Type MA91) facilitates the alignment and checking of the i.f. amplifier.

5820-99-943-5902, Power Supply for Test Jigs (Type MA92). Supplies h.t. and l.t. to the test jig in use and to the i.f. amplifier under test.

HANDBOOK

B.R.1171 (1964).

ESTABLISHMENT LIST

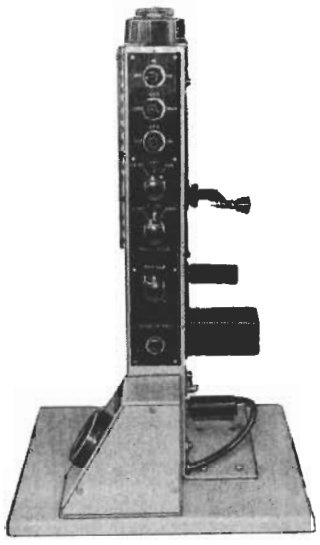
E.1212

INSTALLATION SPECIFICATION

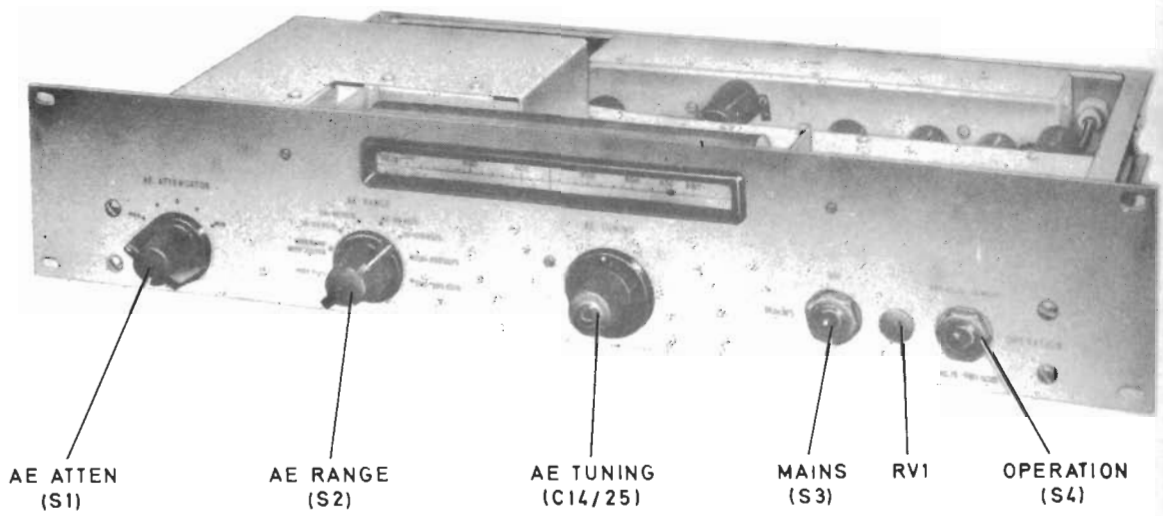
B.921

MAINTENANCE SCHEDULES

CHB Series Cat. No. 4602.

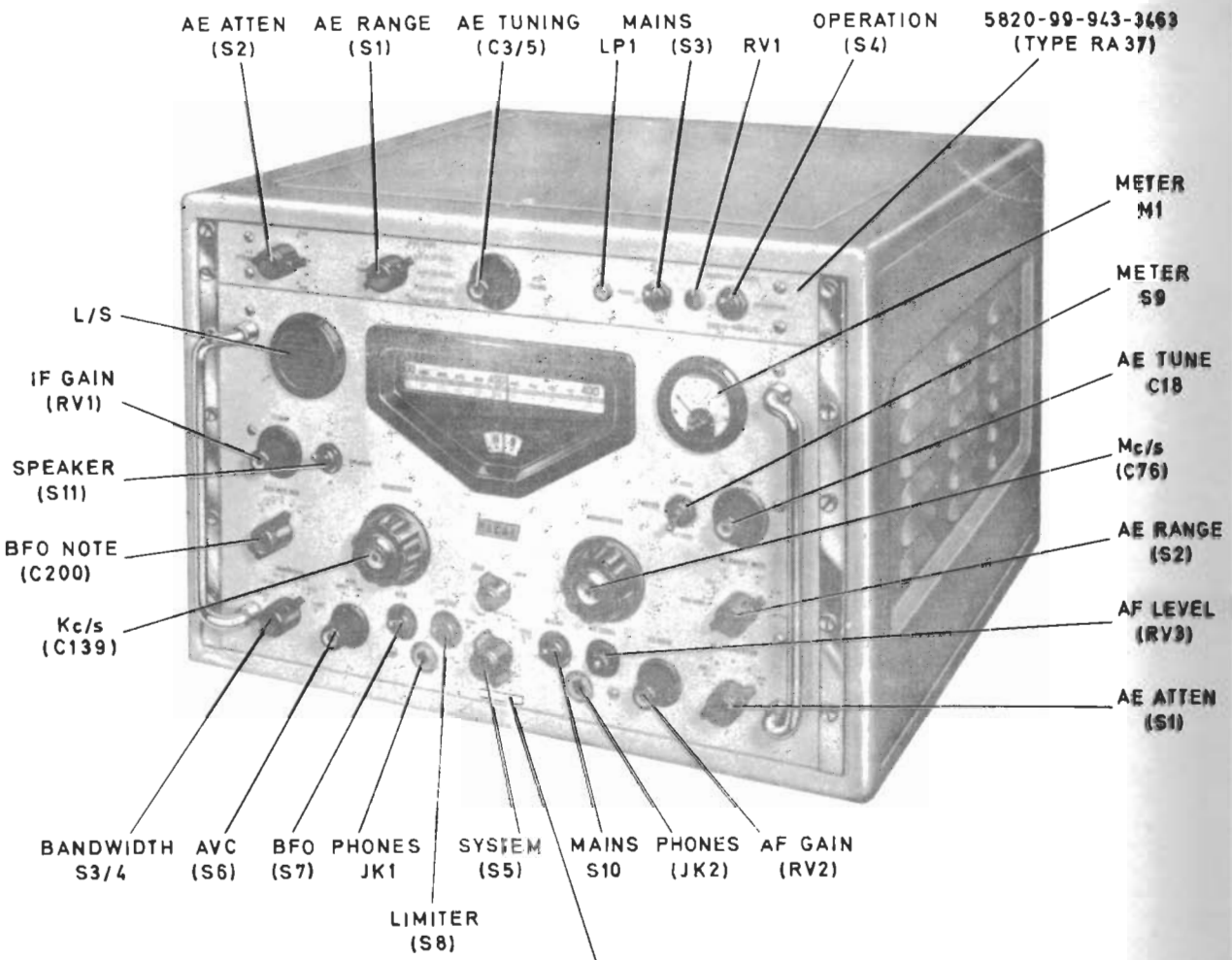


TYPE MA91



ADAPTOR LF/MF

5820-99-580-0744



HIGH VOLTAGE

DO NOT SWITCH ON MAINS SUPPLY AT SOURCE UNTIL BOTH FREE MAINS SOCKET AND SEPARATE TERMINAL EARTH ARE CONNECTED TO RECEIVER

OUTFITS CHB (5) AND CHB (6)