

SUMMARY OF DATA

PURPOSE

Receiver Outfits CJA & CJC are HF communications receiver outfits designed for use in the LCS. Outfit CJA consists of a Receiver, Radio, 5820-99-916-9679 and a Synthesiser, Electrical Frequency, 5820-99-916-4675 to be used for unattended reception. Outfit CJC consists of the Receiver without the Synthesiser. The outfits are housed in appropriate cabinets.

TYPE OF RECEPTION

A.M. DSB
 SSB } USB
 } LSB
 CW



RECEIVER RADIO 5820-99-916-4679

FREQUENCY

2-30 MHz in eight bands.

SYNTHESISER ELECTRICAL FREQUENCY
5820-99-916-4675**BRIEF TECHNICAL DESCRIPTION**

Receiver. The Receiver, Radio, 5820-99-916-9679 is a single superhet. receiver designed for CAW. It has two stages of r.f. amplification incorporating six tuned circuits. The local oscillator, feeding the mixer via a wide-band amplifier, is controlled by a reactance modulator, biased by a fine tuning control or locking the oscillator to an external synthesised frequency. The i.f. is supplied to two channels in the receiver, through crystal filters, selected by the receiver controls according to the supplementary characteristic of the reception. The i.f. amplifiers and demodulators of the two channels are identical. One channel is used for USB, DSB and CW reception, the other for LSB reception. There are four stages of i.f. amplification, three of which have A.G.C., set according to the supplementary characteristic or set externally. Demodulation is effected by an envelope detector for DSB reception, and by frequency translation for SSB reception. The i.f. oscillation, for frequency translation, is derived from a re-insertion oscillator which also provides frequencies 1 kHz above or below i.f. for CW reception. For SSB and LSB reception the re-insertion oscillation may be derived from an external standard frequency of 100 kHz. In both channels the a.f. is amplified and passed to a push pull output stage with an a.f. monitoring facility. The channel outputs are passed to two outputs of the receiver which may be switched such that one output carries information from USB, LSB, DSB or CW reception. For LSB reception the other output gives the LSB content. A third output of the receiver is available directly from the USB, DSB, CW channel. Voltage and current monitoring circuits are built in.

Synthesiser. The Synthesiser, Electrical Frequency, 5820-99-916-4675 is designed for use with the Receiver, Radio, 5820-99-916-9679 in Outfit CJA. Harmonics of an external standard source of 100 kHz are filtered and selected by an amplifier tuned by the setting of 10 MHz, 1 MHz and 100 kHz controls to be mixed with an input from the receiver local oscillator to produce the synthesiser i.f. By frequency division, and three decades of triple frequency change, with the decades set by 10 kHz, 1 kHz and 100 Hz controls, the 100 kHz standard frequency input is also reduced to the interpolation frequency, specified in discrete steps of 100 Hz. The synthesiser i.f. and interpolation frequency are compared by a phase detector the output of which is used to bias the reactance modulator of the receiver local oscillator. Monitoring facilities are provided by a built-in valve voltmeter.

ELECTRICAL CHARACTERISTICS

<u>Receiver.</u> Sensitivity:	DSB 0.5/μV aerial e.m.f. to give 2.5 V o/p in nominal 600 ohm line
	SSB 0.5/μV e.m.f. to give same output as above
Selectivity:	Image rejection Bands 1-6 >120 dB
	7 >116 dB
	8 >112 dB
Noise Factor:	Bands 1-5 10.5 dB ± 2.5 dB
	6-8 8-17 dB

Input Impedance: 91 ohms for CAW

A.G.C. Characteristic: 80 dB increase from 0.5 μ V aerial e.m.f. to give 6 dB increase from 2.5 V a.f. output

A.F. Response: 1 dB down on 1 kHz at 200 Hz and 15 kHz)
 30 dB down on 1 kHz at 110 Hz and 30 kHz) into a load of 100 ohms

Synthesiser. Frequency Range: Controls receiver oscillator from 3.6 to 31.6 MHz.

Detector Sensitivity: Capture range of \pm 10 kHz.

PHYSICAL DATA

	Height	Width	Depth	Weight
Receiver, Radio, 5820-99-916-9679	1 ft	1 ft 5½ in.	2 ft 0½ in.	150 lb
Synthesiser, Elec. Freq., 5820-99-916-4675	8½ in.	1 ft 5½ in.	2 ft 0½ in.	140 lb
Power Supply, (Component of Synthesiser) 5820-99-916-4672	8¾ in.	4½ in.	2 ft 0¾ in.	42 lb

POWER REQUIREMENTS

Receiver 115, 125, 230 or 240 V a.c. 50 to 60 Hz

Synthesiser 115, 125, 230 or 240 V a.c. 50 to 60 Hz
 100 kHz at 0.75 V; spurious content to be not greater than -40 dB compared with the voltage at 100 kHz

HEAT DISSIPATION

Receiver 200 W

Synthesiser 180 W

HANDBOOK

BR 2414
 ICS Handbooks

ESTABLISHMENT LIST

E1300

INSTALLATION SPECIFICATION

3919