

RECEIVER OUTFITS CGT, CHJ(1) TO CHJ(3) AND CHK

SUMMARY OF DATA

PURPOSE

The Receiver Outfits CHK, CHJ(1) to (3) are highly stable receivers which supersede the Receiver Outfits CHB/CHC series wherever unattended operation, or a higher order of stability, is required. The dual diversity Receiver Outfit CGT supersedes Receiver Outfits CGR and CGS(2).

BRIEF DESCRIPTION

Incoming signals between 980 kHz and 30 MHz are mixed with the output of a vfo operating in the range 40.5 to 69.5 MHz to produce an output of 40 MHz \pm 500 kHz. Megahertz harmonics up to 32 MHz, derived from a 1 MHz crystal oscillator, are also mixed with the output of the vfo to give a signal that is acceptable to a filter tuned to 37.5 MHz \pm 150 kHz. The 40 MHz and 37.5 MHz signals are mixed in a further stage to produce an output between 2 and 3 MHz which is acceptable to the conventional superheterodyne receiver stages. The 100 kHz output of the receiver is mixed with 118 kHz, from the synthesiser in the SSB Converter. The output from the mixer, centred on 18 kHz, is passed through the sideband-filters and is mixed with the output of the 18 kHz carrier reinsertion oscillator in the product detectors. The final af outputs are usb and lsb signals of 300 to 6000 Hz bandwidth.

TYPE OF RECEPTION

Amplitude signals with a carrier frequency between 0 and -26 dB. In the suppressed carrier condition the reinserted frequency may be obtained from an external frequency standard.

FREQUENCY RANGE

Outfits CGT, CHJ(1) to CHJ(3): 1 to 30 MHz
Outfit CHK: 10 kHz to 30 MHz

VARIANTS

NSN or AP No.	Description	Racal or Other Ref.	CGT	CHJ			CHK
				(1)	(2)	(3)	
5820-99-954-3240 (late AP 105890)	Converter Single Sideband (Converter lsb)	RA98A (RA98)	2	1	1	2	1
5820-99-999-9292	Receiver Radio	RA17L	2	1	1	2	1
5820-99-924-3394	Synthesiser Electrical Frequency	MA1550D	1	1	1	2	1
5820-99-580-0744	Mixer Stage Frequency	RA137A	—	—	—	—	1
5975-99-580-6640	Cabinet Electrical Equipt.	YBA(1)	1	—	—	1	—
5820-99-520-3414	Cabinet Electrical Equipt.		—	—	1	—	—

PHYSICAL DIMENSIONS

Outfit	Height	Width	Depth	Weight
CGT	172.7 cm (68 in.)	48.3 cm (19 in.)	61 cm (24 in.)	104.3 Kg (230 lb) plus cabinet
CHJ(1)	57.8 cm (22.75 in.)	48.3 cm (19 in.)	61 cm (24 in.)	58.9 Kg (130 lb)
CHJ(2)	57.8 cm (22.75 in.)	48.3 cm (19 in.)	61 cm (24 in.)	58.9 Kg (130 lb) plus cabinet
CHJ(3)	172.7 cm (68 in.)	48.3 cm (19 in.)	61 cm (24 in.)	117.9 Kg (260 lb) plus cabinet
CHK	66.7 cm (26.25 in.)	48.3 cm (19 in.)	61 cm (24 in.)	66.7 Kg (147 lb)

ELECTRICAL CHARACTERISTICS

- Input impedance : 75 ohms unbalanced
- Sensitivity : For 18 dB signal/noise ratio and 3 kHz bandwidth, 1 uV cw or 3 uV voice at 30% modulation.
- Selectivity : On the bandwidth selected the attenuation is as shown:
- | | -6 dB | -66 dB |
|----|---------|-------------------|
| 1. | 13 kHz | 28 kHz |
| 2. | 6.5 kHz | 20 kHz |
| 3. | 3.0 kHz | 15 kHz |
| 4. | 1.2 kHz | 8 kHz |
| 5. | 0.3 kHz | Less than 2 kHz |
| 6. | 0.1 kHz | Less than 1.5 kHz |
- Frequency Stability and Setting Accuracy : (a) Synthesiser interpolation OFF: as determined by the 18 kHz oscillator of the converter, ie Stability $\pm 0.001\%$ per annum Accuracy $\pm 0.006\%$ (± 1 Hz)
- (b) Synthesiser interpolation ON: as determined by the interpolation oscillator of the synthesiser, ie Stability $\pm 0.1\%$ (per month) Accuracy ± 1 Hz
- Intermodulation : At least -100 dB for interfering signals 10% removed from the wanted signal.
- Cross Modulation : With a wanted signal between 3 uV and 1 mV an interfering signal 10 kHz removed and modulated 30% must be 50 dB greater than the wanted signal to produce cross modulation of 3%.
- Blocking : With conditions similar to those for cross modulation, an unwanted signal must be 60 dB greater before the af output of the wanted signal is reduced by 3 dB because of blocking.
- Image and Spurious Responses : With wideband or tuned input the external image signals are at least 60 dB down. Internally-generated spurious responses are below the noise level at all times.
- B.F.O. & A.F.C. : Normally switched off
- Interpolation Oscillator : Ranges 10 kHz, 1 kHz or 100 Hz: setting accuracy of ± 1 Hz on 100 Hz range.
- A.G.C. : An increase of 60 dB on 1 uV input to the receiver increases the output by not more than 6 dB. Optional noise limiting.
- A.F. Output : 40 mW into 600 ohms balanced, for each sideband, and attenuated output of a selected sideband for monitoring.

POWER REQUIREMENTS

100 to 125 V or 200 to 250 V, 45 to 60 Hz. Consumption: 65 W for each RA98A. 35 W for each MA1350D, 90 W for each RA17L, 20 W for each RA137A.

HANDBOOKS

- BR 1171 Receiver Outfits CHB/CHC
BR 2371 Converter SSB
BR 2422 Chap. 8 & 9 Cabinet and Panel Distr.
BR 2925 Synthesiser Electrical Frequency
BR 2949 CGT, CHJ(1) to (3) & CHK

ESTABLISHMENT LISTS

S1560, S1561, and S1562
CHJ CHK CGT

INSTALLATION SPECIFICATION

B 1050/PRE.1