

Racal-BCC has a truly international reputation in the field of radio communications. It forms part of the Racal Group of Companies employing more than 3,000 people, with an average of 1 in 6 employees engaged solely on research and development.



Being part of a large group it has at its disposal a wide range of facilities. Computer-aided design, databank, microelectronic production and extensive mechanical and electronic support all play a part in maintaining Racal-BCC at the forefront of the communications world.

Racal have long realised the importance of maintaining local facilities in overseas territories. There are well established overseas companies in Australia, Canada, Federal Republic of Germany, Asia, South Africa and United States of America in addition to 18 subsidiary companies in the United Kingdom.

Racal-BCC at Bracknell, together with associated companies and a worldwide network of agents, are responsible for the marketing of all its products throughout the world.

This brochure contains brief information on a representative selection of Racal-BCC equipment and systems. The selection ranges from v.l.f. to u.h.f. manpacks to the largest systems – for military, shipborne, P.T.T. and commercial use. In addition, Racal can supply a complete range of telegraph and data channelling equipment suitable for use on h.f. radio and landline circuits. Associated ancillaries are also available such as regenerative repeaters, timing recovery systems, speech privacy, Lincompex and telegraph test equipment.

As part of their product support, Racal offer system engineering services for specific customer projects. Major installations and projects are undertaken including complete planning and manufacture. The services provided include site survey, building design, system planning, installation commissioning, training customer engineering staff and subsequent maintenance support.

More detailed literature describing products in this brochure is available on request.

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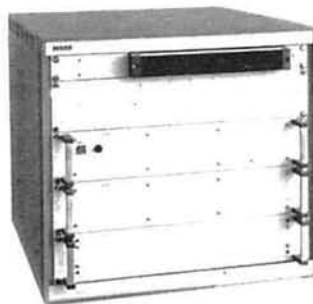
RECEIVERS and ANCILLARIES

TYPE RA. 7915 M.F./H.F. S.S.B. Receiver



With the latest solid-state and integrated micro-circuit techniques used throughout, the modular RA.7915 provides up to six high stability, 1 part in 10^7 , crystal-controlled channels in the 40 kHz to 30 MHz range. Solid-state switching between u.s.b., l.s.b., a.m. and c.w. may be locally or remotely controlled, together with channel selection, muting, clarifier/b.f.o., a.g.c. time constant and squelch on-off.

Microelectronic Communication Receiver with Frequency Synthesis



This system covers 1 to 30 MHz, employs microminiature circuits with modular construction, and is a compact, highly dependable receiver for local, extended or remote operation. Frequency selection by synthesizer, with solid-state switching, a.f.c. for all modes and an inbuilt performance-checking facility are incorporated. Modes of operation are s.s.b., with automatic sideband selection giving true tuning, i.s.b. with integral a.g.c. balancing, c.w., d.s.b. and m.c.w.

TYPE RA.1220 Transistorized H.F. Communications Receiver with Electronic Frequency Display and "Racalok" Frequency Stabilizer



A fully transistorized, modular constructed, h.f. receiver covering 1 to 30 MHz with 'Racalok' phase-locked single-channel operation, with 1 in 10^7 stability, or free tuning. Electronic measurement and 8-digit display of frequency to ± 1 Hz. S.S.B. (u.s.b. or l.s.b.), d.s.b., c.w. and m.c.w. operation; i.s.b. and f.s.k. adaptors available.

TYPE RA.1218

Transistorized H.F. Communications Receiver with Electronic Frequency Display



A fully transistorized, modular constructed, h.f. communications receiver with 1 to 30 MHz frequency range. An inbuilt electronic digital counter gives a 7-digit frequency display with ± 10 Hz accuracy. High sensitivity, stability and setting accuracy are provided with facility for the use of an external synthesizer. S.S.B. (u.s.b. or l.s.b.), c.w., d.s.b. and m.c.w. operation with adaptors available for i.s.b., f.s.k., v.l.f./l.f./m.f. and panoramic reception.

TYPE RA.366

Panoramic Adaptor



Designed for use with Racal RA.1217 series receivers, the RA.366 provides a visual signal display between 1 and 30 MHz, with RA.337 i.f. converter extending this to 3 KHz. In the wideband r.f. position a spectrum of 1 MHz may be scanned, with the narrower i.f. mode giving greater detail. Markers at 100 KHz intervals and the centre i.f. are available.

TYPE RA.1217

Transistorized H.F. Communication Receiver



Specially designed for 19 inch rack mounting, the RA.1217 covers 1-30 MHz for s.s.b., c.w., d.s.b., and m.c.w. reception. Fully transistorized, with modular construction, it is designed to Armed Forces specification and is eminently suitable for inclusion in comprehensive receiver systems.

TYPE RA.337

L.F. Converter



The RA.337 i.f. converter extends the range of Racal h.f. receivers, series RA.1217, to 3 KHz. The receiver MHz control, on the appropriate setting, automatically carries out changeover to l.f. operation. Switched filters allow wideband or tuned-input operation, with an input attenuator for large amplitude signals.

TYPE R.A.1205

Single Channel H.F. Receiver



An all-solid-state crystal-controlled single channel h.f. receiver, the RA.1205 covers 1.6 to 24 MHz in four switched bands. Designed for applications requiring simultaneous monitoring of a number of channels, it may be fitted on the 'bookcase' principle - a standard 19 inch rack accommodating up to 8 receivers and associated power unit. The temperature-controlled oven for the two crystal oscillators ensures excellent frequency stability for all reception modes.

TYPE RA.329B

Transistorized Military H.F. Communications Receiver



Designed for military use, the RA.329B is a compact, portable, fully transistorized, high-stability receiver with a frequency range of 1 to 30 MHz. Operation in f.s.k. (with shifts from 85 to 850 Hz), t.s.k., s.s.b., a.m. c.w., f.m. or ph.m. Adaptors and ancillary units allow frequency extension to 3 KHz, i.s.b. operation and synthesizer control. Power requirements 9 to 30V d.c. or 100V to 250V a.c.

TYPE RA.326
Dual Diversity F.S.K. Converter



The RA.326 is a solid-state f.s.k. dual-diversity converter for use with Racal RA.1217 series receivers, or other receivers with 100 KHz i.f. output. It produces binary d.c. data to operate single or double current teleprinters from either f.s.k. or t.s.k. signals with a frequency shift range of 85 to 850 Hz and speeds of up to 150 bauds. It may be operated in (a) combined output from two receivers in dual-diversity, (b) two separate outputs from two independent receivers, or (c) a single output from one receiver.

TYPE RA.316
F.S.K. Converter



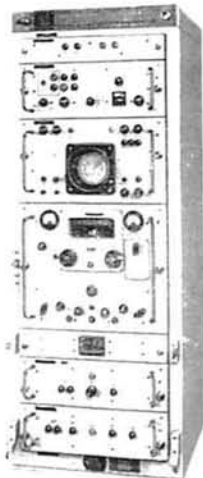
The RA.316 transistorized f.s.k. converter is for use with Racal RA.1217 series receivers, but will operate with h.f. receivers having 100 KHz i.f. output. Produces binary d.c. information from either f.s.k. or t.s.k. signals with frequency shifts between 85 and 850 Hz and speeds of up to 150 bauds.

TYPE RA.298
I.S.B./S.S.B. Adaptor



The all-solid-state RA.298 adaptor, when used in conjunction with RA.1217, RA.1218 and RA.1220 receivers, enables reception of i.s.b. or s.s.b. To minimise selective fading and/or adjacent channel interference, this adaptor may be used for the i.s.b. reception of d.s.b. signals. Features include a f.c., with a capture range of 50 Hz, and either 3 KHz or 6 KHz sideband filters.

TYPE RA.263 (FH5)
Shipborne H.F. D/F Receiver System



Designed primarily for h.f. D/F operation and based upon the RA.153 Twin-channel Receiver, the RA.263 system covers 1 to 30 MHz and provides accurate phase and amplitude balance of two channels with high stability. The unit provides precise calibration, high sensitivity and rapidity of operation, with a gyro-driven ring giving true bearing on the C.R.T. display.

TYPE RA.237
L.F. Converter Unit



The RA.237 l.f. converter is intended for use with Racal communications receivers to extend the lower frequency limit from 980 KHz to 10 KHz. Designed to combat cross-modulation, blocking and inter-modulation effects, it has a double-tuned antenna circuit with a specially-designed low-pass filter. The h.f. performance of the receiver is unaffected by the converter which has a full-vision scale with slow-motion drive.

TYPE MA.210
"Racalator" Digital Frequency Stabilizer



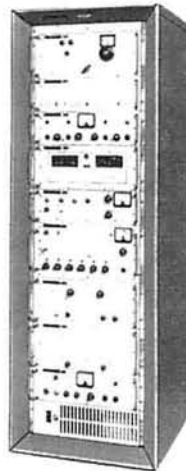
Designed for use with the Racal RA.17L and RA.17C-12, the MA.210 controls the mean variation of receiver frequency to within 1 to 2 Hz over long periods. An electronic counter and digital display provide a precise indication of tuned frequency in 1 Hz units, an inbuilt crystal-controlled frequency generator being used as a high-stability reference source. An outstanding feature is that free tuning of the receiver is unimpaired and frequency search or change may be quickly accomplished, locking to a new frequency when required.

TYPE MA.197C
H.F. Receiver Pre-selection and Protection Unit



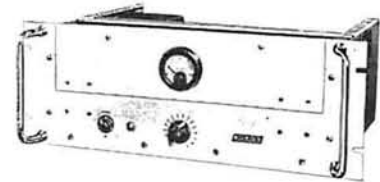
The MA.197C permits receiver operation in close proximity to high-power transmitters and also provides enhanced selectivity. With a frequency range to 2 to 24 MHz (1.5 to 2.0 MHz, 24 to 30 MHz without pre-selection) it withstands r.f. antenna e.m.f.'s of 40V, thus giving receiver protection. It is ideal for marine and closely-spaced land h.f. installations.

TYPE RTA.191
Speedrace Remotely-Controlled Receiving Terminal



Designed for use in long-distance communications networks, with a frequency range of 2 to 30 MHz in 100 Hz steps, the RTA.191 is a remotely-controlled voice and telegraph receiver. The in-built MA.250 synthesizer enables precise frequency control, with the r.f. input circuits having protection from nearby high-power transmitters. Remote control of frequency selection, operational mode and b.f.o. setting uses only one pair of lines (or radio link,) with local automatic or manual tuning also available. Operation possible in s.s.b., i.s.b., d.s.b., c.w. or f.s.k.

TYPE MA.174
Receiving Aerial Multicoupler



The MA.174 multicoupler will feed up to eight communications receivers from a single aerial. Frequency range is 2 to 32 MHz wideband with low noise factor and a high degree of isolation between receivers. Built-in power supply for A. C. operation.

TYPE MA.168
Diversity Switching Unit



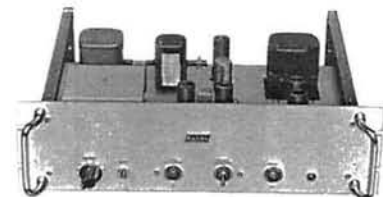
The MA.168 is designed for use with two coupled communications h.f. receivers to minimize the effects of fading. Input frequency is 100 KHz and the unit couples the receiver with the greater signal strength to the output circuit, with a switching time of 10 microseconds. It is particularly suitable for use on h.f. radio telegraphy circuits at speeds up to 1,000 bauds. The unit employs semi-conductors and is completely self-contained.

TYPE RA.153/253
Dual Channel Receivers



The RA.153/253 are for use in dual diversity and h.f. d/f roles covering the 1 to 30 MHz frequency range. The RA.153 has an amplitude balance between channels of 1 dB with negligible drift and the phase drift is less than 15°. The RA.253 has single control tuning with common high-stability first and second VFO for accurate tuning. The two receiving channels have independent level adjustments and metering circuits.

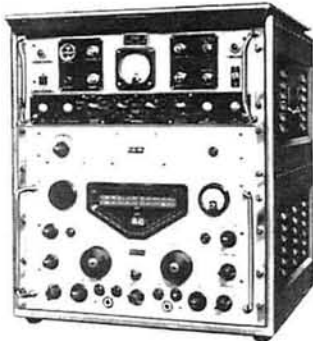
TYPE MA.143
Six-Channel Oscillator



The MA.143 is designed to provide, in its various versions, Racal receivers with six pre-set channels of high stability to drive the third mixer in place of the second v.f.o. The six channels are derived from thermostatically-ovened crystals, and give rapid selection of six accurate and stable spot frequencies. The stability is 1 part in 10⁶ per day, and a separate 1 MHz output is available as an alternative to the receiver 1 MHz oscillator.

RECEIVERS and ANCILLARIES

TYPE RA.129
Single-Channel Radio Teleprinter
Receiving Terminal



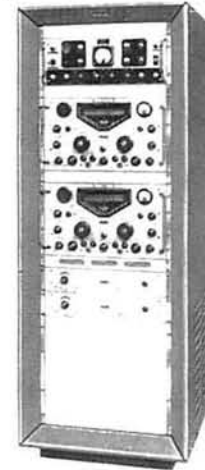
The RA.129 covers the 1–30 MHz range and comprises an RA.17 Receiver linked by an RA.70 Frequency Converter to a PV 78B Converter/Keyer. The terminal has high stability combined with free-tuning flexibility, operation is extremely simple and after channel changing, taking less than 30 seconds, it may be left with little or no attention. Maximum speed 300 bauds, 20 microsecond diversity switching time, frequency shifts 150 to 1200 Hz.

TYPE RA.117
H.F. Communications Receiver



Developed from the RA.17 series this high-stability receiver covers the 1–30 MHz range and incorporates facilities for diversity operation on a Master/Slave relationship. It may also be used with synthesizer or pre-set channel crystal-oscillator input, making it suitable as the basis of s.s.b. and i.s.b. receiving terminals, where high setting accuracy and stability are essential.

TYPE RA.103
Radio Teleprinter Dual-Diversity
Receiving Terminal



A continuously-tuned frequency shift equipment covering 980 kHz to 30 MHz. Comprises two RA.17 Receivers, two RA.70 Frequency Converter Units and a PV.78B Converter/Keyer for diversity switching. High stability with free-tuning flexibility, operation is extremely simple, with channel changing taking less than 30 seconds. It may be left with little or no attention. Maximum speed 300 bauds, 20 microsecond diversity switching time, frequency shifts 150 to 1200 Hz.

TYPE RA.98D
Independent Sideband Adaptor



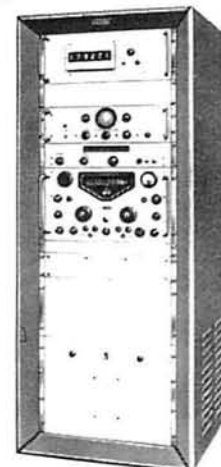
Designed to be used with the RA.17/117 series, the RA.98D i.s.b. adaptor may be used with other receivers having 100 KHz i.f. output. It provides for i.s.b., s.s.b. or d.s.b. reception and incorporates an electro-mechanical a.f.c. system to combat frequency drift. The audio passband response is within 3 dB from 300 Hz to 6 kHz, and a delayed a.g.c. voltage derived from the input signal carrier can be applied to the receiver a.g.c. line.

TYPE RA.87
H.F. Single Sideband Receiver



Designed for use in s.s.b. radio telephony systems, particularly with the Racal range of transmitters and radiotelephones, the RA.87 has a range from 3 to 15 MHz, offering four thermostatically-ovened crystal-controlled channels. It is suitable for duplex communication systems and is simple and reliable in operation.

TYPE RA.78
Frequency Measuring Receiving
Terminal



The RA.78 accurately measures the frequency of received signals between 1 and 30 MHz – optionally from 10 kHz – with a sensitivity of 1 microvolt. It employs the RA.17 high-stability receiver and this combined with the in-line digital counter and display gives an accuracy of 1 to 2 Hz. The equipment is ideal for use by monitoring authorities, long distance communication authorities, broadcasting systems or scientific bodies.

TYPE RA.66B
Panoramic Adaptor



The RA.66B provides a visual display of the activity in any selected 1 MHz band of RA.17/117 Receivers between 1 and 30 MHz. The 'megacycles' control of the associated receiver selects the band to be viewed, and the spectrum of that band is continuously variable up to 1 MHz and will give a clear indication of 1 microvolt signals.

TYPE RA.63
Single Sideband Adaptor



The RA.63 allows s.s.b. radio telephony reception from any high stability receiver, such as the RA.17/117. Its modes of operation cover pilot or suppressed carrier as well as d.s.b. transmissions — offering great advantages in minimising selective fading and adjacent channel interference effects. Switched filters enable upper or lower sideband operation with 50 dB rejection of the unwanted sideband.

TYPE RA.17
H.F. Communications Receiver



The world-famous RA.17, over 15,000 sold throughout the world, has a frequency range of 500 kHz to 30 MHz, and combines continuous tuning with electronic band-switching. Its frequency stability and tuning accuracy are outstanding, and its versatility may be greatly increased by the addition of specially designed adaptors and converters.

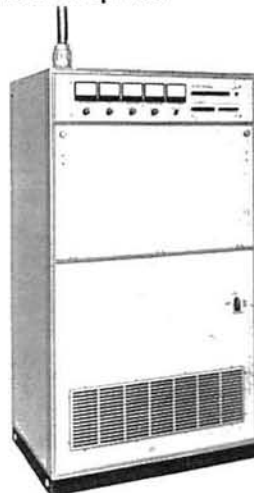
TRANSMITTERS and ANCILLARIES

TYPE MA.7917
H.F. S.S.B./I.S.B. Exciter



Covering the 1.65 to 28 MHz range, with up to six high stability, 1 in 10^7 crystal-controlled channels, the MA.7917 has a 100 mW output, into a 50/75 ohm load. It is fully solid-state and of modular construction, with self contained power unit, and has remote control facilities. Automatic level control maintains the output p.e.p. over a wide range of a.f. input levels.

TYPE TA.1800
H.F. Linear Amplifier



The TA.1800 is a fully automatic h.f. linear amplifier for use in fixed station roles and covers the range of 2 to 30 MHz. It will accept all modes of emissions and has a power output capability of 10 kW p.e.p. into a 50 ohm load. During tuning a 'memorised' a.l.c. circuit operates to give the appropriate gain, and the same circuit is utilised as part of r.f. overload protection. Other features include internal mains regulation to maintain efficiency and linearity of output.

TYPE MA.1700
Transmitter Drive Unit



Frequency 1–30 MHz. Is primarily designed to drive the Racal range of linear amplifiers from local, extended or remote positions, the latter utilising the CSA.1500 Remote Control System. All solid-state, with a wide band untuned maximum output of 200 mW. The most sophisticated versions offer a choice of u.s.b., l.s.b., i.s.b., a.m., c.w., f.s.k., f.a.x. or four frequency dplex. The synthesizer gives 289,999 channels in 100 Hz steps, with selection achieved by solid state switching, permitting maximum lock-up of less than 1 second.

TYPE TA.916
H.F. S.S.B. 100 W Transmitter



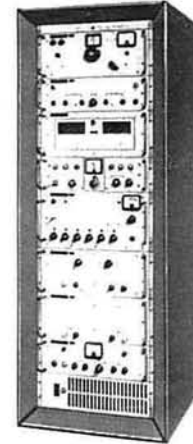
The all solid state TA.916 is designed for simplex or duplex s.s.b. operation in 2 to 12.5 MHz range, and has high frequency stability, 4 parts in 10^7 . It is particularly suitable for use with the Racal s.s.b. Receiver Type RA.915. The 100W p.e.p. output can be used on one of four crystal controlled channels, with facilities for remote channel selection. Completely modular in construction, the TA.916 is extremely reliable.

TYPE TA.349
Speedrace 1 kW H.F. Linear Amplifier



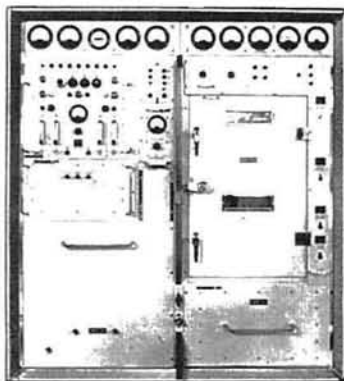
A 1 kW p.e.p. linear amplifier with a frequency range of 1.5 to 30 MHz, the TA.349 automatically tunes to the drive signal and continuously matches output loading to the antenna load. It is suitable for i.s.b., s.s.b., d.s.b., f.s.k. or c.w. operation, within its passband limits f.m., ph.m. or p.m. may be used, and may be left unattended.

TYPE MA.228
Speedrace Exciter Unit



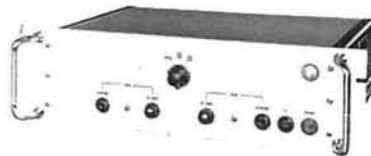
Designed for use with the 'Speedrace' communications system the MA.228 covers 2 to 30 MHz and provides s.s.b., i.s.b., d.s.b. and c.w. together with optional f.s.k. and f.a.x. Deriving its operating frequency via the MA.250 Decade Frequency Generator, with 280,000 steps of 100 Hz, the MA.228 can use an optional MA.259 Frequency Standard giving a stability of 5 parts in 10^{10} . Manual or extended control facilities are provided, with remote control, using one landline pair or radio channel, being incorporated.

TYPE TA.184
Speedrace 10 kW H.F. Linear Amplifier



The TA.184 provides an output of 7 kW c.w. or 10 kW p.e.p. over 2 to 30 MHz and functions as a power amplifier stage in the Racal 'Speedrace' range. The amplifier automatically tunes to the selected drive frequency with continuous phase detection ensuring precision tuning at all times. Suitable for i.s.b., s.s.b., d.s.b., f.s.k. and c.w. it is suitable for full remote control and unattended operation.

TYPE MA.175/202
Independent Sideband Modulators



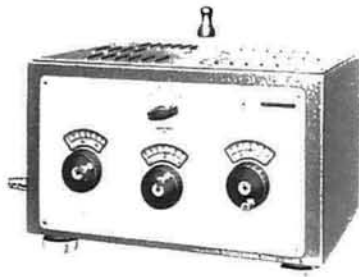
Both the MA.175 and the MA.202 will modulate a 1.4 MHz i.f. to feed low level drivers for linear transmitters – MA.175 bandwidth is 300 Hz to 3.5 kHz and MA.202 bandwidth 300 Hz to 6 kHz. Providing an easy, economical means of converting existing equipment to i.s.b. working, the MA.175 operates for a single speech channel in each band and the MA.202 two channels per sideband.

TYPE MA.152
Standing-Wave Ratio Indicator



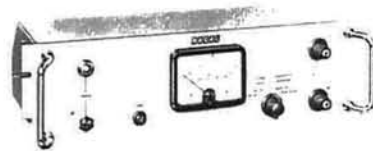
Dealing with powers up to 1 kW in the 2 to 25 MHz range, the transistorized MA.152 has a characteristic impedance of 50 ohms. It provides direct meter indication of the standing-wave ratio in the output circuit of a transmitter, and also operates with an adjustable pre-set e.h.t. cut-out when s.w.r. is greater than the pre-set level.

TYPE MA.144
Antenna Tuning Unit



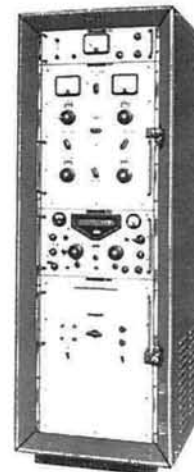
The MA.144 matches the 1 kW 50 ohm unbalanced output of a transmitter to a whip or long wire aerial. Its frequency coverage is 2 to 25 MHz, with matching obtainable with antennas of impedances ranging from 3 ohms to several thousand ohms.

TYPE MA.141
Distortion Indication Unit



The MA.141 all-transistor unit provides meter indication of overall distortion from -20 dB to -40 dB occurring in s.s.b. and i.s.b. transmitters between 1 and 30 MHz. Designed for routine testing of transmitter linearity, throughout its frequency range and without affecting the loading, the MA.141 is rapid and simple to operate.

TYPE TA.127
1 kW H.F. Transmitter



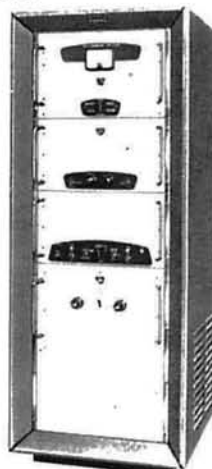
The TA.127 is capable of u.s.b., l.s.b., i.s.b., d.s.b., f.s.k. or c.w. operation from 1.5 to 25 MHz in seven bands, with an output power rating of 1 kW p.e.p. and 800 watts continuous. Frequency control may be by high-stability v.f.o., six-channel crystal-oscillator or external frequency synthesizer, with a cam system allowing six spot frequencies to be pre-set in addition to full-range manual tuning.

TYPE LA.105
Remote Control Unit



Used with s.s.b. transmitters, the LA.105 acts as a modulation pre-amplifier, selects any one of four pre-set channels and switches h.t. over a four-wire circuit of up to approximately eight miles. Channel selection, stand-by/transmit, modulator pre-amplifier and clipper and keyed tone telegraphy are all controllable facilities. The LA.105 is suitable for simplex or duplex radio systems, operating on voice or key.

TYPE TA.83
500 Watt Single Sideband Transmitter



The TA.83 has a frequency range of 3 to 15 MHz, with four crystal-controlled channels which can be remotely controlled using the LA.105 control unit. The output - 500 watt p.e.p. or 400 watt c.w. - may be used for u.s.b. or l.s.b. operation, with facilities incorporated for re-inserting the carrier for compatible a.m. or c.w. operations. Frequency shift operation is available as an optional extra.

TYPE MA.79G
Universal Drive Unit



The MA.79G will provide any suitable linear amplifier with drive facilities for s.s.b. (upper or lower sideband), d.s.b., f.s.k. or c.w. operation between 1.5 and 30 MHz. Frequency control may be by v.f.o., six crystal-controlled channels, with stability better than 5 parts in 10⁶, or by external synthesizer. Provision is made for i.s.b. transmission by using i.s.b. modulators MA.175 (3 kHz per sideband) and MA.202 (6 kHz per sideband).

TRANSMITTER/RECEIVERS

TYPE TRA.7905A
H.F. S.S.B. Radio Telephone



An h.f. s.s.b./a.m. high-sensitivity transmitter, the TRA.7905A is fully solid-state and of modular construction. It operates in the range 2 to 12.5 MHz, with 100 watts p.e.p. output, and provides four high-stability crystal-controlled channels of single frequency simplex or two channels of two frequency simplex. High stability, daily 1 in 10⁷ and long term 1 in 10⁶, is ensured by all oscillators being enclosed in a proportionally-controlled oven. Battery or mains operation together with remote control facilities are provided.

TYPE TRA.6929
Minical
H.F. S.S.B. Manpack



Designed to meet both military and civil requirements the TRA.6929 is a six-channel single-sideband man-pack radio-telephone covering the frequency range of 2 to 7 MHz or 2.6 to 9 MHz. The radiated output is 1 watt p.e.p., and with the six foot whip antenna groundwave ranges up to eight miles may be achieved – under jungle conditions the range is approximately halved. The lightweight TRA.6929 is completely sealed giving extremely reliable performance under the most severe conditions.

TYPE TRA.922
Comcal
Crystal Controlled H.F. S.S.B. Manpack



Designed to meet military and civil requirements for a low-cost, lightweight h.f., s.s.b. high-performance manpack, the TRA.922 offers 49 crystal-controlled channels in the 2 to 8 MHz range. Fully transistorized it operates in the s.s.b. (u.s.b. and l.s.b.), a.m. and c.w. modes with 20 watts p.e.p. output power, reducable to 5 watts p.e.p. for battery economy or security reasons. The inbuilt antenna tuning unit matches transmitter and receiver to whip, long wire or dipole antennas.

TYPE TRA.921
Synical
Synthesizer-Controlled H.F. S.S.B. Manpack



The TRA.921 h.f. s.s.b. manpack is a synthesizer-controlled equipment providing s.s.b. (u.s.b. and l.s.b.) a.m. and c.w. operation on 6,000 channels, at 1 kHz spacing, between 2 and 8 MHz, with 20 watts p.e.p. output. Tuning controls have been kept to a minimum, with frequency changing accomplished in seconds. Power supply options are available for static or mobile operation, with the wide range of accessories fully interchangeable with Racal manpacks TRA.906 and TRA.922.

TYPE TRA.906
Squadcal
H.F. S.S.B. Manpack



The TRA.906 'Squadcal' is a waterproof, lightweight, fully transistorized, h.f., s.s.b. manpack with 29 crystal-controlled channels in the 2 to 7 MHz frequency range. Battery powered, it has a 5 watt p.e.p. output and is suitable for voice or telegraph operation. Simple to operate, with only one control to change frequency, 'Squadcal' can operate from 10 to better than 25 miles in open country, or 4 to 10 miles in jungle.

TYPE TRA.355
125 Watt Single Sideband Radiotelephone



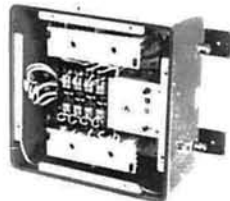
The TRA.355 is a compact 125 watts (p.e.p.) s.s.b. transportable radio-telephone with a.m./c.w. facilities. It covers the frequency range 2 to 15 MHz in four alternative bands with four crystal-controlled preset channels. Operating from a.c. mains or a 12-volt battery, the equipment is simple to operate and is suitable for worldwide service. Optional ancillary equipment provides for connection to Post Office type telephone or switchboard.

TYPE LA.313
Voice Operated Switching Unit



The LA.313 is an automatic voice operated switching unit for converting the four-wire system of the radio-telephone to a two-wire suitable for connecting into a telephone system. Designed to operate with the Racal TRA.355 125 watts s.s.b. radio-telephone, or similar equipments, the unit is fully transistorized and in the form of a plinth upon which a modern telephone may be mounted.

TYPE MA.211
Remotely-Controlled Antenna Tuning Unit



The MA.211, with a frequency range of 2 to 15 MHz, is designed to operate with the TRA.355 or any other suitable, radio-telephones. It will match the transmitter to a common antenna (end-fed wire or whip) or to any one of four resonant dipoles, one to each channel, of 50 to 70 ohms impedance. Antenna selection is operated from the TRA.355.

TYPE TR.51
H.F. S.S.B.
100W Mobile Radio Telephone



Designed for mobile operation with a tuned antenna, the 100W p.e.p. TR.51 covers the 1.6 to 16 MHz range for s.s.b. telephony, c.w. telegraphy and a.m. telephony operation. With facilities for extended control of all functions, it has provision for up to 10 crystal controlled channels, which may be set up anywhere in the frequency range and switched from the remote control box. Operating from either 12 or 24V d.c. – either polarity – the TR.51 has low power consumption.

TYPE TR.38
Single Sideband A.M. Solid-State
Mobile or Fixed Station
25W Radio Telephone



A compact, solid state, single sideband transceiver, the TR.38 is available in models operating with both sidebands, one sideband and a.m. (d.s.b.). It has 10 preset panel switched crystal channels anywhere in the 1.6 to 8.0 MHz frequency range. The effective system power is equivalent to 200W a.m. and this is achieved with minimal input power drain. It is simple to operate with a unique visual system indicating correct tuning and loading conditions.

TYPE TR.35
H.F. Single Sideband/A.M.
Fixed or Mobile Station
100W Solid State Radio Telephone



All solid state, the TR.35 is suitable for both fixed station and mobile operation, with 10 preset panel switched crystal channels anywhere in the 1.6 to 16 MHz frequency range. The operating modes are s.s.b. telephony, c.w. telegraphy and 'break-in' c.w., with a.m. telephone an optional extra. Employing the latest broadband techniques, the equipment has an in-built antenna tuner for matching into a wide variety of antennas.

TYPE TR.15
H.F. S.S.B./A.M.
Fixed or Mobile Station 100W
Solid State Radio Telephone



The TR.15 is a simple to operate, h.f., s.s.b./a.m. fixed or mobile station radio telephone. Incorporating the latest broadband techniques and covering the frequency range 1.6 to 16 MHz, it is capable of operation under the most stringent conditions. May be (a) synthesized (b) 49 crystal channels, or (c) 10 or 20 ovened crystal channels. Modes of operation are s.s.b./telephone, c.w. telegraphy and a.m. telephone.

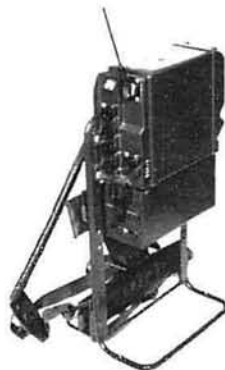
TRANSMITTER/RECEIVERS

TYPE UK/PRC 350
'Clansman' VHF/FM
Military Manpack Radio



The UK/PRC 350 provides 840 synthesizer-controlled channels in the 36 to 57 MHz range and has a power output of 2 watts. Truly lightweight, only 8 lb (3.6 Kg.), it may be carried in the hand, or on the back, shoulder or hip using the harness. Accepted for British Army use in the 'Clansman' network, it is suitable for use anywhere in the world, and has a 'whisper' facility for use in proximity to an enemy. Self-check circuits are incorporated for operator confidence.

TYPE UK/PRC 351/352
'Clansman' VHF/FM Military
Manpack Radio



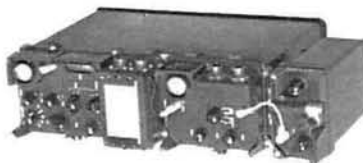
Identical except for their power output, 4 watts from the PRC 351 and 20 watts from the PRC 352, these manpacks provide 1840 synthesizer-controlled channels between 30 and 76 MHz. It is a complete working station, accepted as a component unit of the 'Clansman' communication system used worldwide by the British Army. The PRC 351 version weighs 14 lb (6.3 Kg.) and the PRC 352 weighs 28 lb (12.7 Kg.). A 'whisper' facility is provided, together with self-checking for operator confidence.

TYPE BCC 34
H.F. Manpack



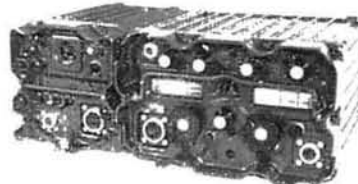
This unique manpack weighing only 18 lb (8.1 Kg.), offers 285,000 synthesizer-controlled channels between 1.5 and 30 MHz, with 25-watt p.e.p. output, for s.s.b., a.m., c.w. (wide/narrow), and f.s.k. operation. Operating stability is 1 in 10⁶ per day. The antenna tuning circuits are automatic and remote control operation is possible from a distance of 800 metres. Adaptors are available for vehicle, shipborne or aircraft use, and a 100-watt amplifier can be provided.

TYPE A14
H.F. Military Manpack
Station Radio



Providing 18 crystal-controlled channels, together with full free-tuning, in the 2 to 8 MHz range, the A14 is available in two versions. Alternative power output of 3W or 30W both provide for a.m., Ph.M. and c.w. operation. A full range of accessories provide for remote control of the equipment and vehicle or shipborne operation. Other ancillaries are a remote A.T.U. with a full range of antennas.

TYPE C13
Military H.F. Wireless Set



Specifically designed for use in vehicles, the C13 provides free-tuning with calibration every 2.5 kHz between 1.5 MHz and 12 MHz. The 16-25 watt output may be used for a.m. or Ph.M. operation, either for voice or c.w. The C13 incorporates an intercommunication amplifier. Suitable for worldwide military use, it is in service with the British Army and many other Armed Forces, with over 10,000 already delivered.

Manpack ancillaries



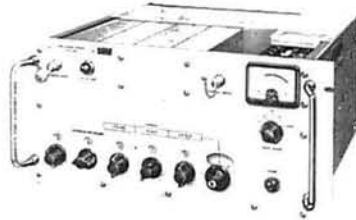
The wide and comprehensive range of ancillaries offered with Racal-BCC manpacks allows operation in vehicles, ships or aircraft, as well as fixed-station use. Dipole, whip and long-wire antennas, antenna mounts for differing applications, static, noise-cancelling, and lightweight audio equipment, including loudspeaker/amplifiers, a.c. and d.c. power units and chargers, vehicle-mounting trays, morse keys, and field test-sets are all available. A representative selection is shown in the illustration.

TYPE MA.1350A
Decade Frequency Generator



The fully transistorized MA.1350A's output is continuously variable from 2.1 to 3.1 MHz, with additional fixed frequency outputs. It is used with the RA.17 Receiver, providing the kHz setting and increasing setting accuracy to within 1 Hz, and can feed two receivers in dual diversity. Stability is better than 2×10^{-9} per day. There are switched increments of 100 kHz, 10 kHz, 1 kHz and 100 Hz with an interpolation oscillator, operative up to 10 kHz, calibrated to provide frequency settings of 100 Hz, 10 Hz and 1 Hz.

TYPE MA.350
Decade Frequency Generator



Designed for use with the Racal RA.117 and RA.1217 range of Receivers, or other compatible systems, the MA.350 operates from 3.6 to 4.6 kHz and provides the kHz setting for the receiver or drive unit. It has a setting accuracy of within 1 Hz and the stability is 1×10^{-9} . Switched decade increments — 100 kHz, 10 kHz, 1 kHz and 100 Hz — are interpolated between the 10 kHz, 1 kHz and 100 Hz steps by a calibrated oscillator to give settings calibrated in 100 Hz, 10 Hz and 1 Hz respectively.

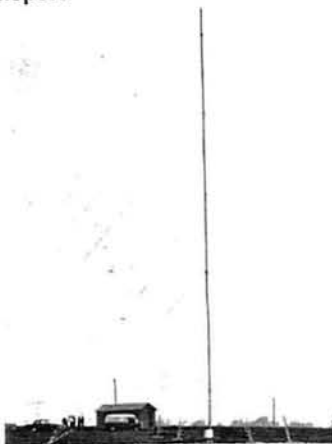
TYPE MA.250
Decade Frequency Generator



The fully transistorized MA.250 is a highly stable — 2×10^{-9} — tuneable frequency source covering 1.6 to 31.6 MHz. Any multiple of 100 Hz may be selected with a frequency accuracy within 1×10^{-10} of that of the in-built standard. There is a facility for the remote control of frequency selection, with additional fixed frequency outputs at 100 kHz, 1 MHz, 1.6 MHz and 10 MHz.

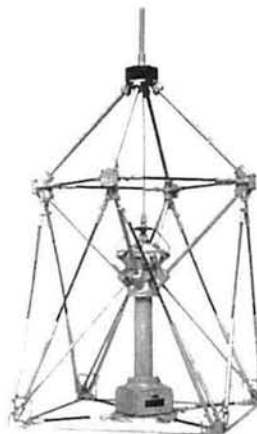
ANTENNAS

TYPE AE 3062
Medium Power Variable Length
Monopole



The AE.3062 is of unique design, incorporating a novel technique whereby the length of the radiating element is adjusted, either automatically or semi-automatically, inside a glass-fibre mast for $\frac{1}{4}\lambda$ response. It is a high efficiency omnidirectional 10 kW antenna providing uniform radiation pattern over its 2 to 30 MHz frequency band, and is available as a fixed station or as a transportable mobile version.

TYPE AE 701
H.F. D/F Antenna



A lightweight version of the British Navy's FH4 H.F. D/F Antenna the AE.701 incorporates a number of improvements. Weighing only 75 pounds, it is designed for use with the Racal RA.263 Twin-Channel H.F. D/F Receiver.

TYPE MA.108/216
3 kW Wideband Matching
Transformers



The MA.108 is a fully weatherproofed 3 kW transformer matching 50 ohms unbalanced to 600 ohms with low internal losses. Its frequency range of 2 to 30 MHz may be extended to 1.5 MHz if power is reduced. The MA.216 is similar, but has an input impedance of 70 ohms.

ANTENNAS — SYSTEMS

**MA. 74
500 Watt Wideband
Matching Transformer**



Designed for use with h.f. transmitters having a 50 ohm unbalanced output, the MA.74 provides matching to 600 ohms balanced antenna feeder systems. It operates between 2.5 and 30 MHz and is rated at 500 watts r.f. through power with low internal losses.

**Mobile Resonant Antenna Systems
2 to 16MHz, 150W P.E.P.**



Designed for mobile use from 2 to 16 MHz, these antennas can handle 150W p.e.p. They differ only in the degree of tuning control. Consisting basically of an 8 ft. whip connected to a ferrite core inductor, the A18 provides automatic tuning, whilst the A17 allows up to six pre-set channels to be selected, either manually or remotely.

"HY-GAIN"

Range

of

HF, VHF and UHF
Antennas

including:

Rotatable and Fixed Log Periodics

Broad-Band Monopoles

Yagis

Multi-Band Verticals

Various Mobile and Transportable Antennas

(Enquire for Hy-Gain Catalogue)

**"Modern Aerials"
range of Antennas**



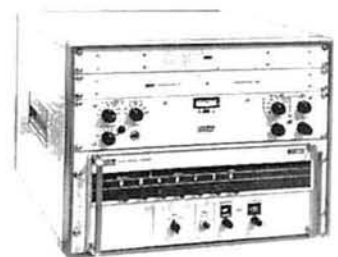
"Modern Aerials" antennas are supplied in large quantities to the British Army and other customers, many overseas. The Type 638, a 27 foot mast, is extremely versatile being used either as a direct radiator or as a support for other antennas. The height can be increased to 40 feet by adding 'F' rods, which themselves may be used as mobile whips. A complete range of military type antennas is available.

**TYPE RA.8401
VHF Converter**

All solid-state design. Translates VHF signals in the 30-55 MHz range to HF receiver frequencies in the 7-16 MHz range. Single 6-position selector switch. Antenna selection for HF or VHF via toggle switch on front panel. Self-contained power unit operates from 115 or 230 volts A.C.

SYSTEMS

**TYPE RS. 6591
Remote Control Receiver Systems**



The RS.6591 system consists of a solid-state receiver, RA.6217 with a synthesizer. It may be remotely set in 10 Hz steps in the 1-30 MHz range, this being accomplished in less than 10 mS for operation to 1 in 10⁶ of the desired frequency. Options available include a multi-channel filter, RA.6397, for operation in strong-signal environments, and an indication unit with tuned-frequency digital display or print-out.

TYPE RS. 6551
Frequency Measuring Receiver



The RS.6551 allows off the air measurement of frequency, with digital display, of 1 to 30 MHz signals with a variety of modulation. An internal reference frequency standard, accuracy 1 in 10^8 , gives the system an inherent accuracy of ± 2 Hz. The sensitivity in the narrow-band comparator position is less than 0.25 microvolts, 0.5 microvolts wide-band. The receiving equipment being standard, the RS.6551 can also be used for receiver terminal.

TYPE 6504
Panoramic Receiving Systems



The RS.6504 provides a visual presentation of the activity, within a selectable variable 1 MHz bandwidth, over a frequency range of 1 to 30 MHz. A low frequency converter may be used to extend this down to 3 kHz. A narrow-band mode variable 10-75 kHz, may be operated with 1 kHz, resolution and 1 micro-volt sensitivity.

TYPE C.S.A. 1500
Remote Control Systems



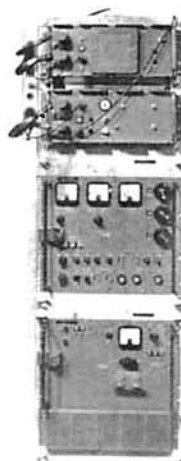
The CSA.1500 Series of Remote Control Systems for controlling receiver and transmitter terminals, provide fully flexible systems incorporating the latest technological advances. Designed to work over P.O. type lines, or radio links, it is supplied in many versions. Acceptance capabilities include audio channels, carrying speech or multiplex signals, plus analogue and digital control data. Applications can include functions as diverse as high speed signalling, revertive checks or monitoring and the pre-programming of operations etc.

Transportable
H.F. Communication Systems



Suitable for movement by air, land or sea, transportable h.f. communications are usually designed and planned to meet a specific requirement. They can range from a compact 500 watt s.s.b. transmitter receiver installation, to two 10 kW s.s.b. linear amplifiers and associated drive units, in one container, with a receiving terminal and traffic centre in two other containers, each of which could have a payload of 5,000 pounds.

S.S.A. Systems



An auto-tuned 1 to 30 MHz r.f. radio communication station, the S.S.A. system is specifically designed, with Admiralty approval, for submarine operation. The Racal 349 Linear Amplifier, suitably modified to the rigid environmental specifications necessary for submarine operation, is used, with the full system permitting selection of transmitter and aerials.

Receiver Terminals



The Racal concept of complete flexibility is achieved by the 'building block' system of design. This enables Racal to offer a large variety of receiver terminals. Apart from the variety of control etc. available, i.e. local extended or remote, the principle is also applied to the heart of the system, i.e. the receiver. For example, a selected receiver could be supplied with or without high voltage front end protection, with or without synthesis and with or without i.s.b., f.s.k. or both.