

Panoramic Adaptor

RA.66B

- **SPECTRUM CONTINUOUSLY VARIABLE UP TO 1 Mc/s BANDWIDTH**
- **CLEAR INDICATION OF SIGNALS AT 1 MICROVOLT LEVEL**
- **IMMEDIATE IDENTIFICATION AND FREQUENCY CHECK FOR ANY VIEWED SIGNAL**
- **SWEEP CONTROLLED BY INTERNAL OR EXTERNAL TRIGGER**



Designed for use with the RACAL RA.17 and RA.117 series of communications receivers, the Panoramic Adaptor Type RA. 66B provides a visual display of the activity in any selected 1 Mc/s frequency band between 1 and 30 Mc/s. In addition to C.R.T presentation the adaptor provides for a chart recording of the displayed spectrum to be obtained by the use of ancillary equipment.

The basic frequency band to be viewed is selected by the "megacycles" control of the associated receiver and, by simple adjustment of the control, the operator can view the selected 1 Mc/s spectrum or expand the trace on the display tube to select a narrower band for detailed examination.

The exact position of the "kilocycles" scale on the receiver is shown by a marker which enables the operator to measure the frequency accurately. An internal oscillator provides indication at 100 kc/s intervals on the trace. These markers are displayed on the tube or can be fed to an external unit.

Logarithmic or linear amplification is provided within the RA.66B enabling a widely varying range of signal amplitudes to be examined. Alternative sweep speeds for the trace are provided, enabling sampling times to be varied. The trace can be made automatically recurrent or single sweeps can be triggered externally.

The RA.17 receiver requires modification by the addition of a single stage buffer amplifier (MA.251) which in no way affects its outstanding performance. In the case of the RA.117 receiver the addition of a frequency changing unit, Adaptor MA.282 is required.

A system for recording permanently the displayed information with an optional automatic programming unit for band selection known as "Panfax" is also available. The equipment is described in the RA.166 Technical Publication.

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285 - 1

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The RA.66B Panoramic Adaptor makes use of the novel frequency converting circuit in the RA.17 receiver. The circuit enables a spectrum of signals up to 1 Mc/s in width to be converted to a wideband i.f. lying between 3 and 2 Mc/s. This i.f. is passed to the panoramic adaptor.

A frequency generator, providing the 'X' deflection for the display tube, also drives a sweep oscillator. The output from this oscillator is mixed with the wideband i.f. from the receiver; thus the signals appearing in the output will depend on the instantaneous frequency of the sweep oscillator and will consist successively of the signals occurring in the spectrum under observation. These are mixed with the output of a 1.4 Mc/s crystal oscillator to provide a final i.f. of 100 kc/s. After passing through filters determining the bandwidth, the signal is rectified, amplified and applied to the Y-plates of the display tube.

Part of the output of the second VFO of the RA.17 is also mixed with the output from the sweep and 1.4 Mc/s crystal oscillators to initiate a marker on the trace, showing the point to which the receiver is tuned.

An harmonic generator is included to produce markers which can be used to calibrate the trace at 100 kc/s intervals.



The photograph shows the RA.81 Panoramic Receiver with the RA.66B Panoramic Adaptor and the RA.17L Receiver

TECHNICAL SPECIFICATION

Frequency Sweep	Continuously variable spectrum width from a maximum of 1 Mc/s to 100 kc/s. Coarse and fine spectrum centring controls permit selected sweep to be centred anywhere in the explored band.
Frequency Markers	(a) Moveable marker indicates receiver tuning point. (b) Fixed markers at 100 kc/s intervals can be presented. Facilities are provided to enable the marker information to be taken out separately — at low impedance. Simultaneous marker display on the cathode ray tube is optional.
Signal Levels	With Adaptor r.f. gain control set to maximum and with linear signal level presentation a 1-inch Y-deflection will be achieved from an input to the receiver of less than 4 μ V. An additional internal pre-set ("coarse") signal level control is provided and a panel-mounted "fine" control for adjustment of signal output level to an associated equipment.
Sweep Times	2 sec., 1 sec., $\frac{1}{2}$ sec., $\frac{1}{5}$ sec. (recurrent or externally triggered).
Power Supply	Voltage: 100–125V and 200–250V A.C. Frequency: 45–65 c/s. Consumption: 180VA.
Resolution	Final i.f. bandwidths: 1.2, 3 and 8 kc/s selected by bandwidth switch.
Dynamic Range	Logarithmic presentation: 80 dB approx. Linear presentation: 20 dB approx.
Display	Rectangular cathode ray tube (5 $\frac{1}{2}$ in. x 1 $\frac{1}{2}$ in.).
Dimensions and Weights	RA.66B Adaptor (for rack mounting): 8 $\frac{3}{4}$ in. (22.2 cm.) high x 19 in. (48.3 cm.) wide x 19 in. (48.3 cm.) deep. 65 lb. (29.5 kg.). RA.66B Adaptor (in cabinet): 11 $\frac{3}{4}$ in. (31.38 cm.) high x 20 $\frac{1}{2}$ in. (52 cm.) wide x 20 $\frac{1}{2}$ in. (52 cm.) deep. 90 lb. (40.9 kg.). RA.81 Panoramic Receiver (for rack mounting): 21 in. (53.34 cm.) high x 19 in. (48.3 cm.) wide x 20 $\frac{3}{8}$ in. (53 cm.) deep. 132 lb. (60 kg.). RA.81 Panoramic Receiver (in cabinet): 24 in. (61 cm.) high x 20 $\frac{1}{2}$ in. (52 cm.) wide x 22 $\frac{1}{2}$ in. (57 cm.) deep. 172 lb. (78.2 kg.).

The RACAL policy is one of continuous improvement, and consequently the equipment may vary in detail from the description and specification in this publication.

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