

CLASSIC COMMUNICATIONS EQUIPMENT

THE AR-88 COMMUNICATIONS RECEIVER

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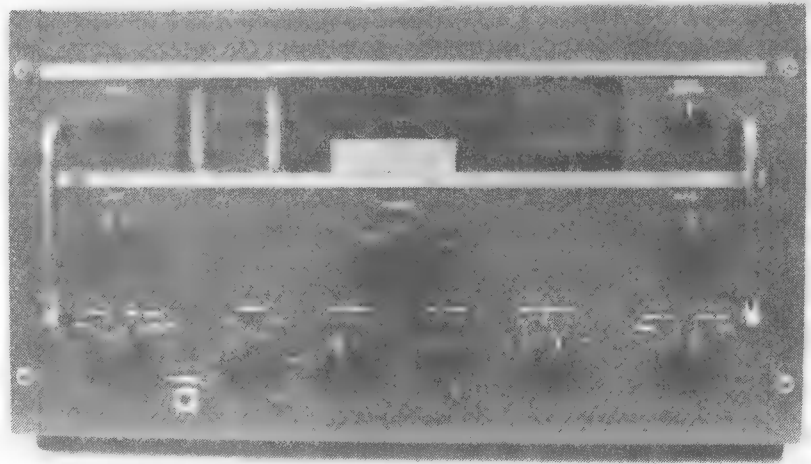
The AR-88 was a general purpose receiver covering 535 kHz to 32 MHz in six bands.

The AR-88 communications receiver was originally designed by the RCA Amateur Radio Section in 1939-40, as a successor to their AR-77 for the USA amateur and commercial market. It was a general purpose receiver covering 535 kHz to 32 MHz in six bands and with deluxe features such as switchable selectivity, a noise limiter, and tone control.

However, before the AR-88 reached the market, England became embroiled in World War Two and had a tremendous need for modern communications gear. (The pathetic state of their radio preparedness in 1940 is another story!). Such was the demand for the AR-88 that four factories in the USA and Canada worked flat-out on UK and later US requirements.

The original AR-88 for the amateur market had an S-meter but few of the sets made actually were fitted with one because of wartime shortages. The AR-88D is the most common model and has an additional audio output at an impedance of 600 ohms to suit balanced lines, as well as the standard 2.5 ohm speaker output. The AR-88LF version covers the LF range in lieu of the broadcast band and has a higher IF frequency. The RAF made certain modifications to their sets and called them the R1556, 1556A, and 1556B. The sets were also used in Russia during the latter part of the war.

There are minor differences in construction techniques over the production span of the sets; for instance, the front panels were originally engraved, but later ones were simply stencilled. It was available free-standing or for rack-mounting, and a separate matching speaker, code MI-8303D, could be supplied.



The Front View of the RCA AR-88 LF. Panel lettering is engraved and paint filled. Note the handles and end trims to improve the appearance.

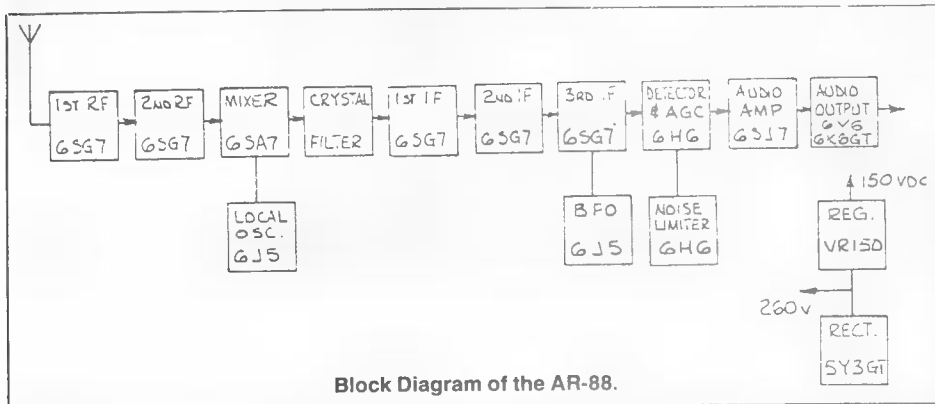
characteristics. The IF frequency is 455 kHz (735 kHz for the AR-88LF) and there is also a simple crystal filter at 455 kHz (735 kHz) which comes into circuit in the third, fourth and fifth selectivity positions. A separate BFO oscillator provides a signal into the second IF stage. After the IFs, a double diode circuit detects the audio and provides AVC. Another double diode acts as a noise limiter. Two stages of audio amplification then provide 2.5 watts of audio to the 2.5 ohm terminals, and 10 milliwatts to high impedance headphones.

The gauge steel. A hinged lid on the case allows access to the internals and the case slides off for major maintenance.

The control layout across the front of the set is as follows:

Top Left: a variable tone control, followed by the main tuning dial with the six bands marked on a rotating disc. Then comes the 0 to 100 vernier dial, a nameplate where the S-meter was intended, and the variable noise limiter control. The main tuning dial and the vernier dial are coupled together by a gear drive so only one tuning knob is needed.

Middle: the antenna peaking capacitor knob is to the left of the main tuning knob which is very smooth in operation but slightly highly geared for

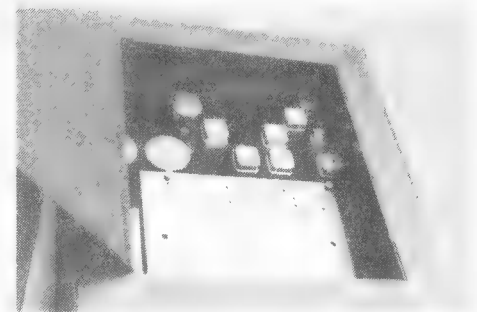


Block Diagram of the AR-88.

As can be seen in the Block Diagram, the electrical arrangement is conventional for the time, but includes comprehensive features. It is of course valve operated and has a total of 14 glass or metal 6.3 volt filament valves. The antenna input caters for single wire or balanced input at 200 ohms impedance. There are two RF amplifiers to aid image rejection, followed by a mixer which is fed by a separate local oscillator. There are then three IF stages with switchable coupling (five positions) to achieve different bandpass

The normal power supply has a tapped mains transformer to allow input voltages from 100 volts to 260 volts with a 5Y3GT rectifier and a VR150/30 voltage regulator. A vibrator power supply unit, code MI-8319, was available and the set could also be run off six volts "A" and 250 to 300 volts "B" batteries.

Mechanically, the set is built on a heavy gauge steel chassis, with the four gang tuning capacitor and front end tuning coils enclosed under a shielded cover. The front panel is also heavy



The View through the Top Cover of the AR-88 LF. The power transformer is at the top-left, IF and audio stages at the top-right. RF and tuning components are under the cover marked with an X.

