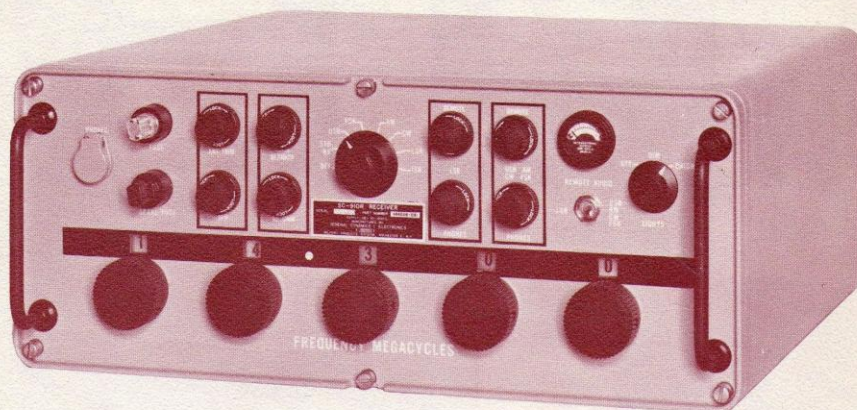


HF SSB RECEIVER

SC-910R



APPLICATION

The General Dynamics/Electronics' SC-910R is a high frequency single sideband receiver providing 28,000 channels spaced 1 kc apart in the 2 - 30 mc frequency range. Modes of operation include Upper Sideband, Lower Sideband, Independent Sideband, AM, CW, and FSK with an external tone converter. Because it is small, rugged and lightweight, the SC-910R will meet transportable as well as fixed station requirements.

DESCRIPTION

The SC-910R features high stability, simplicity of operation, tuning speed, and ease of maintenance in an extremely small package.

With the exception of two tubes in the receiver front end, this unit is fully transistorized, resulting in low input power requirements and high reliability.

True digital tuning contributes to the ease and speed of operation while minimizing the possibility of operator error. For automatic frequency selection, the operator simply selects the proper digit on each of five front panel knobs.

Functional modular construction offers the maximum in ease of maintenance and rapid serviceability without compromise of operational characteristics. Housed in a 7 inch high moisture tight case, the SC-910R may be either table-top or rack mounted.

Internal slides (chassis-mounted 90 degree tilt-type) permit easy removal of the unit from its case for maintenance.

OPERATION

The SC-910R module complement is as follows: frequency standard, RF amplifier, translator synthesizer, mode selector, noise blanker and receiver IF/audio (2).

A 5 mc frequency standard provides frequency stability of 1×10^{-8} per day --- more than sufficient to meet modern operational requirements.

Received signals from the antenna are coupled to the antenna tuning circuit by an impedance matching network. Two stages of RF amplification, combined with four digitally tuned selective circuits, provide an amplified RF signal in the 2 - 30 mc range. As a result of a design which has given maximum emphasis to linearity, wide dynamic range, and selectivity in the RF circuits, interference from other nearby communications equipment is reduced to an absolute minimum.

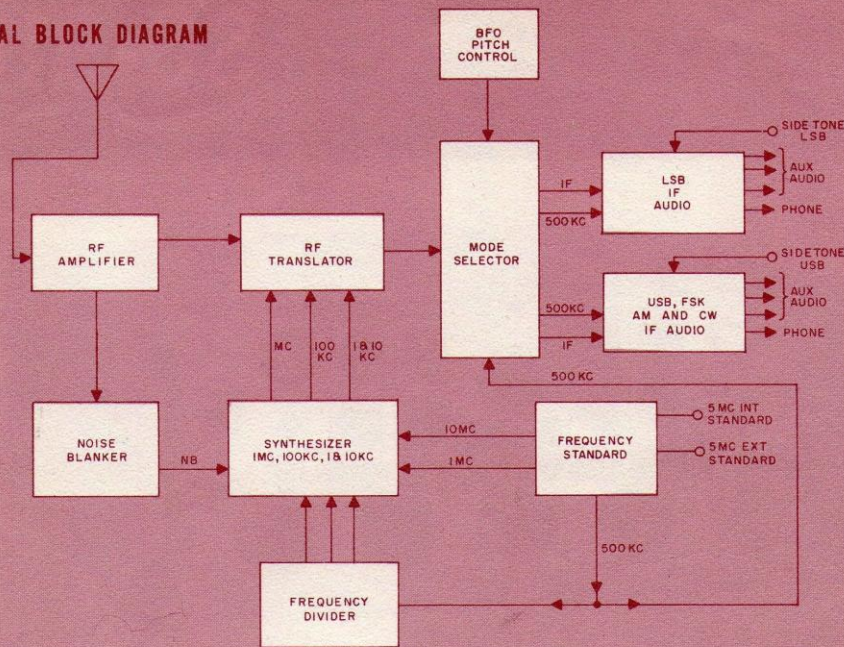
The RF signal is mixed with injection frequencies derived from the synthesizer which is locked to the frequency standard. Triple conversion is employed in the signal path, resulting in a first IF frequency of 500 kc.

Depending upon the selected mode of operation, the proper IF filter and IF/audio module is inserted in the signal path. In the independent sideband mode of operation, both USB and LSB filters and separate IF/audio modules are utilized simultaneously. The two IF/audio modules provide multiple secondaries with 600 ohm and high impedance outputs.

A self-contained power supply converts the 115 volt AC supply voltage to the proper AC and DC operating voltages.

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FUNCTIONAL BLOCK DIAGRAM



SPECIFICATIONS

Frequency Range:	2,000 - 29,999 mc	IF Rejection:	-80 db nominal, -70 db maximum
Tuning:	Digital in 1 kc increments; 28,000 channels	Audio Distortion:	1% maximum
Modes:	USB, LSB, ISB, CW, FSK, AM	Audio Output:	60 milliwatts into 600 ohms balanced 15 milliwatts into 600 ohms unbalanced
Stability:	1 part in 10^8 per day	Receiver AGC ('Step AGC')	3 millisecond rise time 600 millisecond hang time 200 millisecond discharge time
Power Input:	115 VAC $\pm 10\%$, single phase, 48-1000 cps, 43 watts	Size:	Height Width Depth 7" 17-3/8" 18-1/8"
Receiver Sensitivity, SSB:	1 microvolt for 10 db $\frac{S+N}{N}$	Weight:	57 pounds
Image Rejection:	-80 db		

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