THE BADGE OF DEPENDABILITY

Built to Match Courage ANYWHERE

RCA AR-88 COMMUNICATIONS RECEIVER

FOR MEN OF *Courage*

Courage is not something you can build into a communications receiver. Yet courage was with this RCA receiver, the AR-88, at every stage of its planning and building. It was there beneath the blueprints, the courage of fighting men in time of crisis. It was a living watermark in the planning paper. It was the flame in the forge.

This was the wartime assignment of RCA engineers: Make a radio communications receiver that fighting men would choose to work with—above all others—if their lives and many other lives depended on it. Make it tough. Make it work in heat or cold, in any climate; under any conditions. Build it so it will match and support courage *anywhere*.

From these specifications, from the brilliant skill and determination of RCA engineers, from the pool of RCA experience and research came the AR-88. It goes all-out, under the badge of RCA, for a one-word specification that means more today than ever, *dependability*.

Anywhere . . .

HARD HITTING, war-smart features, built into the AR-88 and inherent in its circuits and design, make it perform *anywhere*. It is constructed to stand punishment. Its vitals are insulated against heat and cold, or any freakish violence of temperature in the tropics or the arctic.

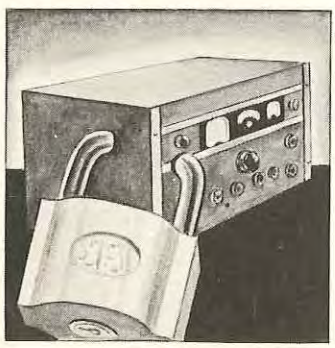
A simple switch makes the AR-88 adaptable to all voltage ranges. A handy converter socket puts it to work on battery or vibrator power supply. It covers short wave, standard broadcast and CW service.

Anywhere covers a lot of territory. So does World War II, war of communications. The AR-88 operates *anywhere*.

With Power to Spare . . .

TWELVE tuned I-F circuits; automatic noise limiter whose performance is remarkable; optimum coupling with antenna or transmission-line impedance of 200 ohms; completely shielded tuning condenser; magnetite core I-F's—these are among the special characteristics giving the AR-88 its extraordinary, *wartime* sensitivity and selectivity.

A number of features such as rugged construction of parts and wiring particularly in the high-frequency heterodyne oscillator circuit; temperature compensation; proper oscillator excitation; and the new flexible condenser mounting, eliminating the effects of chassis distortion, give the AR-88 its extraordinary, *wartime* stability.

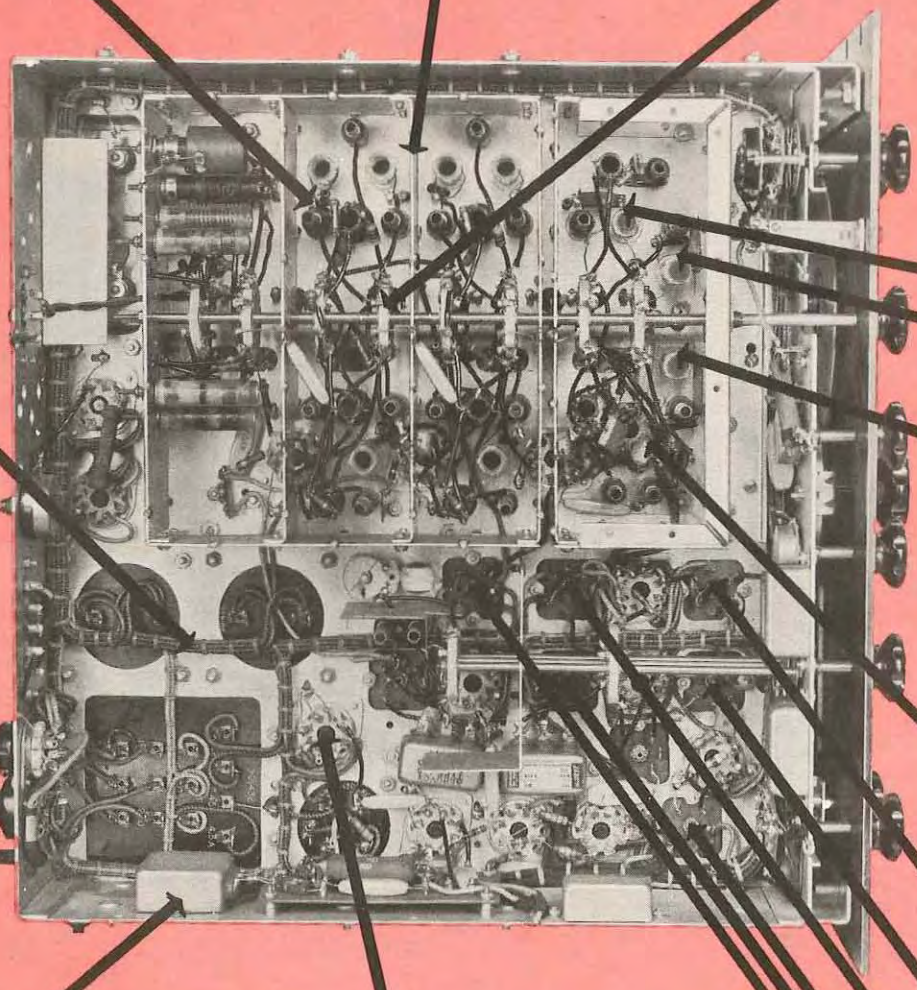


Brings in the Signal and **LOCKS** *it in!*

ANYWHERE, with power to spare, tune the signal in—and the AR-88's Dial Lock keeps it locked in. Technical specifications on the Dial Lock may read: "For service under extreme conditions of vibration". You know what that may mean, for men of courage in time of crisis. A steady signal may mean life or death.

The Dial Lock is not a gadget. It is a purposeful bulwark of the all-out AR-88 quality—dependability.

ge IN TIME OF CRISIS



Ceramic. insulated trimmers throughout.

Individual stages completely shielded.

Ceramic wafers on range switch.

Laced cable wiring. Aids durability, dependability.

Polystyrene coil forms on the 3 HF bands.

All-voltage tap switch. Permits instant operation all voltage ranges.

One of 6 bands each separately temperature-compensated.

Oil-impregnated, hermetically sealed, by-pass condensers.

Ceramic sockets. Feature of tropic-arctic insulation.

Twelve tuned I-F circuits. Contribute to remarkable performance.

BACK OF THE RCA BADGE OF DEPENDABILITY

The AR-88 is a war job. It comes from battle requirements, from war-sharpened research, from full participation by RCA in the war program of production of communications equipment. It has a heritage worthy of its opportunity.

Back of the AR-88 and its badge of dependability are years of RCA radio pioneering, accomplishments in widely diversified fields of sound, continued high standards that made RCA, as a complete organization, ready to help fight the war of communications on its many fronts.

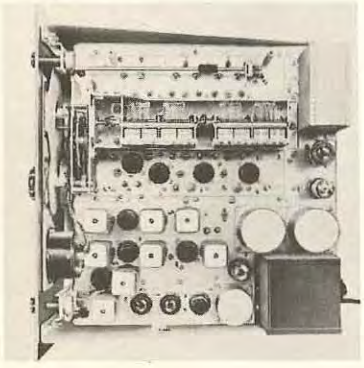
Only RCA could have made a receiver as distinctly advanced as the AR-88.

IN BRIEF: RCA MODEL AR-88 has all THESE FEATURES

- **Twelve tuned I-F circuits affording extraordinary selectivity.**
- **Temperature-compensated oscillator circuits on all bands.**
- **Ceramic insulation and special impregnation throughout for maximum stability under all conditions of temperature or humidity change.**
- **Completely shielded oscillator section practically eliminates oscillator radiation.**
- **Dial Lock—keeps the signal locked in.**
- **Automatic Noise Limiter—automatically limits interference to a modulation percentage determined by the noise limiter control.**
- **100:1 ratio "spinner" tuning makes bandspreading possible on all bands.**
- **Continuously variable high-frequency Tone Control.**
- **Antenna Trimmer for circuit alignment.**
- **Crystal Filter for ultra-sharp selectivity when required.**
- **Field-Strength Meter calibrated in Db's above one microvolt. (Meter not available for duration.)**
- **Exceptional oscillator stability through normal variations in line voltage.**
- **Special Condenser Mounting—prevents detuning due to chassis distortion.**
- **Four-Gang Condenser gives high image-ratio on all bands.**
- **Tap Switch—permits instant change to any normal voltage requirement.**

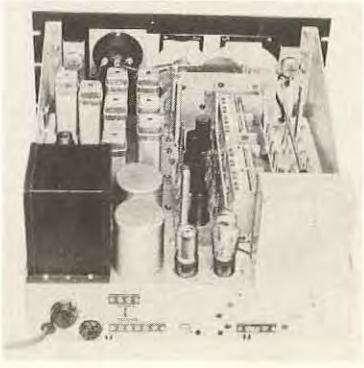
The highly perfected *noise limiter* circuit of the AR-88 has been tried and proved in many thousands of automobile receivers. It is remarkably effective in limiting the noise of automobile ignition, as well as other electrical impulses of high amplitude and short duration, thus making signals intelligible through such local interference.

The receiver can be adjusted for operation at the required noise limitation, making it possible for the operator to gain maximum reduction of interference. The noise limiter control adjusts the modulation at which the noise limiter circuits begin to operate. The noise limiter may be switched in or out—on manual or automatic control.



Calibrated Bandspread has been provided and each calibration scale extends nearly to the full rotation of the dial, spreading out the band calibration for "split-kilocycle" readings. 100:1 "spinner" tuning makes bandspreading possible on all bands. The *Vernier Dial* permits the logging of 4400 divisions on each band; only one control is set to retune to a prelogged station. *Six Bands* offer a frequency range from 540 to 32,000 kcs. *Image rejection* has been greatly improved by the accumulative benefits of excellent "front-end" (R-F) selectivity; through the use of *two* tuned R-F stages on each band, high "Q" circuits, optimum L/C ratio and proper shielding. Image ratio of approximately 200:1 at 30 mc. is obtainable with proper input load. Also, I-F rejection on the brodcast band is increased by the use of a special wave trap.

Another outstanding characteristic of the AR-88 is the ingenious construction of the front panel, which is an *integral part of the chassis*, rather than of the cabinet, permitting easy removal of the chassis for servicing or rack mounting.



RCA AR-88

(MI-17090)

TECHNICAL SPECIFICATIONS

Input Power 100 v. to 260 v., 50/60 cycles, Single Phase

CIRCUIT: Fourteen-tube superheterodyne; two stages R-F amplification, first detector, first heterodyne oscillator; three stages I-F amplification, second detector, noise limiter, second heterodyne oscillator, A-F amplifier stage, output power stage and power-supply system.

FREQUENCY RANGE: 540 to 32,000 kc. (555 to 9.37 meters) divided into six bands with individual coils.

TUBE COMPLEMENT: Five RCA 6SG7, R-F and I-F amplifiers; 1 RCA 6SA7, first detector (converter); 1 RCA 6J5, oscillator; 1 RCA 6H6, second detector; 1 RCA 6H6, noise limiter; 1 RCA 6SJ7, A-F amplifier; 1 RCA 6K6GT, power amplifier; 1 RCA 6J5, beat frequency oscillator; 1 RCA 5Y3GT, rectifier; 1 RCA VR150, voltage regulator.

INSULATION: Polystyrene for the three highest frequency R-F bands and high-grade Bakelite on the other three bands and the I-F's; ceramic insulation throughout on gang condenser, sockets, selectivity switch, and range switch. Special insulation or impregnation on all component parts for tropic or arctic service.

CONTROLS:

Tuning Lock.

Control Switch with four positions: Starting counter-clockwise these are:

1—Power Off.
2—Transmit (energizes tube filaments; opens plate circuits and shorts terminals for transmitter relay on the speaker terminal board on back of chassis).
3—Normal reception.
4—CW reception; (beat-frequency oscillator turned on).

Selectivity Switch: Starting counter-clockwise these are:

1—I-F band width for high fidelity, modulated reception.
2—I-F band width for normal, modulated reception.
3—Crystal filter in (for CW telegraph or sharp, modulated, signal reception).
4—Crystal filter in (for sharper CW telegraph reception).
5—Crystal filter in (for sharpest CW telegraph reception).

Noise Limiter—AVC Switch. Noise Limiter Control. R-F Gain Control. Tone Control. Beat-frequency Oscillator Control. Antenna Trimmer. Audio Gain Control. Tuning Control. Range Switch.

TERMINALS: Antenna and ground or transmission line, transmitter relay, speaker, AVC (for diversity connection), headphone jack (front panel), power cord.

DIAL: 100:1 "spinner" tuning: possible to log 4400 divisions on each of its six bands. Combines ease of tuning and maximum legibility.

RANGE SWITCH: Multi-point rotary switch with self-cleaning contacts and ceramic insulation.

POWER SUPPLY: Power-pack mounted on the receiver chassis consists of transformer, rectifier tube (RCA 5Y3GT) and filter.

TAP SWITCH: A tap switch on the rear apron provides for instant operation from any of the following voltage ranges: 100-120, 115-135, 135-165, 190-230 or 220-260. The normal voltage for which the switch is set is read directly on the switch. Also can be operated from six-volt "A" and 250 to 300-volt "B" batteries, or from six-volt vibrator Power Unit (RCA MI 8319) which can be purchased separately.

TUNING METER: Dial calibrated in Db's above one microvolt. (Meter not available for duration.)

SHIELDING: Interstage shielding is provided to assure stability under all operating conditions. Complete external shielding prevents coupling to any portion of the circuit, except through the antenna circuit. Complete internal shielding practically eliminates oscillator radiation.

TERMINAL IMPEDANCE: Antenna input, designed to match a 200-ohm transmission line, except on the broadcast band where a low-frequency primary (200 MMF) antenna is used.

Audio output, 2.5 ohms (for speaker voice coil) and 600 ohms.

OVERALL DIMENSIONS: Width, 19¼"; height, 11"; depth, 19¼".

ACCESSORIES: The AR-88 is supplied complete with tubes and built-in power supply. For six-volt vibrator power unit order RCA MI 8319.

For loudspeaker order RCA MI 8303-D; eight-inch dynamic, permanent magnet, voice coil impedance 2.2 ohms at 400 cycles. Overall dimensions (mounted): Width, 11½"; height, 10½"; depth, 6".

Use any standard headphone.

SHIPPING INFORMATION

Gross Weight (Export Packing) 135 lbs.
Gross Weight (Domestic Packing) 105 lbs.

OTHER RCA WAR CONTRIBUTIONS

OTHER RCA products are in the war alongside of its communications equipment.

From the great pool of RCA research and production experience is coming a vast legion of products, each doing its part to help fighting men. RCA was ready with this research and production experience. So that legion of products began to move to the United Nations with speed and precision.

TUBES, loudspeakers, broadcasting equipment, film sound, communications receivers, the Electron Microscope—these and other RCA products and services are under arms and at battle stations.

On the home front too, in training camps, war plants, on railroads and in shipyards, RCA equipment is doing many jobs that speed material to the war fronts.

WHEN peace comes with victory and the complete story of RCA in the war can be told, it will be amply demonstrated how well the organization lived up to the pledge made by David Sarnoff, president of RCA, at the laying of the cornerstone of the RCA Laboratories: "To the preservation of the social and economic freedom of all liberty-loving peoples—we pledge the work of these Laboratories."

DESERVES A PAGE BY ITSELF IN COMMUNICATIONS HISTORY

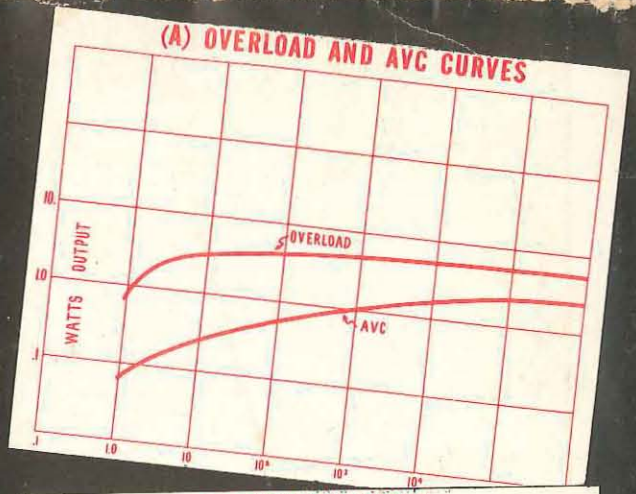
For Design · Performance Stamina · Above the Call of Duty

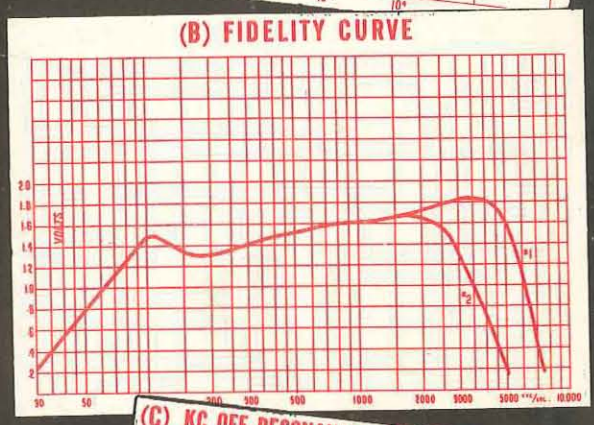
The charts on this page record three of the extraordinary performance qualities of the AR-88.

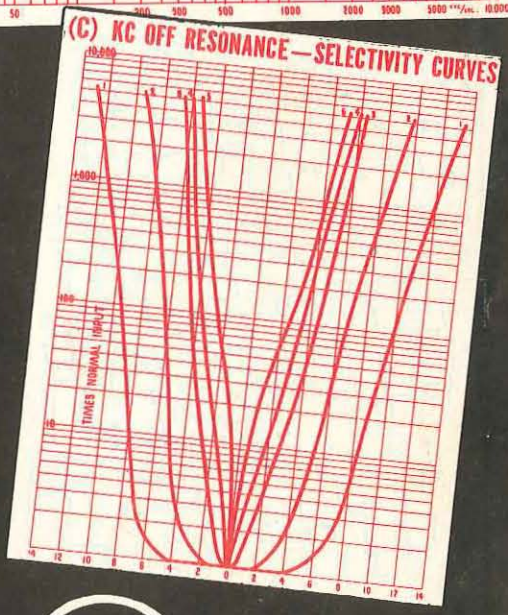
They show: (A) the Overload and AVC Curves; (B) the Fidelity Curve, with the #1 curve in the chart showing the selectivity switch in the broadband (#1) position, and the #2 curve showing the selectivity switch in the normal (#2) position; (C) Kilocycles off Resonance, the Selectivity Curves.

In performance, stamina, design, this RCA receiver provides a margin of dependability far above established limits. Its image ratio, for example, is approximately 200 to 1 at 30 mc.; it is better than 1,000,000 to 1 in band #1. In frequency stability with respect to temperature change, its performance is better than 30 parts per million per degree Centigrade.

The AR-88 deserves a page by itself in communications history. It occupies that page now and will continue to hold it, above the call of duty, as an instrument of Victory for the United Nations.







FOR MEN OF COURAGE IN TIME OF CRISIS

RCA AR-88

RCA VICTOR DIVISION

RADIO CORPORATION OF AMERICA

CAMDEN, N. J., U. S. A.

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