

NATIONAL RADIO COMPANY, INC.

HRO 600

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600**

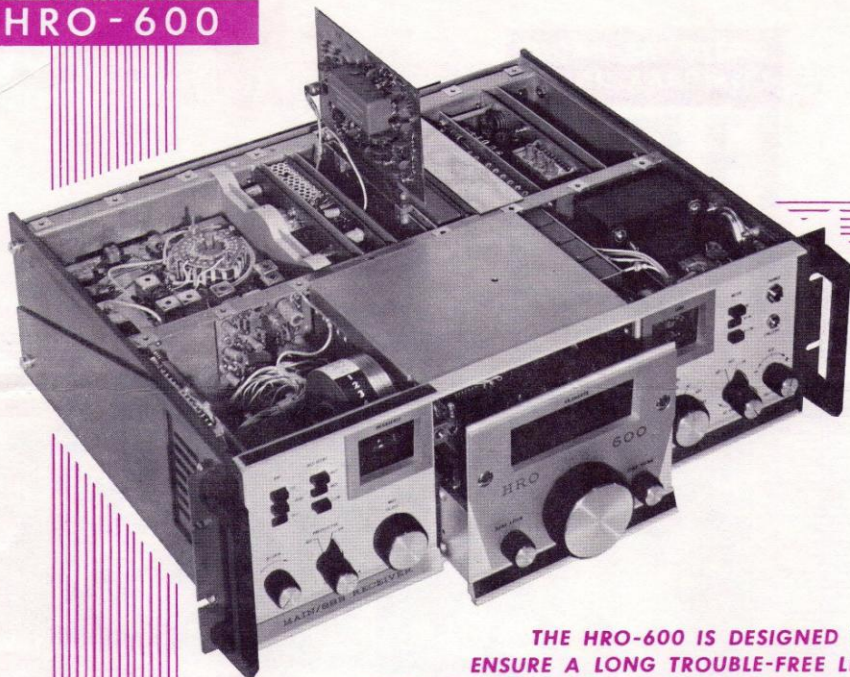


**THE VLF-HF
FULL COVERAGE RECEIVER**



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HRO-600



**THE HRO-600 IS DESIGNED TO
ENSURE A LONG TROUBLE-FREE LIFE
UNDER ADVERSE ENVIRONMENTAL CONDITIONS**

SOME OF THE HIGH-POINTS OF THIS DESIGN ARE

■ UNSURPASSED RUGGEDNESS

One-piece, dip-brazed chassis with minimal requirement for structural support hardware

Aluminum construction, electrically coated for superior corrosion resistance

Shock resistant

Vibration proof

No sheet metal or self-tapping screws

■ EASY MAINTENANCE

Major subassemblies are interchangeable and replaceable

Plug-in modules may be extended for easy access to all components

■ HIGH RELIABILITY

Conservatively designed solid-state circuitry

Carefully selected space-age components augmented by the use of teflon-insulated wire, and glass-epoxy printed circuit boards

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MAIN FRAME CONTROLS AND FACILITIES

FRONT PANEL	REAR PANEL
<ul style="list-style-type: none"> ● ANT attenuator pushbutton ● ANT impedance selector pushbuttons ● AGC decay time constant selection pushbuttons ● AGC on-off switch ● MHz select switch and indicator 	<ul style="list-style-type: none"> ● Mixer injection input/output connectors ● Audio output terminals ● AGC drive output terminal ● AGC bus terminal
<ul style="list-style-type: none"> ● AF and RF gain controls ● Mode selector ● BFO pitch control ● BFO on-off switch ● Line level control ● Meter ● Meter selection pushbuttons (Cal/RF in/Line level) ● Phones jack 	<ul style="list-style-type: none"> ● Antenna input terminal ● IF output terminal ● Power input connector ● Receiver muting terminals ● External frequency standard input connector ● Spare terminals

ACCESSORIES

TWO FREQUENCY CONTROL PLUG-INS

- Type 601 VFO (SEARCH)
- Type 602 Synthesizer

ACCESSORIES CURRENTLY AVAILABLE

- Type 610 DC Power Supply
- Rack Mounting Brackets
- Type 650 FSK Converter



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SPECIFICATIONS

- **FREQUENCY COVERAGE:** 16 kHz to 30 MHz in 30 one - MHz bands.
- **RECEPTION MODES:** A0, A1, A2, A3, A3a, A3i, A3h, (AM, CW, MCW, SSB) F1 (FSK) with optional Type 650 FSK Converter or external audio equipment, F4 (FAX) with external audio equipment.
- **CRYSTAL FILTER SELECTIVITIES:** Nominal 6 dB bandwidths
8, 2, 1, .350 kHz
USB and LSB 2.4 kHz
- **FREQUENCY CONTROL:** By synthesis of first injection (in 1 - MHz bands) and VFO continuous tuning or full synthesis option available.
- **STABILITY W/TYPE 601 PLUG-IN:**
Vs. temperature - drift less than 1000 Hz from 0 - 50°C.
Vs. time - less than ±20 Hz change in 15 minutes after 30-minute warm-up.
Vs. line voltage change - less than ±20 Hz change for ±15% line change.
- **STABILITY W/TYPE 602 PLUG-IN:**
Vs. temperature from 0 - 50°C - less than ±1PPM.
Vs. time - less than 1PPM per year.
- **TUNING ACCURACY:** <±50 Hz, (Type 601); <±10 Hz for Type 602) after frequency standard calibration.
- **BFO:** Tunable ±3 kHz for A1 mode; synthesized for SSB operation.
- **SENSITIVITY:** 0.75 uV (EMF) for 10 dB S+N/N ratio in 2.4 kHz bandwidth (approx. 12 dB noise figure).
- **RF INPUT IMPEDANCE:** 50Ω, unbalanced, or High-Z, as selected by front panel pushbuttons.
- **SPURIOUS RESPONSES:** Image rejection, IF rejection, and secondary image rejection each > 90 dB.
- **AGC MERIT:** <10 dB output - level change for input - level change from 3 uV - 1V (EMF).
- **AGC TIME CONSTANT:** Selectable at front panel. Decay - FAST (100 msec), MED (500 msec), SLOW (2 sec). Attack time constant approx. 15 msec.
- **AUDIO OUTPUTS:** Speaker output - 1 watt at <10% distortion; line output - 600Ω impedance level at +0 dBm, with <2.5% distortion.
- **AUDIO FREQUENCY RESPONSE:** Flat within 3 dB from 200 Hz to 4.5 kHz.
- **RF SELECTIVITY:** Tunable preselector covering 16 kHz to 30 MHz range.
- **IN-BAND INTERMODULATION:** The in-band products produced by two 100 mV tones are nominally >40 dB down at audio terminals at a line output level of 0 dBm.
- **BLOCKING:** A 0.1 V (EMF) interfering signal will cause <3dB drop in output when spaced 5 kHz away from a 1000 uV (EMF) desired signal.
- **CROSS MODULATION:** The cross modulation produced by a 30 mV (EMF) signal at a spacing of 10 kHz, will be >30 dB below the desired output of a 1000 uV (EMF) signal.
- **FRONT END INTERMODULATION:** Any two 0.1 V (EMF) signals at frequencies to produce 1 M products (one signal may be as close as 30 kHz from desired frequency), will not produce an output equal to that caused by a desired 30 uV (EMF) signal.
- **PROTECTION FROM EXCESSIVE RF VOLTAGE ON ANTENNA:** Withstands 30 V (EMF) for 15 minutes without damage.
- **SIZE AND WEIGHT:** 5¼" H x 17" W x 15½" D. Weighs <40 lbs. Capable of rack - mounting.
- **OPERATING TEMPERATURE RANGE:** -20°C to +55°C.
- **HUMIDITY:** To 95%.
- **SHOCK:** Test condition A of MIL-STD-202, method 205 (15G).
- **VIBRATION:** MIL-STD-167.

The HRO-600, with both the Type 601 and Type 602 Plug-In Units, has been approved in the United Kingdom as a ship's main/SSB receiver to specification MPT 1201 (proposed).

It is the policy of National Radio Co., Inc. to continuously upgrade its products. The above performance specifications are therefore subject to change without notice.

