

**NATIONAL RADIO COMPANY, INC.**  
**HRO 600**



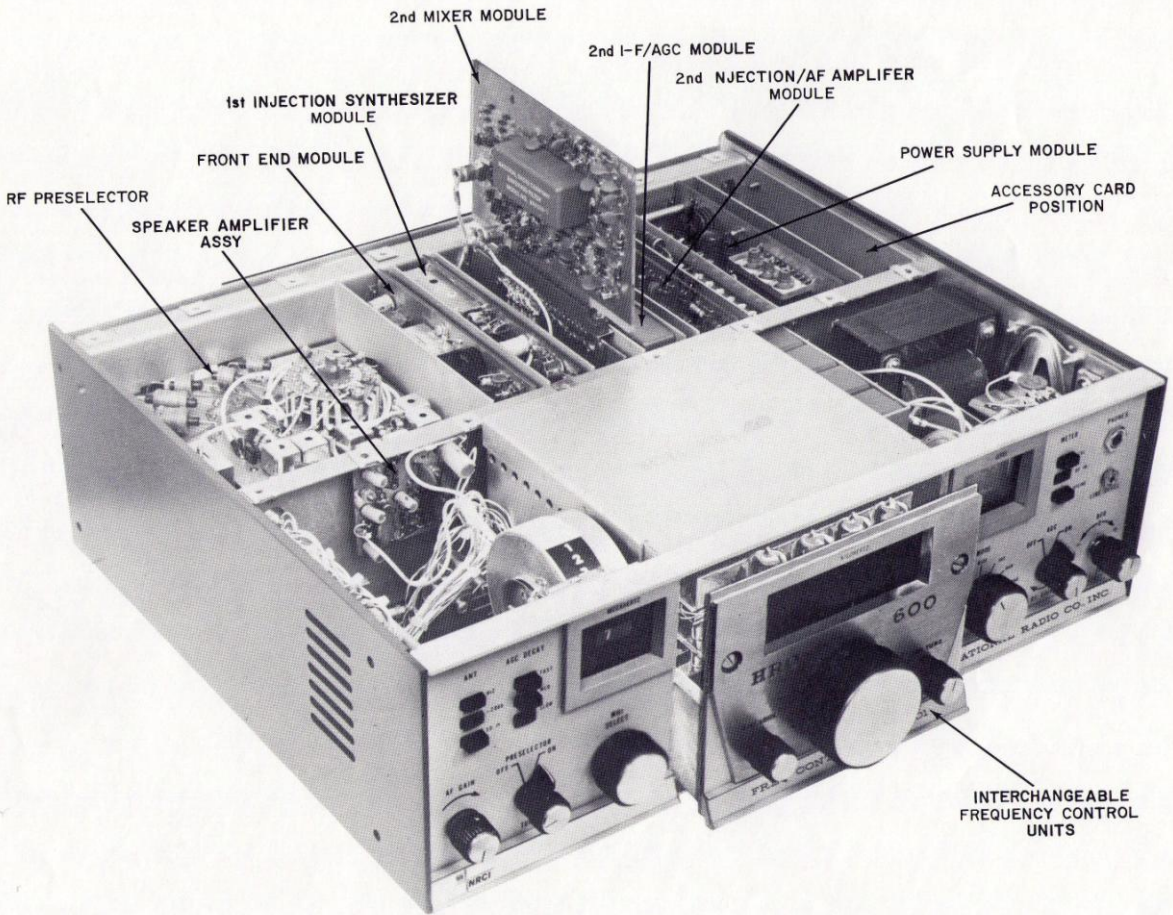
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# RADIO RECEIVING SET HRO-600

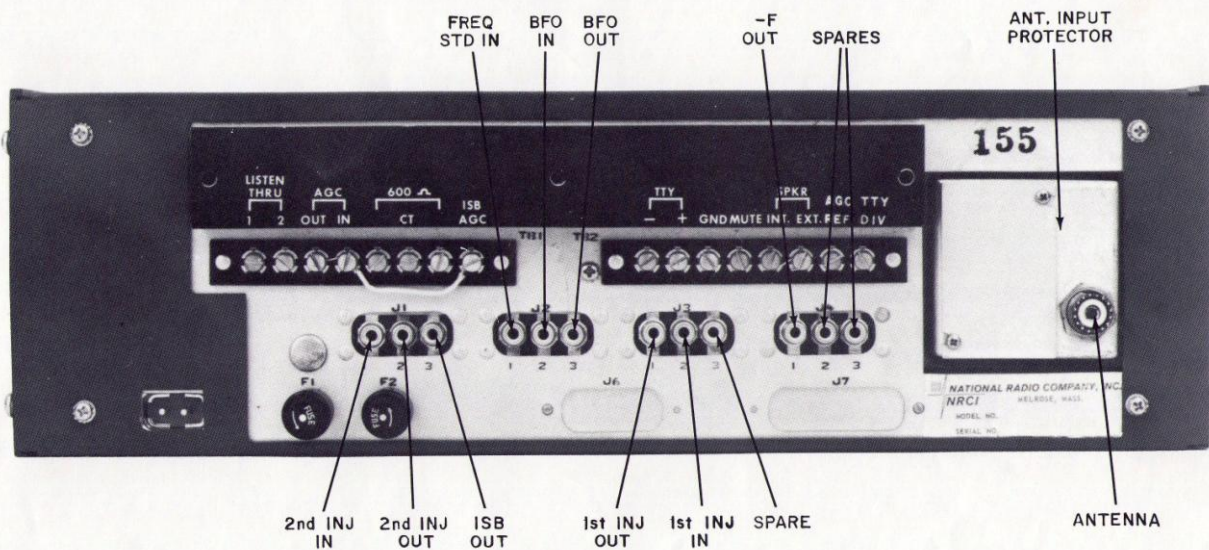
**A Top Quality Receiving System At The Right Price. —  
A \$10,000 Value For \$5,600. — More Performance Per Dollar  
Than Any Other World Class Receiver.**

- The HRO-600 offers several varieties of search and fixed frequency tuning heads. All tuning heads are easily interchangeable on the front panel of any HRO-600 chassis.
- The HRO-600's FINE TUNE mode allows tuning to a fraction of 1 Hz with no loss of stability.
- The HRO-600 offers normal reception modes, as well as optional independent side band and diversity reception.
- The HRO-600 is extremely stable — drift is less than one part in one hundred million.
- Excellent RF selectivity from 16 kHz to 30 MHz is provided by a built in tunable, preselector
- Typical applications: Military, Para-Military, Commercial Communications, Main-Ships Receiver, International Monitoring, Liminology, Frequency/Time Measuring, Laboratory Instrumentation, Process Control, etc.
- High precision/high performance, solid state general coverage communications receiver
- High stability, sensitivity and selectivity
- The most versatile receiver available on the market.
- Enables the user to custom design his receiver to meet his specific needs.
- Time tested and proven under the demanding requirements encountered in the field.

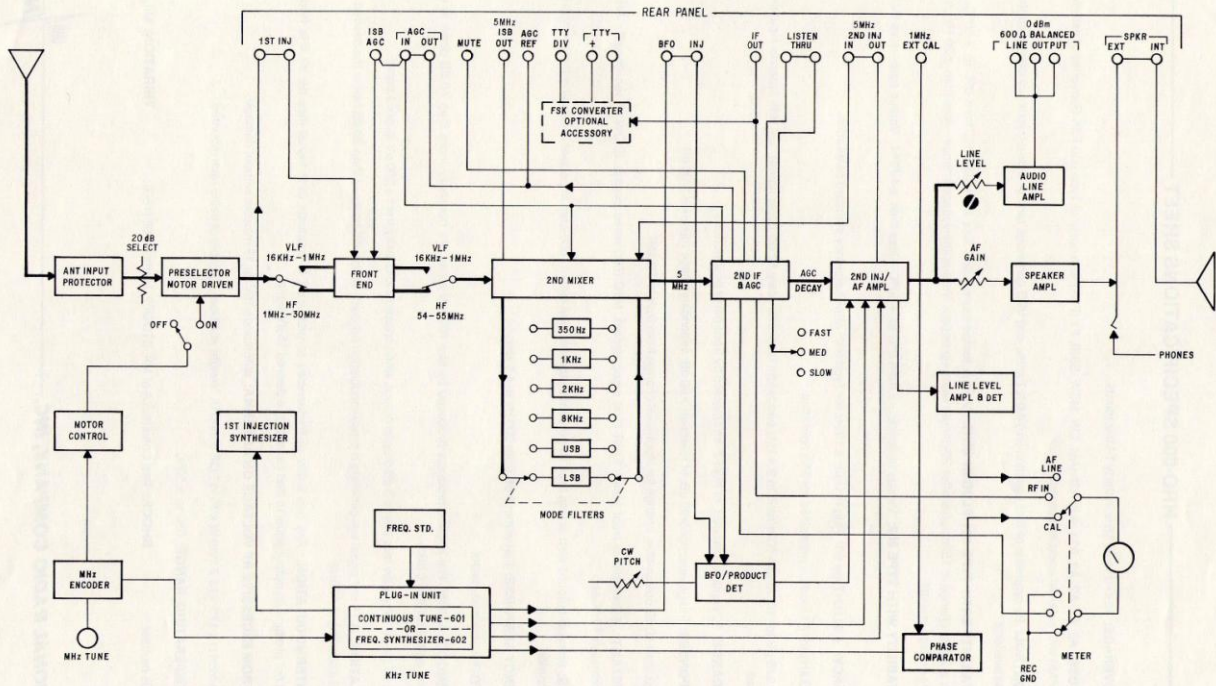
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HRO 600  
SIMPLIFIED BLOCK DIAGRAM

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## HRO-600 SPECIFICATIONS SHEET

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**FREQUENCY COVERAGE:** 16 kHz to 30 MHz in thirty 1-MHz bands.

**RECEPTION MODES:** A0, A1 A2, A3, A3a, A3j, A3h (AM, CW MCW SSB), F1 (FSK) with optional Type 650 FSK Converter of external audio equipment, F4 (FAX) with external audio equipment.

**FREQUENCY CONTROL.** By synthesis of first injection (in 1-MHz bands) and VFO continuous tuning. Fixed-frequency crystal control or full synthesis options available.

**FREQUENCY STABILITY WITH TYPE 601 PLUG-IN UNIT:** Versus temperature—drift less than 1000 Hz from 0°C to +50°C. Versus time—less than  $\pm 20$  Hz change in 15 minutes after 30-minute warm-up period. Versus line-voltage change—less than  $\pm 20$  Hz change for  $\pm 15$ -percent line-voltage change.

**FREQUENCY STABILITY WITH TYPE 602:** Versus temperature from 0°C to +50°C—less than  $\pm 1$  PPM Versus time—less than 1 PPM per year

**TUNING ACCURACY:**  $\pm 50$  Hz (Type 601 Plug-In Unit;  $\pm 10$  Hz for Type 602) after frequency standard calibration.

**BFO:** Tunable  $\pm 3$  kHz for A1 mode; synthesized for SSB operation.

**SENSITIVITY:**  $0.375 \mu\text{V}$  for 10 dB (S+N)/N ratio in 2.4 kHz bandwidth (approximately 12 dB noise figure).  $\mu\text{V}$  with antenna input protection circuits bypassed.

**RF INPUT IMPEDANCE:** 50 ohms, unbalanced, or high-Z, as selected by front-panel pushbuttons.

**SPURIOUS RESPONSES:** Image rejection  $>90$  dB; i-f rejection  $>90$  dB; secondary image rejection  $>90$  dB

**AGC MERIT:** Less than 10 dB output-level change for input-level change from  $3 \mu\text{V}$  to .05 volt.

**AGC TIME CONSTANT:** Selectable at front panel. FAST (100 msec decay), MED (500 msec decay), SLOW (2 sec decay). Attack time constant approximately 15 msec.

**AUDIO OUTPUTS:** Speaker output-1 watt at less than 10-percent distortion; Line output 600-ohm impedance level at  $\pm 0$  dBm, with less than 2.5-percent distortion.

**AUDIO FREQUENCY RESPONSE:** Flat within 3 dB from 200 Hz to 4.5 kHz.

**RF SELECTIVITY:** Tunable preselector

**IN-BAND INTERMODULATION:** The in-band products produced by two 100 mV tones are nominally more than 40 dB down at the audio terminals at a line output level of 0 dBm.

**BLOCKING:** A 0.05 signal will cause less than a 3 dB drop in output, when spaced 5 kHz away from a  $500 \mu\text{V}$  desired signal.

**CROSS-MODULATION:** A 15 mV signal will generate a cross-modulation product, which will be more than 30 dB below the desired output of  $500 \mu\text{V}$  signal at a spacing of 10 kHz.

**FRONT END INTERMODULATION:** Any two 0.05V at frequencies to produce I M products (one signal may be 30 kHz from desired frequency), will not produce an output equal to that caused by a desired  $15 \mu\text{V}$  signal.

**PROTECTION FROM EXCESSIVE RF VOLTAGE ON ANTENNA:** Withstands 15V for 15 minutes without damage.

**SIZE:**  $5\frac{1}{4}$ " (13.3 mm) H x 17" (43.2 mm) W x  $15\frac{1}{2}$ " (38.6 mm) D. Weight <40 lbs. Capable of being rack mounted.

**OPERATING TEMPERATURE RANGE:** 0°C to  $\pm 50$ °C.

**HUMIDITY:** To 95 percent.

**SHOCK:** Test Condition A of MIL-STD-202, Method 205 (15G).

**VIBRATION:** MIL-STD-167

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