R-5000 COMMUNICATIONS RECEIVER

The R-5000 is a competition class communications receiver with superior dynamic range, having every conceivable feature, and is designed to receive all modes (SSB, CW, AM, FM, FSK) from 100 kHz to 30 MHz. With the optional VC-20 “VHF Converter Unit” coverage of the 108-174 MHz frequency range is provided. Advanced microprocessor technology controls various features, including dual digital VFOs, 100 memory channels, memory scroll, memory and programmable band scan, superb interference reduction and other features for ease of operation to enhance the excitement of listening to stations around the world.

<Features>

Covers 100 kHz to 30 MHz in 30 Bands. Optional 108 to 174 MHz Coverage (VC-20)
The R-5000 covers 100 kHz to 30 MHz in 30 bands. An innovative digital PLL synthesizer system provides outstanding frequency stability and accuracy. Through the use of advanced microprocessor technology, frequency, band and mode data of stations in the 108 to 174 MHz range may be tuned, displayed, stored in memory, recalled, and scanned. This is accomplished by using the R-5000 front panel controls and frequency display, which allows maximum convenience and ease of operation.

Superior Dynamic Range Receiver Circuit
The RF circuits have been specifically designed to provide superior dynamic range. Use of 2SK125 junction-type FETs in the high sensitivity direct balanced mixer circuit results in outstanding two-signal characteristics accompanied by a substantially improved noise floor level. Kenwood's exclusive DynaMix high sensitivity mixing design ensures true intermodulation dynamic range of 102 dB. The overall intercept point is 15 dBm, noise floor level -138 dBm (14 MHz, 500 Hz band width, 50 kHz spacing).

High Stability Frequency Control
The R-5000 uses a microcomputer controlled digital PLL circuit which controls frequency in 10 Hz steps using a single crystal oscillator providing accurate and stable frequency control. This reference frequency is accurate to ±10 ppm between −10°C and +50°C.

All-Mode Operation
Modes of operation include SSB, CW, AM, FM and FSK. Mode selection is quickly accomplished through use of front panel mode keys. An LED and International Morse Code confirms the selected mode. ["L" for LSB, "F" for USB, "C" for CW "A" for AM, "R" for FM, and "R" for FSK (RTTY)]

10 Hz Step Dual Digital VFOs
Built-in 10 Hz (100 Hz in AM, FM mode) step dual digital VFOs operate independently of each other, allowing ease of operation in different modes or frequencies without the need for separate VFO. An "A/B" switch selects either the VFO A or VFO B. An "A=B" switch makes it possible to quickly duplicate the tuning data programmed into the active VFO, and the data banks of the inactive VFO. Selection of the frequency step is accomplished by utilizing the "STEP" switch, as illustrated in the following table:

Outstanding Receiver Performance and Sensitivity Specifications
The R-5000 has been specifically designed to provide high performance receiver specifications in sensitivity, selectivity and stability with superior dynamic range, using the latest technology. This assures reliable reception across its wide frequency range, in every mode.

Dual High and Low Impedance Antenna Terminals (high/low)
A low impedance (50 ohms) terminal and a high impedance (50/500 ohms) connector is provided. The selector switch is located on the front panel. The antenna terminal selection information may be stored in any of the 100 memory channels.

Superb Interference Reduction
(1) Dual IF Crystal Filter Improves SSB Operation
The optional YK-88SN SSB filter is provided. The selector switch permits the already excellent signal-to-noise ratio and selectivity.

(2) IF Shift Circuit
Allows the IF passband to be moved away from interfering signals without the need for separate VFO. An "A=B" switch makes it possible to quickly duplicate the tuning data programmed into the active VFO, and the data banks of the inactive VFO. Selection of the frequency step is accomplished by utilizing the "STEP" switch, as illustrated in the following table:

Selectible IF Filters
The R-5000 offers a fully flexible system of IF filter selection when optional filters are installed. The front panel selectivity switch may be set to "AUTO", in which case the optimum filter bandwidth is automatically chosen for the mode selected, e.g. YK-88A-1 for AM, YK-88SN for SSB, YK-86C or YK-86CN for CW, or the selectivity switch may be used to select filters manually. These selections allow the operator to choose alternative bandwidths for optimum reception.
Dual-Mode Noise Blanker ("Pulse" or "Woodpecker")
The noise blanker consists of two circuits, NB-1 and NB-2; each activated by its own front panel switch. NB-1 is most effective in suppressing pulse-type (ignition) noise. NB-2 is most effective in suppressing noise of a longer duty cycle nature, such as the so-called "woodpecker" type interference.

Keyboard Frequency Selection
The VFO frequency may be directly entered by using the front panel number keys. Simply press the "ENT" key, followed by the desired frequency.

100 Memories Store Frequency, Band, Mode and Antenna Terminal
100 memory channels allow storage of frequency, band, mode and antenna terminal selection information, providing increased convenience with simplicity of operation. They are divided into 10 groups of 10 channels each.

Memory Scroll
A convenient "memory scroll" function may be used to check memory channel data or to find the vacant channel data without changing operating frequency and mode.

Memory Scan and Programmable Band Scan
During memory scan or programmable band scan, scanning may be programmed to stop automatically on a busy channel. The scanning will stop on the channel, hold for approximately 6 seconds, and then resume scanning.

(1) Memory Scan Plus Programmable Memory Channel Lock-Out
Any or all 100 memory channels may be scanned. Programmable memory channel lock-out allows selected channels to be skipped during scan without loss of data stored in that channel.

(2) Programmable Band Scan Plus Center Stop Function
Scanning any frequencies between channels 8 or 9 is possible. During band scan, scanning action will stop in the center of the selected channel (5 kHz step), making it easy to listen to the correct frequency without the need for programming the scan steps.

Dual 24-hour Quartz Clocks, with Timer
Dual 24-hour quartz clocks are built-in for two different time zones, such as local and universal (UTC) time. A built-in timer provides ON and OFF programming, and remote control output (form the timer does not control AC power) is provided on the rear panel remote terminal.

Optional VS-1 "Voice Synthesizer Unit"
The optional VS-1 "Voice Synthesizer Unit" announces the operating frequency on demand by depressing the front panel "VOICE" key.

Optional Personal Computer Control (IF-232C/IC-10)
The interface unit is compatible with computers with an accessible RS-232C port. The computer interface allows computer control of all digital front panel controls. Software is not available from KENWOOD.

Rechargeable Memory Back-Up Battery
Memory and VFO information is powered by a long life rechargeable lithium battery.

Built-In AC Power Supply and Optional 13.8 VDC Operation
AC power supply voltages of 120, 220 and 240 VAC, 50/60 Hz, may be selected (USA version 120 VAC 50/60 Hz only). The R-5000 may also be operated from a 13.8 VDC supply, using the optional DCK-2 DC power cable kit.

Large Top-Mounted Speaker
A large, 4-inch (10 cm) speaker is top-mounted, providing excellent sound quality.

Switchable AGC Switch (Fast/Slow)
The automatic gain control (AGC) is activated by a 2 position (FAST/SLOW) switch, to provide optimum receiver operation in CW, SSB and AM modes, and under all signal strength conditions.

RF Attenuator
The front end includes a 4 step (0, 10, 20 or 30 dB) RF attenuator, for optimum rejection of intermodulation distortion.

"F.LOCK" Switch
The "F.LOCK" switch protects against accidental frequency shift that might occur if the tuning knob were accidentally bumped.
OPTIONAL ACCESSORIES

VC-20
VHF Converter Unit

YK-88A-1
6 kHz AM Filter

YK-88SN
1.8 kHz Narrow SSB Filter

YK-88C
500 Hz CW Filter

YK-88CN
270 Hz Narrow CW Filter

DCK-2
DC power cable kit with cigar lighter plug

AL-1/AL-2
Lightening & Static Protector
* AL-1/AL-2 is not available in U.S.A.

HS-5
Deluxe Headphones

HS-6
Small-size Headphones

HS-7
Micro Headphones

MB-430
Mobile Mount

SP-430
External Speaker

VS-1
Voice Synthesizer Unit

IF-232 C/IC-10
Interface Unit
* Software is not available from KENWOOD.

SPECIFICATIONS

Frequency Range: 100 kHz ~ 30 MHz
(except West Germany and Australia)
150 kHz ~ 30.2 MHz (West Germany)
2 MHz ~ 30 MHz (Australia)
Circuitry: SSB/CW/AM/FSK, Double conversion system
FM: Triple conversion system
Intermediate Frequency: 1st IF = 55 kHz, 2nd IF = 8.83 MHz, 3rd IF = 455 kHz (FM).

Sensitivity

<table>
<thead>
<tr>
<th>Mode</th>
<th>100 kHz</th>
<th>150 kHz</th>
<th>500 kHz</th>
<th>8 kHz</th>
<th>16 kHz</th>
<th>30 kHz</th>
<th>18 MHz</th>
<th>12 MHz</th>
<th>123 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB/CW/FSK</td>
<td>Less than 25 µV</td>
<td>Less than 5 µV</td>
<td>Less than 10 µV</td>
<td>Less than 2 µV</td>
<td>Less than 2 µV</td>
<td>Less than 4 µV</td>
<td>Less than 4 µV</td>
<td>Less than 10 µV</td>
<td>Less than 7 µV</td>
</tr>
<tr>
<td>AM (0% modulation)</td>
<td>Less than 25 µV</td>
<td>Less than 10 µV</td>
<td>Less than 2 µV</td>
<td>Less than 5 µV</td>
<td>Less than 10 µV</td>
<td>Less than 2 µV</td>
<td>Less than 4 µV</td>
<td>Less than 4 µV</td>
<td>Less than 7 µV</td>
</tr>
<tr>
<td>FM</td>
<td>12 dB S/N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selectivity

<table>
<thead>
<tr>
<th>Mode</th>
<th>-6 dB</th>
<th>-50 dB</th>
<th>-60 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB/CW/FSK</td>
<td>2.4 kHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td>6 kHz</td>
<td>20 kHz</td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>12 kHz</td>
<td>25 kHz</td>
<td></td>
</tr>
</tbody>
</table>

Image Ratio: Better than 60 dB (100 kHz ~ 1.8 MHz), 80 dB (1.8 MHz ~ 30 MHz)
IF Rejection: Better than 60 dB (100 kHz ~ 1.8 MHz), 70 dB (1.8 MHz ~ 30 MHz)
Operating Temperature: -10°C ~ +50°C
Frequency Accuracy: ±10 x 10⁻⁴ or better (10°C ~ +50°C)
Squelch Sensitivity

<table>
<thead>
<tr>
<th>Mode</th>
<th>Frequency</th>
<th>Less than 26 µV</th>
<th>Less than 10 µV</th>
<th>Less than 2 µV</th>
<th>Less than 5 µV</th>
<th>Less than 10 µV</th>
<th>Less than 2 µV</th>
<th>Less than 4 µV</th>
<th>Less than 4 µV</th>
<th>Less than 7 µV</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM</td>
<td>100 kHz</td>
<td>Less than 5 µV</td>
<td>Less than 10 µV</td>
<td>Less than 2 µV</td>
<td>Less than 5 µV</td>
<td>Less than 10 µV</td>
<td>Less than 2 µV</td>
<td>Less than 4 µV</td>
<td>Less than 4 µV</td>
<td>Less than 7 µV</td>
</tr>
</tbody>
</table>

Audio Load Impedance: 8 Ω
Audio Output Power: 1.5 W (10% distortion)
Antenna Impedance: 50 Ω (500 kHz)
Power Consumption: 40 W AC, 13.8 VDC, 2A (with optional DCK-2)
Power Requirements: 120/220V AC, 50/60 Hz
U.S.A. Version: 120 VAC 60 Hz
Dimensions: 270 (10.6) W x 96 (3.78) H x 270 (10.6) D mm (inch)
Weight: 5.6 kg (12.3 lbs) approx.

* With option VC-20 VHF Converter Unit

Note: Circuit and ratings are subject to change without notice due to developments in technology.

KENWOOD CORPORATION
Kenwood Shinya Co., Ltd., 175-2 Chome Shinya, Shibuya-ku, Tokyo 150, Japan

KENWOOD Electronics USA, Inc.
5755 Wilshire Blvd., Suite 702, Los Angeles, CA 90036, USA

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Postfach 1100, 5020 Dusseldorf, Germany

KENWOOD ELECTRONICS BENELUX N.V.
Postfach 6001, 1000 Zaventem, Belgium

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
46 Woodcock Place, Lane Cove, NSW 2066, Australia

KENWOOD ELECTRONICS (HONG KONG) LTD.
4th Floor, 34-37, Connaught Road, Central, Hong Kong

9487 870910 0 B Printed in Japan