

# GROVE

*The Best in Service, Quality and Price.*

**(800) 438-8155**

# LET YOUR OLD SCANNER FLY LIKE A NEW ONE!



## MILITARY AIRCRAFT SCANVERTER

Now, hear 225-400 MHz military aircraft communications on your scanner's 118-136 MHz band! Hear 216-225 MHz land mobile and hams as well!

Ideal for monitoring Thunderbirds and Blue Angels air show stunt coordination, military flight training, strategic communications, air-to-ground flight service stations, air-to-air comms, midair refueling and more!

The all-new Grove CVR-4 Scanverter uses a proprietary technique called "bandstacking" to reduce the 175-MHz-wide military aircraft band into an 18 MHz swath to be heard on any scanner with standard aircraft reception.

Assembled with surface mount devices and all-metal case, the CVR-4 offers excellent sensitivity (1 microvolt nom.) and out-of-band interference rejection. The on/off switch bypass function allows the unit to be left in line when not in use.

The CVR-4 Scanverter comes with a universal adaptor kit so that it can be connected directly to a

handheld scanner for portability, or to the rear of a base or mobile scanner (BNC and Motorola adaptors included).

Operates from standard 9-volt alkaline battery (not included).

Order CVR4  
Only  
**\$89.95**

\$5 UPS \$7.50 UPS 2nd Day Air  
\$6 US Priority Mail  
\$9 Canadian UPS  
\$8 Canadian APP

### SPECIFICATIONS

**Frequency Range:** 216-406 MHz  
**Sensitivity:** 1 microvolt  
**Oscillator Frequency:** 18 MHz harmonics  
**Power Required:** Alkaline battery; 9 volt @ 13 mA  
**Connectors:** BNC  
**Dimensions:** 4"H x 1-1/2"W x 2"D  
**Weight:** 6 oz.  
**Bypass Loss:** 2 dB @ 400 MHz, 6 dB @ 800 MHz



Grove Enterprises, Inc., P.O. Box 98,  
300 S. Highway 64 West, Brassstown, NC 28902

January 1 - February 28, 1994

It's always a pleasure when we can offer special savings on quality products to our friends; be sure to look carefully through this catalog for outstanding values! I have personally starred those products which represent an outstanding value, usually because of their popularity, quality of performance and price.

Several new receivers have now emerged from well-known manufacturers. The most luxurious is the HF1000 from Watkins-Johnson, perhaps the most coveted name in federal and military communications. Now, for the first time, they have made their advanced technology available to the consumer at a cost thousands of dollars less than the government versions.

AOR, a prominent Japanese scanner manufacturer whose products were formerly imported only by ACE Communications, has announced their AR3030 general coverage receiver, a tiny marvel with high performance and low cost.

And R.L. Drake, who took the world by storm two years ago with their pre-eminently popular R8, has just released their lower-cost portable SW8 which they unveiled at the *Monitoring Times* convention last October.

That's just the beginning. Look carefully through your new catalog; as always we have brought you the latest and the best, and at an affordable price.



*Bob & Judy*  
Bob and Judy Grove



## GROVE PHONE LINE SERVICES:

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### BUSINESS OFFICE

704-837-9200 (M-F, 9am-5:00pm Eastern)

### DATA LINE/FAX SERVICE

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704-837-5183

## ORDER WITH ABSOLUTE CONFIDENCE

Grove Enterprise prides itself on offering quality products at reasonable prices AND outstanding technical support. In the rare event you should experience some kind of problem with any of the products we manufacture or sell, or should you have a complaint, please call us first at 1-800-438-8155 and we'll do everything we can to keep you as a satisfied customer.

Occasionally a customer will order a product that turns out not to be what he wanted or, perhaps, expected. Simply call our toll-free number, 1-800-438-8155 within thirty (30) days of shipping and we will gladly credit your future purchases, or we'll issue you a refund—your choice!

**ALL RETURNED ITEMS MUST HAVE A RETURN AUTHORIZATION NUMBER — REQUEST ONE FROM A CUSTOMER SERVICE REPRESENTATIVE.**

Of course these returns **must be** received in new condition, otherwise we have to charge a restocking fee according to the invoice value: \$0-\$500 - \$15; \$501-1000 - \$25; \$1000+ - \$35.

### SHIPPING DAMAGES:

Should you receive a damaged shipping carton, ask the UPS driver to wait while you inspect the contents. **IF** there is damage, refuse the package and immediately call us at 1-800-438-8155.

### LIMITED WARRANTY:

All equipment manufactured or modified by Grove Enterprises is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase as shown on the purchaser's receipt. Grove Enterprises may, under this warranty, either repair or replace (at our option) any part which proves defective in material or workmanship, provided the unit has not been modified in any manner or field repairs attempted. Please call us at 1-800-438-8155 for a return authorization number and shipping instructions before returning any item for warranty repair.

Grove Enterprises assumes no responsibility for damages or penalties incurred resulting from the use of this product in a manner or location other than that for which it is intended.

### REALISTIC® EQUIPMENT:

Should any equipment manufactured by Realistic® and sold to you through Grove Enterprises fail within a period of one year from the shipping date, the unit must be returned to Grove Enterprises for warranty repair. Please call us at 1-800-438-8155 for return instructions.

### OTHER WARRANTIES:

On items not manufactured by Grove Enterprises or Realistic®, (ICOM, Uniden, Kenwood, etc.), please check your service manual for instructions or call us at 1-800-438-8155 for the name, address or telephone number for the repair center nearest you.



**Designed and manufactured  
by Grove in the USA!**

**Purchase the SDU-100 package along with  
any compatible receiver in this catalog and  
receive a \$50 discount!**

# GROVE SDU 100 SPECTRUM DISPLAY UNIT

Turn your ICOM R7000, R7100, or R9000 into a powerful spectrum analyzer! Plugs into any receiver or transceiver that has an IF output jack! Enjoy the high-tech advantage of counter-surveillance professionals who depend upon spectrum analyzers to find eavesdropping transmitters ("bugs"). As the "spikes" appear on the screen you can tune them in quickly; no need to wait for the slow, hit-and-miss search of a scanner. A "freeze" function allows you to hold and examine all of the signals present at any moment in time!

Your receiver's tuned signal is the center of the screen, with up to 10 MHz (or as narrow as 100 kHz) of spectrum displayed simultaneously! Nail those unknowns as soon as they transmit! Ideal for locating jammers, identifying sources of radio interference, studying signal propagation, testing antennas, aligning receivers and transmitters, and much more!

Connect the SDU-100 to any TTL monochrome monitor, or order the matching VID-100 9" CRT monitor. 12 VDC powered for mobile or field environment; AC adaptor included (the VID-100 is AC powered).

The SDU-100 is configured to operate with a variety of receiver intermediate frequencies (IFs), including 8.8, 10.7, 21.4, 45 and 70 MHz. The IF or receiver model must be specified at the time of order.



**Best Buy** **Order Today!**

**Special Pricing when you order the SDU-100  
Spectrum Display Unit and VID-100 9" CRT  
Monitor together, only:**

**\$599<sup>95</sup>**

\$12.50 UPS  
\$24 2nd Day Air  
\$26 US Priority Mail  
\$16.50 Canadian UPS  
\$31 Canadian APP

**Ordered separately:**

SDU-100 Spectrum Display Unit **\$499<sup>95</sup>**

VID-100 9" CRT Monitor **\$149<sup>95</sup>**

\$8 UPS  
\$11 2nd Day Air  
\$12 US Priority Mail  
\$11 Canadian UPS  
\$14.50 Canadian APP

\$8.50 UPS  
\$17 2nd Day Air  
\$17.50 US Priority Mail  
\$13.50 Canadian UPS  
\$21.50 Canadian APP

### SPECIFICATIONS

SPAN: 10, 5, 2, 1 MHz; 500, 200, 100, 0 (Time) kHz  
DISPLAY ACCURACY: +/-3% or +/-3 dB, whichever is larger  
RESOLUTION BANDWIDTH: 5, 30 kHz  
SWEEP TIME: 0.1, 0.5, 2, 8 seconds  
IF: 10.7 (others available by special order)  
VIDEO OUTPUT: TTL to optional monochrome monitor  
MINIMUM DETECTABLE SIGNAL (MDS): -130 dBm nom  
DISPLAY DYNAMIC RANGE: 80 dB

*"The most powerful  
tool I have ever  
used for discovering  
new signals."  
Bob Grove*

**The SDU-100 is  
compatible with the  
following receivers:**  
ICOM R7000  
ICOM R7100  
ICOM R9000  
Yaesu FT1000  
Yaesu FRG-100\*  
Kenwood R5000\*  
Drake R8\*  
Drake TR-7\*  
JRC NRD 535D\*  
Mason A2  
Uniden BC-890XLT\*  
Uniden BC-8500XT\*  
Watkins-Johnson HF1000\*  
*\*Requires receiver modification*  
Look for the **SDU**  
SDU icon **100**



## Choosing a Shortwave Receiver

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Choosing a shortwave receiver for your personal use is a lot like choosing a car. You must first decide what basic service you need, then shop for the best buy.

Looking for a good portable? The Sony ICF2010 is the best choice. Featuring keyboard entry of frequencies as well as a tuning dial, the radio offers sensitivity and a choice of wide or narrow selectivity. In addition to 150 kHz-30MHz continuous coverage, the 2010 also offers 118-136 MHz aircraft and 88-108 MHz FM broadcast reception.

The 2010's synchronous detection enhances shortwave reception; single sideband signals are also quite satisfactory. Battery life is much improved over its predecessors and it comes with an AC adaptor. Additional features are found on the new upgraded model SW77, listed in this catalog.

For low cost at reasonable performance, try the Sangean ATS-803A. Continuous 150 kHz-30 MHz AM and SSB reception are offered along with FM broadcast and wide or narrow selectivity. An AC adaptor is included.

If you want pocket portability, forget high quality; the two don't mix. The characteristics of greatest importance to listeners are those which are most commonly compromised in low-cost radios; frequency stability, dial accuracy, selectivity and overload immunity.

The Grove TUN4 preselector will reduce or eliminate overload interference on low cost receivers which suffer from poor dynamic range, and is equipped with connectors for external antennas.

The Yaesu FRG-100 is a pleasing performer at a pleasing price between the low-cost portables and more expensive tabletops. For the serious listener the Drake R8, ICOM R71A, Kenwood R5000 and JRC NRD535 head the list.

## Shortwave Antennas and Accessories

While it is true that any length of wire will pick up signals, a well planned antenna installation will pick them up better. The greatest efficiency of an antenna occurs when its electrical length matches that of the incoming radio wave (resonance). For a given length this only occurs at one frequency and related multiples. It is the job of the antenna designer to come up with the best combination of characteristics for wide frequency coverage.

The "bigger the better" concept has its limitations. Once an antenna is large enough to hear signals above the noise generated by the receiver's own circuitry, further strength is unnecessary. For most applications 20-75 feet is plenty long enough; in

fact, doubling the length of a matched antenna will improve signals by only 3 decibels—half an S unit and barely discernible.

Impedance matching (standing wave ratio-SWR) may be important for transmitting, but is of virtually no concern in receiving. While a perfect match between an antenna and receiver will deliver the greatest signal strength, the background atmospheric noise (hiss and static) will increase proportionately. The net result will be a high S-meter reading, but no better signal readability above the noise.

A wire antenna may be thick or thin, made of any metal, insulated or uninsulated, stranded or solid; it will hear all signals the same. Choose your wire for strength, solderability and corrosion resistance.

An antenna should be as high as possible and away from large metal surfaces and electrical power lines to avoid electrical noise pickup and shock hazard. Indoor antennas often pick up noise from household appliances, although loop antennas may be rotated for minimum interference.

### Recommended Antennas

For shortwave reception, it's hard to beat an elevated dipole. In actual field tests the low-cost Grove Skywire (ANT-2) repeatedly equalled or outperformed any other receiving antenna on the market including expensive trap dipoles.

Trap dipoles are designed to work best on certain ranges like the broadcast or ham bands, often compromising the remaining frequency ranges. Why buy a general coverage receiver, then reduce its capability with a frequency-restricting antenna?

For medium and longwave reception, the operator may wish to disconnect the ground side of the feedline, thus allowing the feedline to become part of the antenna for added length and improved low frequency signal strengths.

Directional antennas concentrate incoming signals ("gain") from one direction while rejecting interfering signals from other directions.

The large capture area (aperture) of a big antenna overcomes poor sensitivity in old receivers by providing stronger signals, but modern receivers have excellent sensitivity and require smaller antennas.

Active antennas are nothing more than short vertical elements attached to an amplifier to approximate the signal levels delivered by a full-size antenna. Untuned amplifiers are vulnerable to strong signal overload because of limited dynamic range. This produces gain compression (apparent lack of sensitivity) and intermodulation ("intermod"—the mixing of signal frequencies heard as spurious signals throughout the listening range).

Some active antennas, including the Grove Hidden Antenna system, overcome this shortcoming by including a preselector which selects the desired frequency and attenuates all others.

Because of their indoor location, complexity, vulnerabilities and cost, active antennas should be chosen only when adequate outdoor antennas are not possible.

If an antenna intercepts enough signal voltage to overcome losses and noise in the receiver, no amount of amplification will make the signal easier to copy, just louder—along with louder background noise.

### Feedline

A wire run from your receiver to a nearby tree may produce excellent reception, but it is susceptible to electrical noise pickup from nearby appliances; use coaxial cable for your antenna lead-in. For reception below 30 MHz, virtually any well-shielded coax like RG-58/U, RG-59/U, RG-6/U or RG-8/U is satisfactory for runs up to at least 100 feet.

### Preselectors

A preselector can be thought of as a frequency-adjustable gate for radio signals; its purpose is to pass desired signal frequencies while rejecting all others. Installed between the antenna line and receiver, it eliminates intermodulation, image interference and desensitization caused by strong signals in economy receivers. It is not an impedance matching device.

An amplified preselector like the Grove TUN4 not only passes those desired signals, but amplifies them as well, often improving reception when the antenna is small or indoors.

### Grounding

A connection to an earth ground rarely makes signals stronger, but will lessen the hazard of electrical shock and may reduce electrical line noise interference or AC hum on received signals.

An effective ground consists of a short length of heavy gauge wire (or coax cable shield) connected to a single metal pipe or rod driven at least eight feet into moist soil. Dry soil or sand is worthless as a ground. A metal (not PVC) cold water pipe may work, but hot water pipes are usually caulked at the water heater, electrically insulating them. As a last resort, connect your ground wire to the screw holding on the wall plate over the AC outlet.

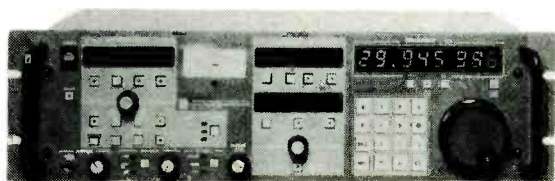
Equipment chassis should be commonly tied together by a single ground wire to reduce common mode hum. Experiment with different grounding combinations for best results.

The old-fashioned gap-type lightning arrestors so common during the vacuum tube era are no longer adequate; transistors bum out at voltages much lower than an air gap can protect. Offering much better protection are the new gas-charge types such as the Grove LA1 and Alpha Delta TransiTrap.

While nothing can guarantee protection from a direct lightning strike (always disconnect your antenna from your equipment during storm season), these devices will harmlessly short-circuit any voltages induced on the antenna by close strikes.



# WATKINS-JOHNSON HF1000 LUXURY RECEIVER



For the first time in recent history, a leading manufacturer of equipment for the federal government has made available the most advanced receiver on the consumer market.

Designed for a super-secret monitoring agency, the HF1000 offers unsurpassed features and

performance, like 1 hertz tuning and display increments, +30 dBm third-order intercept, DSP filtering with 58 bandwidths, RS232 and CSMA control ports, built-in self test, 5 kHz-30 MHz continuous tuning, high performance noise blanker, excellent filter shape factor, low-distortion AM synchronous detection (NOTE: In order to begin shipping, an easy-to-

install, plug-in synchronous detection E-PROMs will be mailed shortly to new owners. Later versions will have to-E-PROMs factory installed) and much, much more.

This is a receiver for the discriminating listener, the consummate DXer, the true professional who wants the best there is.

Order RCV18  
Today!  
Only  
**\$3799**

\$22 UPS  
\$35 2nd Day Air  
\$25 US Priority Mail  
\$35 Canadian APP  
\$32 Canadian UPS

## SPECIFICATIONS

**Frequency range:** 5 kHz-30 MHz  
**Tuning steps:** 1 Hz  
**RIT or fine tuning:** BFO +/-8 kHz, 10 Hz resolution  
**Display:** 4 separate LED panels  
**Recommended use:** Serious monitoring  
**Receiving modes:** Synchronous AM, FM, CW, USB, LSB, ISB  
**Memory:** 100 channels, 100 lockouts  
**Scan:** 3 modes  
**Banks:** Programmable  
**Search:** Multiple banks  
**Delay:** Adjustable 0.5-20 seconds, and infinite  
**Squelch:** Adjustable 0 to -135 dBm  
**Clock:** No

**Audio output power:** 1 watt, 8 ohms, 3% THD max.  
**Record audio output:** 0 dBm, 600 ohms  
**Recorder activator:** No  
**Signal strength indicator:** Analog meter, calibrated dBm  
**Computer interface:** RS232 and carrier sense multiple access  
**Conversion scheme:** Triple up-conversion; 40.455 MHz, 455, 5 kHz  
**Sensitivity:** 0.56 microvolts SSB, 0.5-30 MHz  
**Selectable preamplifier:** 15 dB  
**Selectable attenuator:** 10 dB  
**IF selectivity:** DSP; 85 settings from 56 to 8000 Hz  
**Image rejection:** 90 dB min.

**Selectable AGC:** 100 dB, 15 ms attack, 4 s / 25 ms decay  
**Dynamic range:** 110 dB or better; +30 dBm 3rd order intercept point  
**Passband tuning:** CW only  
**Noise blanker:** Yes  
**Notch filter:** Tunable IF notch  
**Tone control:** No  
**Antenna connector:** BNC  
**Dimensions:** 19"W x 5-1/4"H x 20"D, rack panel mount  
**Weight:** 15 lbs  
**Power requirement(s):** 97-235 VAC, 47-440 Hz, 35 W  
**Warranty:** One year

*Professional quality at a low consumer price!*

# AOR 3030 GENERAL COVERAGE COMMUNICATIONS RECEIVER



High sensitivity, 10 Hz DDS tuning, 50 kHz-30 MHz continuous frequency coverage, 100 dB dynamic range, multimode reception including synchronous AM detection, dual

VFOs, RS232 interface, compact size, recorder activator, direct keyboard entry, 100 programmable memories, and much, much more!

Order RCV20  
Today!  
Only

**\$799<sup>95</sup>**

\$9 UPS  
\$15 2nd Day Air  
\$17 US Priority Mail  
\$13 Canadian APP  
\$20 Canadian UPS

## SPECIFICATIONS

**Frequency range:** 50 kHz-30 MHz  
**Tuning Steps:** 10 Hz (DDS); dual VFOs  
**Receiving modes:** AM, AM synch., LSB, USB, CW, FAX, FMN  
**Memory:** 100 channels  
**Scan:** Yes  
**Record audio output:** Yes  
**Recorder activator:** Yes

**Signal strength Indicator:** Analog S-meter  
**Computers interface:** RS232C  
**Image rejection:** 70 dB or better  
**Dynamic range:** 100 dB or better  
**Dimensions:** 10"W x 3.5"H x 9.5"D  
**Weight:** 4.8 lbs.  
**Power requirements:** 12VDC or 8 optional AA cells  
**Warranty:** One year



R.L. Drake Company presents the...

# R8COMMUNICATIONS RECEIVER

Best Buy ✓



SDU 100

## SPECIFICATIONS

**Frequency range:** 100 kHz-30 MHz (35-55/108-174 MHz with optional converter)  
**Tuning steps:** 10/100 Hz (10/100/1000 FM/AM)  
**Display:** Backlit LCD  
**Dimmer:** Yes  
**Type of listening recommended:** International broadcast and utilities  
**Receiving modes:** AM, narrow FM, USB, LSB, RTTY, CW, synchronous AM  
**Memory:** 100 channels  
**Banks:** 10      **Scan:** Yes  
**Search:** No      **Delay:** Yes  
**Squelch:** Yes      **Clock:** Dual time zone  
**Audio output power:** 2.5 W @ 4 ohms for 10 % THD  
**Record audio output:** Yes  
**Recorder activator:** No  
**S meter:** Analog  
**Computer interface:** RS232  
**Conversion scheme:** Double up-conversion  
**Sensitivity:** 0.5 uV 1.5-30 MHz (0.25 uV 5-30 MHz with preamp), 1 uV 100 kHz-1.5 MHz  
**Selectable preamplifier:** Yes  
**Selectable attenuator:** Yes  
**Selectivity:** (-6/-60 dB, 2:1 shape factor) 6/4/2.3/1.8 kHz; 500 Hz (3:1)

It has been nearly a decade since this respected American company withdrew from manufacturing communications equipment, now they have returned better than ever!  
 The exciting new R8 general coverage communications receiver offers outstanding 100 kHz-30 MHz performance at a competitive cost. Four voice-bandwidth filters combined with excellent audio design make international broadcast listening as well as utilities monitoring a pleasure.

Synchronous detection reduces fading and distortion while passband tuning rejects adjacent frequency interference. Ideal for AM, SSB, RTTY, CW reception.

Optional converter allows AM/FM reception 35-55, 108-174 MHz, while a builtin microprocessor/controller offers RS232 computer control and multiple-function scanning.

Dual VFOs, switchable preamp/attenuator, dual-time-zone clock timer, switchable antenna inputs, universal power supply and more combine to make this new receiver an outstanding value.

**Image rejection:** greater than 80dB 1.5-30 MHz, greater than 80 dB 100 kHz-1.5 MHz  
**Frequency stability:** +/- 10 ppm - 10° to 50° C  
**Selectable AGC:** Off/slow/fast  
**Dynamic range:** 90 dB @ 20 kHz spacing  
**Passband tuning:** +/- 3 kHz  
**Noise blanker/limiter:** Dual  
**Adjustable notch filter:** 500-5000 Hz, 40 dB  
**Tone control:** Yes  
**Antenna connector:** Dual, switched  
**Dimensions:** 13-1/2"W x 5-1/4"H x 13"D  
**Weight:** 13 lbs.  
**Power requirements:** 100/120/200/240 VAC, 50/60 Hz; 11:16 VDC @ 2A  
**Warranty:** 1 year

Order RCV1  
 Grove discount price only  
**\$959<sup>95</sup>**  
 Retail \$879  
 \$14.50 UPS  
 \$27.50 UPS 2nd Day Air  
 \$28.50 US Priority Mail  
 \$24.50 Canadian UPS  
 \$35.50 Canadian APP

## ACCESSORIES:

ACC43 VHF Converter \$199.95  
 ACC49 External Speaker \$48.95 plus \$6 UPS  
 ACC67 Service Manual \$39.95  
 ACC77 PC Software \$58.95  
 Installation fee \$20

New from R.L. Drake Company

# SW8 WORLD BAND RECEIVER

Not only continuous coverage 500 kHz-30 MHz, but 87-108 MHz FM broadcast (stereo at headphone jack) and 116-136 MHz aircraft as well! Standard and synchronous detection AM, upper and lower sideband on medium and short wave, direct frequency entry keypad, 0.5 microvolt sensitivity, dual 6/4 kHz selectivity on AM, sharp 2.3 kHz selectivity on SSB. Up-conversion eliminates images while +10 dB intercept point suppresses intermod.

A compact 11" wide by 5-1/4" high and weighing a scant 10 pounds, the SW8 runs on optional internal batteries or its supplied AC adaptor. High-contrast, backlit LCD display provides 100 Hz tuning accuracy. Dual-mode clock timer and 70 scannable memories round out the key features of this welcome receiver!



CALL TODAY!  
 For price and availability

## SPECIFICATIONS

**Frequency range:** 500 kHz-30, 87-108, 116-136 MHz  
**Tuning steps:** Not specified  
**RIT or fine tuning:** No  
**Display:** Backlit LCD  
**Dimmer:** On/off  
**Recommended use:** General purpose AM/SSB, aircraft, FM broadcast  
**Receiving modes:** AM, AM Synchronous, LSB, USB, WFM  
**Memory:** 70 channels      **Scan:** Yes  
**Banks:** 7 (10 channels each)      **Search:** No  
**Delay:** 5 seconds per step      **Squelch:** No  
**Clock:** Dual mode 24 hour with timer

**Audio output power:** 2 W @ 5% THD into 4 ohms  
**Record audio output:** 300 mV into 4700 ohms  
**Recorder activator:** No  
**Signal strength indicator:** Analog S meter  
**Computer interface:** No  
**Conversion scheme:** Double up-conversion; 55.845 MHz/455 kHz  
**Sensitivity:** 0.5 uV or better (SSB)  
**Selectable preamplifier:** No  
**Selectable attenuator:** 20 dB  
**IF selectivity (-6/-50 dB):** AM Wide 6/15 kHz; AM Narrow 4/10 kHz; SSB 2.3/4.5 kHz  
**Image rejection:** 70 dB or better

**Selectable AGC:** Yes  
**Dynamic range:** 95 dB or better  
**Passband tuning:** No  
**Noise blanker or limiter:** No  
**Adjustable notch filter:** No  
**Tone control:** Yes  
**Antenna connector:** SO-239 (UHF), push terminals, integral whip  
**Dimensions:** 11-1/2"W x 5-1/4"H x 13"D  
**Weight:** 10 lbs.  
**Power requirement(s):** 6-9 VDC (AC adaptor included), 6 D cells  
**Warranty:** One year



# JRC NRD-535D

This top-of-the-line communication receiver Offers continuous frequency coverage of 90 kHz through 30 MHz and reception modes for AM, USB, LSB, CW, RTTY, FAX and narrowband FM.

JRC's continuously-variable passband filter allows the user to custom-select exact filter bandwidth from 0.5-5.8 kHz, to reduce or eliminate adjacent channel interference with minimum impact on the fidelity of the desired signal. Exalted carrier selectable sideband (ECSS) permits additional clarity of reception on AM international broadcasters who are plagued by adjacent-frequency interference.

Four filter bandwidths may be selected for any mode (except NBFM which is 12 kHz). The dual noise blanker is extremely effective in reducing or eliminating aggravating impulse noise like ignition noise and the woodpecker.

Front panel controls include squelch, AF and RF gain controls, tone control, and AGC timing. A 24-hour clock-timer can be pre-adjusted for frequency, mode and on/off time, and includes a record activator. A built-in RS232 interface allows your computer to control virtually every function of this remarkable receiver for even greater listening power.



Order RCV3  
**\$1688<sup>95</sup>**

\$16.50 UPS  
\$35.50 UPS 2nd Day  
\$35.50 US Priority Mail  
\$30.50 Canadian UPS  
\$45.50 Canadian Air Parcel Post

## SPECIFICATIONS

Frequency range: 90 kHz-30MHz  
Keypad frequency entry: yes  
Tuning steps: 1 Hz minimum  
Display: Fluorescent  
Dimmer: 4 levels  
Type of listening recommended: Utility and foreign broadcasting  
Receiving modes: AM, CW, RTTY, FAX, NBFM, USB, LSB  
Memory: 200 channels  
Scan: Yes Banks: No  
Delay: Yes Search: Yes  
Squelch: Yes  
Clock: 24 hour clock/timer  
Audio output power: 1 watt @ 4 ohms  
Record audio output: 1 mW @ 600 ohms (mini phone plug)  
Recorder activator: yes  
S meter: Analog-emulation fluorescent  
Computer interface: RS232 built-in  
Conversion scheme: Triple up-conversion (70.45 MHz/455/97 kHz)

Sensitivity: 0.5 uV 1.5-30 MHz (SSB)  
Selectable preamplifier: No  
Selectable attenuator: 20 dB  
Selectivity: (-6/-60 dB) AUX 12/24 kHz, WIDE 6/15 kHz, INTER 2/6 kHz, NARR 1/3 kHz, FM 12 kHz, continuously adjustable 0.5-5.8 kHz  
Image rejection: -70 dB  
Frequency stability: +/- 2 PPM after one-hour warmup  
Selectable AGC: Fast/slow/off  
Dynamic range: 106 dB @ 300 Hz BW  
Passband tuning: +/- 1 kHz  
Noise blanker/limiter: Dual width  
Adjustable notch filter: -30 dB  
Tone control: Yes  
Antenna connector: SO-239 (UHF)  
Dimensions: 13"W x 5"H x 11"D  
Weight: 20 lbs.  
Power requirements: 120/240 VAC @ 50/60 Hz; 12 VDC 2 2A  
Warranty: One year  
Accessories included: None

SDU  
100

## OPTIONAL ACCESSORIES

ACC5 Upgrade Kit \$169.95  
(0.5-5 kHz tunable filter for early models)  
ACC 24 6ZCJD00 serial cable for computer \$59.95  
ACC25 NVA-319 matching speaker with pushbutton audio filters \$179.95  
ACC26 CFL-218A 1.8 kHz extra sharp SSB/RTTY filter \$139.95  
ACC27 CFL-232 500 Hz sharp CW filter \$139.95  
ACC28 CFL-251 2.4 kHz sharp SSB/fax filter \$139.95  
ACC29 CGD-135 High stability (+/-0.5 PPM) crystal oscillator \$79.95  
ACC107 RTTY Demodulator \$109.95  
Upgrade and filter installation fee: \$20 any quantity

# KENWOOD R-5000

This extraordinary communications receiver has built-in modes for AM, FM, USB, LSB, CW, FM and FSK (RTTY). 100 memory channels store frequency, mode, and antenna selection (two inputs); 10 Hz tuning accuracy. Non-volatile memory retains functions even if long-life lithium battery fails.

Filters are provided for 6 kHz AM, 2.5 kHz SSB; you can add up to two more (one each: CW, SSB or AM). Excellent audio quality for broadcast monitoring.

## OPTIONAL ACCESSORIES

If only accessories are ordered, add \$10 to total order.

ACC50	VC20 118-174 VHF conv.	\$207.95
ACC51	YK88A 6 kHz AM filter	\$84.95
ACC52	YK88S 2.4 kHz SSB filter	\$84.95
ACC53	YK88SN 1.8 kHz narrow SSB	\$94.95
ACC54	YK88C 500 Hz CW filter	\$84.95
ACC55	YK88CN 270 Hz narrow CW	\$94.95
ACC56	DCK2 12VDC mobile power cable	\$12.95
ACC57	V51 voice synthesizer	\$67.95
ACC59	IF232C translator control	\$99.95
ACC69	IC-10 interface	\$34.95
ACC62	Headphones HS5 deluxe	\$64.95
ACC63	Headphones HS6 lightwt	\$44.95
ACC65	SP23 external speaker (plus \$7.50 UPS shipping)	\$75.95
ACC66	MB430 mobile mount bracket	\$34.95
ACC68	Service manual	\$25

Installation Fee (one or more accessories) \$20 plus \$10 drop ship fee.

Order RCV7  
Only  
**\$944<sup>95</sup>**  
Retail ~~\$1099<sup>95</sup>~~  
\$15.50 UPS  
\$30.50 UPS 2nd Day Air  
\$32.50 US Priority Mail  
\$20 Canadian UPS  
\$38.50 Canadian App



## SPECIFICATIONS

Frequency range: 100 kHz - 30 MHz  
Keypad frequency entry: Yes  
Tuning steps: 10/100 Hz/1/2.5/5/10/20/50 kHz set by mode  
RIT (fine tuning): Yes  
Display: Fluorescent  
Dimmer: Yes  
Type of listening recommended: Domestic and international broadcasting; two-way SSB/CW/RTTY  
Receiving modes: AM, USB, LSB, narrow FM, RTTY, CW  
Memory: 100 channels  
Scan: Yes, programmable  
Banks: 10  
Lockout: Yes  
Search: Yes  
Clock: 24 hour, dual function with timer  
Audio output power: 1.5 watts  
Record output: Yes; no activator  
S meter: Analog

Computer interface: Optional  
Conversion scheme: Dual up-conversion; 50.1125/8.83 MHz  
Sensitivity: SSB 1.6-30.25 uV (5) 00-1600 kHz 4 uV; 150-500 kHz 1uV  
Selectable preamplifier: No  
Selectable attenuator: 10/20/30 dB  
Selectivity: (-6/-60dB) AM 6/24 kHz; SSB 2.5/4.9 kHz  
Image rejection: 80 dB  
Frequency stability: +/- 300 Hz after 30 minutes warmup  
Selectable AGC: fast/slow/off  
Dynamic range: 102 dB  
Passband tuning: Yes  
Noise blanker/limiter: Dual  
Adjustable notch filter: Yes  
Antenna connector: SO-239 (UHF); random wire terminal  
Dimensions: 10.62"W x 3.78"H x 10.6"D  
Weight: 12.3 lbs.  
Power requirements: 12 VDC (with optional adaptor), 120/240 VAC  
Warranty: One year  
Accessories included: None

SDU  
100





# ICOM R-71A

This receiver is as professional as it looks. The brilliant fluorescent display provides frequency information down to tenths of a kilohertz and alerts the listener to other dial settings (mode, memory, channel, VRO).

Signal resolution of 10 Hz eliminates the need for RIT, even on SSB or RTTY. mode and may be scanned or searched. An effective noise blander has adjustable controls for optimum reduction of a wide variety of impulse noises, from power line hash to the Russian woodpecker.

Filter selectivities of 6, 2.3 and 0.5 kHz are provided; you may add one more for use in any mode. This latest version also reintroduces passband tuning.

Of interest to the visually impaired is the optional EX-310 speech synthesizer which announces the displayed frequency in English.



Order RCV6  
Only  
**\$1037<sup>95</sup>**

\$15 UPS  
\$30.50 UPS 2nd Day  
\$30.50 US Priority Mail  
\$39.50 Canadian APP  
\$26 Canadian UPS

### OPTIONAL ACCESSORIES

One or more accessories installed w/radio -- \$20

ACC1	EX257 FM mode detector	\$49.95
ACC2	SP3 speaker (plus \$7.50 UPS)	\$77.95
ACC3	DC Power kit EX299	\$12.95
ACC4	CR64 high stability crystal	\$79.95
ACC73*	UX14 Level converter	\$70.95
ACC74*	CT-17 computer interface	\$95.95
*Must use ACC73 & ACC74 together		
ACC7	EX310 voice synthesizer	\$59.95
ACC8	FL32A CW narrow filter	\$69.95
ACC9*	FL44A SSB filter	\$178.95
ACC10*	FL63A CW narrow filter	\$59.95
*Use only one filter		
ACC12	RC11 remote control	\$70.95
ACC13	MB12 mobile mount bracket	\$25.95
ACC14	Service manual	\$25.00

### SPECIFICATIONS

Frequency range: 100 kHz-30MHz  
 Keypad frequency entry: Yes, plus tuning knob  
 Tuning steps: 10 Hz  
 RIT (fine tuning): No  
 Display: Fluorescent  
 Dimmer: Yes  
 Type of listening recommended: Domestic and international broadcasting, two-way communications  
 Receiving modes: AM, USB, LSB, RTTY, CW, narrowband FM  
 Memory: 32 channels plus 2 temporary VFO memories  
 Scan: yes Banks: Mode scan  
 Lockout: No Priority: No  
 Search: Yes Delay: Yes  
 Squelch: Yes Clock: No  
 Audio output power: 2 watts  
 Record output: Yes  
 Recorder activator: Yes  
 S meter: Analog  
 Computer interface: Optional

Conversion scheme: Quadruple up-conversion  
 Sensitivity: 0.2 uV with preamplifier on  
 Selectable preamplifier: Yes  
 Selectable attenuator: Yes  
 Selectivity: (-6/60 dB) wide 6/15 kHz; narrow 2.3/4.2 kHz; optional FM 15/25 kHz  
 Image rejection: 60 dB  
 Frequency stability: 50 Hz  
 Selectable AGC: Yes  
 Dynamic range: 86 dB  
 Passband tuning: No  
 Noise blander/limiter: Dual, adjustable  
 Adjustable notch filter: Yes  
 Antenna connector: SO-239 (UHF)  
 Auxiliary connector: 70 MHz IF output  
 Dimensions: 11-1/4"W x 4-3/8"H x 10-7/8"D  
 Weight: 16-1/2 lbs.  
 Power requirements: 120/240 VAC; 12 VDC with optional EX299  
 Warranty: One year  
 Accessories included: None

# YAESU FRG-100B COMMUNICATIONS RECEIVER

Order RCV 17  
Grove price only  
**\$559<sup>95</sup>**

\$7.50 UPS  
\$14.50 UPS 2nd Day Air  
\$16.50 US Priority Mail  
\$18.50 Canadian APP  
\$13 Canadian UPS



The long-awaited FRG-100 has finally arrived! Simple to operate, high in performance and low in cost. Now that's an unbeatable combination! This compact lightweight tunes continuously from 50 kHz through 30 MHz and offers USB, LSB, AM and CW modes.

Featuring dual conversion (47.21 MHz/455 kHz), three tuning rates, five-decimal place (10 Hz) readout, fast/slow AGC, 50 scannable memory channels with lockout, 0.25 microvolt sensitivity (SSB/CW), adjustable all-mode squelch, three selectivity bandwidths, noise, Yaesu CAD control capability and a powerful internal speaker, the new FRG-100 is an ideal way to get into serious shortwave listening at a budget price!

### ACCESSORIES:

Installation fee \$20

ACC103	500 Hz narrow CW filter	\$139
ACC104	15 kHz FM mode adaptor	\$45
ACC105	High stability crystal oscillator	\$91.95
Grove Super Filter Mod		\$179.95
Includes installation of two high-selectivity, 13-pole ladder filters. Narrow: 3 kHz @ -6dB, 9 kHz @ -70 dB; Wide: 6 kHz @ -6dB, 15 kHz @ -70 dB.		

### SPECIFICATIONS

Frequency Range: 50 kHz-30 MHz  
 Tuning steps: 10/100/1000 Hz plus user-programmable  
 RIT (fine tuning): Selectable CW/SSB offset  
 Display: Backlit LCD  
 Dimmer: Yes  
 Recommended use: General purpose broadcast and utilities  
 Receiving modes: USB, LSB, CW, AM (MBFM optional)  
 Memory: 50 channels plus 16 pre-programmed broadcast bands  
 Scan: Yes Banks: Yes (multimode search options)  
 Lockout: Individual channels  
 Priority: Selectable Search: Yes  
 Delay: Yes Squelch: Yes  
 Clock: Twin 12/24 hour with sleep timer and recorder switch  
 Audio output power: 1.5 watts  
 Recorder activator: Yes  
 Signal strength indicator: Mechanical S meter

Computer interface: Yaesu CAD program  
 Conversion scheme: Dual up-conversion (47.21 MHz/455 kHz)  
 Sensitivity: 1 microvolt AM, 0.25 microvolt SSB/CW  
 Selectable preamplifier: No  
 Selectable attenuator: 6 or 12 dB  
 IF selectivity: 2.4 kHz (SSB), 4/6 kHz (AM)  
 Image rejection: 80 dB or better  
 Frequency stability: +/-10 PPM -10 to +50 degrees C.  
 Selectable AGC: Slow/fast  
 Passband tuning: No  
 Noise blander or limiter: Noise blander  
 Adjustable notch filter: No  
 Tone control: No  
 Antenna connector: 50 ohm coax conn plus 500 ohm terminal  
 Dimensions: 9-1/2"W x 3-1/2"H x 10"D  
 Weight: 6.6 lbs.  
 Power requirement(s): 13.5 VDC @ 1.2 A; 120 VAC adaptor inc.  
 Warranty: One year  
 Accessories included: AC wall adaptor

# SHORTWAVE RECEIVER



## SANGEAN ATS-803A

Best Buy



Whether you are a beginner looking for a high performance portable at low cost, or a seasoned SWL planning on a second receiver, this is clearly the most feature-packed, high performance portable under \$200!

Order RCV4  
**\$169<sup>95</sup>**

\$7.50 UPS  
\$14.50 2nd Day Air  
\$15.50 US Priority Mail  
\$17.50 Canadian APP  
\$11.50 Canadian UPS

### SPECIFICATIONS

Frequency range: 150 kHz-30 MHz, 87.5-108 MHz  
Keypad frequency entry: Yes  
Tuning steps: 1 kHz  
RIT (fine tuning): Tuning knob and BFO  
Display: Illuminated LCD  
Dimmer: No  
Type of listening recommended: Domestic & int'l broadcast, casual  
Receiving modes: AM, SSB, wideband FM  
Memory: 9 channels Scan: Yes  
Banks: No Lockout: No  
Priority: No Search: Yes  
Delay: Yes Squelch: No  
Clock: With alarm/sleep functions  
Audio output power: 900 milliwatts  
Record output: 5 pin DIN connector, 1 milliwatt @ 1000 ohms  
S meter: LED light bar  
Computer interface: No  
Conversion scheme: Dual up-conversion, 55.845 MHz, 10.7 MHz, 450 kHz  
Sensitivity: Not available

Selectable preamplifier: No  
Selectable attenuator: RF gain control  
Selectivity: Wide/narrow AM/SSB (6.5 kHz AM)  
Image rejection: AM 50 dB; FM 60 dB  
Frequency stability: Quartz PLL  
Selectable AGC: No  
Dynamic range: Not available  
Passband tuning: No  
Noise blanker/limiter: No  
Lockout: No  
Tone control: Separate bass & treble  
Antenna connector: RCA photo plug  
Auxiliary connector: No  
Dimensions: 11-1/2"W x 6-1/4"H x 2-1/2"D  
Weight: 4 lbs.  
Power requirements: 2 AA and 6 D cells or 120 VAC  
Warranty: 1 year  
Accessories included: AC adaptor, stereo headphones, shoulder strap, SW handbook, external antenna adaptor.

## Top-of-the-line With Built-In Cassette Recorder

## SANGEAN ATS-818CS

Imagine—record your favorite programs automatically with the dual-zone clock timer on any frequency from 150 kHz through 30 MHz, 87.5-108 MHz FM as well! This impressive portable has SSB and CW reception, 45 memory channels, wide/narrow filter selectivity, signal strength indicator, AC wall adaptor and more!

### SPECIFICATIONS

Frequency range: 150 kHz-30 MHz AM/SSB, 87.5-108 MHz FM  
Keypad frequency entry: Yes  
Display: Backlit LCD  
Dimmer: Yes  
Recommended use: Casual SW listening  
Receiving modes: AM, SSB, FM  
Memory: 45 presets Scan: Yes  
Banks: No Lockout: No  
Priority: No Search: Yes  
Delay: Yes Squelch: No  
Clock: Dual time display with record timer  
Audio output power: 800 mW  
Record audio output: No  
Recorder activator: Internal programmable cassette recorder/player  
Signal strength indicator: Yes  
Computer interface: No

Conversion scheme: Double conversion  
Sensitivity: Not available  
Selectable preamplifier: RF gain control  
Selectable attenuator: No  
IF selectivity: Wide/narrow switch  
Image rejection: Not available  
Frequency stability: Not available  
Selectable AGC: No Dynamic range: Not available  
Passband tuning: No Noise blanker/limiter: No  
Adjustable notch filter: No Tone control: Yes  
Antenna connector: Yes Auxiliary connector: No  
Dimensions: 11-1/4"W x 7-3/8"H x 2-3/4"D  
Weight: 3 lbs. 13 oz.  
Power requirements: AC, internal batteries  
Warranty: One year  
Accessories included: AC adaptor, external antenna adaptor, shortwave handbook



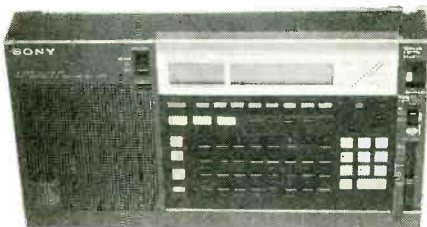
Order RCV9  
Retail ~~\$399~~  
Only

**\$219<sup>95</sup>**

\$7.50 UPS  
\$14.50 2nd Day Air  
\$16 US Priority Mail  
\$20.50 Canadian APP  
\$13 Canadian UPS

## The World's Most Popular Radio!

Best Buy



## SONY ICF-2010

This is the full-featured portable for the serious shortwave listener. Synchronous detection allows interference-free reception on many stations difficult to hear on other radios. Narrow/wide selectivity switching; clock/timer allows up to 4 automatic on/off cycles per day for frequencies and times of your choice; 10-step LED signal strength meter, audio tone selection for speech or music; and 10 station direct-access keyboard combine to make this Sony product a remarkable value for beginners or seasoned SWL's.

Order RCV2  
Retail ~~\$450<sup>95</sup>~~  
Only  
**\$349<sup>95</sup>**

\$7.50 UPS  
\$14.50 UPS 2nd Day  
\$16.50 US Priority Mail  
\$18.50 Canadian APP  
\$13 Canadian UPS

### SPECIFICATIONS

Frequency range: 150 kHz-30MHz, 76-108, 116-136 MHz  
Keypad frequency entry: Yes, plus tuning knob  
Tuning steps: 100 Hz RIT (fine tuning): No  
Display: Backlit LCD Dimmer: No  
Type of listening recommended: Domestic & international broadcasting, casual two-way SSB and aircraft  
Receiving modes: AM, USB, LSB, wideband FM; synchronous detection  
Memory: 32 channels  
Scan: Yes Banks: No  
Lockout: No Priority: No  
Search: Yes Delay: Yes  
Squelch: No Clock: 12/24 hour w/alarm and sleep timer  
Audio output power: .380 milliwatts  
Record output: Min/plug: .775 millivolts @ 1000 ohms; no activator  
S meter: LED bargraph Computer interface: No  
Conversion scheme: Dual up-conversion  
Sensitivity: 0.2 uV SSB Selectable preamplifier: No  
Selectable attenuator: DX/local switch  
Selectivity: Wide 18 kHz @ -50 dB; narrow 10 kHz @ -50 dB  
Image rejection: Not available  
Frequency stability: Quartz PLL  
Tone control: Yes  
Antenna connector: 1/8" mini phone plug  
Auxiliary connector: No  
Dimensions: 11-3/8"W x 6-1/4"H x 2-1/16"D  
Weight: 3-3/4 lbs.  
Power requirements: 2 AA and 3 D cells or 120 VAC  
Warranty: One year  
Accessories included: AC adaptor, earphone, shoulder strap, wire antenna, external antenna adaptor/plug, shortwave handbook.



SONY COMPARISON CHART

		ICF-SW55	ICF-SW77	ICF-2010	ICF-SW7600	ICF-SW30
Received Band	• FM Stereo	Yes	Yes	No	Yes	Yes
	• Air Band	No	No	Yes	No	No
Way of Tuning	• Station Name Tuning	Yes	Max 100	No	No	No
	• AM Tuning Step	100 Hz	50 Hz	100Hz	5kHz	1 kHz
Tuning Mode	• Preset Memories	125	162	32	10	15
	• Broadcasting Time Display	No	Yes	No	No	No
	• Auto Program Select	No	Yes	No	No	No
	• AM Wide/Narrow filters	Yes	Yes	Yes	No	No
	• SSB Wide/Narrow filters	No	Yes	No	No	No
	• USB/LSB Select	Yes	Yes	Yes	Yes	No
Others	• Synchronous Detection	No	Yes	Yes	No	No
	• Clock	Yes	Yes	Yes	Yes	Yes
	• Timer	Yes	Yes	Yes	Yes	Yes
	• Rec Out Jack	Yes	Yes	Yes	Yes	No
	• Ext Antenna Jack	Yes	Yes	Yes	Yes	No
	• Sleep Mode (min)	Yes	Yes	Yes	Yes	Yes
	• Tone Control	Yes	Yes	Yes	Yes	No

NEW FROM SONY!

SONY ICF-SW30

Looking for an uncomplicated, high-performance, low cost portable? It's the new Sony ICF-SW30! Replacing the popular ICF-SW7601, this broadcast-only (no SSB) radio features double conversion, high selectivity and excellent sensitivity to bring in stations more expensive radios miss!

Battery powered with level indicator, dual-zone 24-hour clock, temporary memory during battery change, 15 memory channels (5 for each band), signal seeking (autosearch in 1 kHz steps), and pushbutton tuning. Travel power lock prevents accidental turn-on. Offers FM stereo with optional earphones.

Covers standard AM and FM broadcast, and the most popular shortwave ranges: 3700-4200, 4650-5150, 5800-6300, 6950-7450, 9375-1000, 11525-12150, 13375-14000, 14975-15600, 17475-18100 and 21320-21950 kHz.

Integral tilt bracket for desktop viewing, sleep control, radio alarm clock, swivel telescopic antenna, carrying strap.



Best Buy "Clearly the best in its price class!"

Larry Magne Monitoring Times

Order RCV21

Retail ~~\$129<sup>95</sup>~~  
Grove Discount Price  
Only

\$99<sup>95</sup>

\$5 UPS  
\$7.50 UPS 2nd Day  
\$5 US Priority Mail  
\$8.50 Canadian APP or UPS



SONY ICF-SW77

For those who have been looking for the next step up, it's here! The new Sony ICF-SW77 has all of the features of the popular ICF-2010 (except air band), plus: front panel tuning dial, separate bass and treble controls, 162 non-volatile memory channels, stereo FM (headphones), station name display, 50 Hz fine tuning steps, broadcasting time display, 24 hour/ local time clock, and 5-event timer.

Order RCV10

Retail ~~\$549<sup>95</sup>~~  
Only

\$469<sup>95</sup>

\$7.50 UPS  
\$14.50 UPS 2nd Day  
\$17.50 US Priority Mail  
\$20.50 Canadian APP  
\$13 Canadian UPS

SPECIFICATIONS

Frequency range: 150 kHz-29.9999 MHz AM/SSB, 87.5-108 MHz FM  
Keypad frequency entry: yes  
Tuning steps: 1 kHz/50 Hz  
Display: LCD  
Dimmer: No  
Recommended use: General Purpose  
Receiving modes: AM/SSB; FM 87.5-108 MHz  
Memory: 162 channels, alphanumeric display  
Scan: yes Banks: 20  
Lockout: No Priority: No  
Search: Yes Delay: Yes  
Squelch: No Clock: 12/24 hour  
Audio output power: 400 milliwatts @ 10% THD  
Record audio output: 138 millivolts @ 10K ohms  
Recorder activator: Yes  
Signal strength indicator: LCD bargraph  
Computer interface: No  
Conversion scheme: Dual 55.845 MHz/455 kHz (10.7 MHz FM)  
Sensitivity: Unavailable  
Selectable preamplifier: No  
Selectable attenuator: Yes  
Selectable AGC: No  
Passband tuning: No  
Noise blanker or limiter: No  
Adjustable notch filter: No  
Tone control: Bass and treble  
Antenna connector: 1/8" miniplug  
Auxiliary connector: None  
Dimensions: 10-7/8"Wx6-7/8"Hx1-7/8"D  
Weight: 3-1/4 lbs with batteries  
Power requirement(s): 4 C cells, 6VDC (AC adaptor inc.)  
Warranty: One year  
Accessories included: AC adaptor, stereo earphones, ear pads, carrying belt, compact antenna, external antenna adaptor, manual.



# GROVE SPECIAL ICOM R-72 ONLY \$695<sup>95</sup>

Retail \$1145 Old Grove Price \$919<sup>95</sup>  
plus \$15 UPS shipping

The ICOM R72 offers full 100 kHz-30 MHz frequency coverage and direct keypad entry with advanced features. A backlit LCD shows the receiver's 10 Hz frequency resolution, while 101 scannable memory channels store frequencies in AM, LSB, USB, RTTY, and CW. Dual-range search is included as well as an analog S meter and a recorder activator coupled to a 24 hour clock timer.



Buy now while quantities last at this low, Grove discount price!



## SONY ICF-SW7600

It was inevitable. The early models ICF 2002 and 2003 have been replaced by a tiny marvel with AM, SSB, and even FM stereo coverage! Measuring just over 7 inches wide and weighing 22 ounces, the SW7600 is loaded with features! DX/local switch reduces "pumping" on strong SSB signals; power switch lock prevents accidental battery depletion during transport.

Continuous 150 kHz-29.995 MHz frequency coverage plus 87.6-108 MHz FM headphone stereo (headphones included!), pushbutton tuning, tone control, external antenna jack, clock timer with sleep function, tilt bracket, keyboard lock, direct-entry keypad and ten scannable memory channels keynote the high-tech features of this potent portable!

### SPECIFICATIONS

Frequency range: 150-29995 kHz, 87.6 - 108 MHz  
Keypad frequency entry: Yes  
Tuning steps: 5 kHz, fast/slow button  
RIT (fine tuning): +/- 10 kHz AM and SSB  
Display: Backlit LCD  
Dimmer: No  
Type of listening recommended: Domestic & international broadcasting, casual SSB  
Receiving modes: AM, wide FM, SSB  
Memory: 10 channels Scan: Yes  
Banks: No Lockout: No  
Priority: No Search: Yes, with times delay  
Delay: No Squelch: No  
Clock: With timer & sleep function  
Audio output power: Unavailable  
Record audio output: yes  
Recorder activator: yes  
S meter: Single "tune" LED  
Computer interface: No  
Conversion scheme: Dual conversion  
Sensitivity: Unavailable  
Selectable preamplifier: No  
Selectable attenuator: DX/local switch  
Noise blanker/limiter: No  
Adjustable notch filter: No  
Tone control: Music/news switch  
Antenna connector: No  
Dimensions: 7-9/32"W x 4-11/16"H x 1-1/4"D  
Weight: 1-1/4 lbs.  
Power requirements: 4 AA cells or AC adaptor  
Warranty: One year.  
Accessories included: Stereo earplugs, carrying case, reel antenna, AC wall adaptor.

Manufacturer's suggested retail ~~\$240<sup>95</sup>~~

Order RCV11 \$7.50 UPS  
**\$219<sup>95</sup>** \$11.50 UPS 2nd Day Air  
\$13.50 US Priority Mail  
\$11.50 Canadian UPS  
\$15.50 Canadian APP

### SPECIFICATIONS

Frequency range: 150 kHz-30 MHz AM/SSB, 87.5-108 MHz FM  
Keypad frequency entry: yes  
Tuning steps: 0.1/1 kHz RIT or fine tuning: yes  
Display: LCD Dimmer: No  
Recommended use: Casual international broadcast listening  
Receiving modes: AM/SSB  
Memory: 125 channels  
Scan: Yes  
Banks: 25 (5 channels each)  
Lockout: No Priority: No  
Search: Yes Delay: Yes  
Squelch: No Clock: 12/24 hour  
Audio output power: 400 milliwatts at 10% THD  
Record audio output: 245 millivolts @ 10 K ohms  
Recorder activator: Yes  
Signal strength indicator: LCD bargraph  
Computer interface: No  
Conversion scheme: Dual 55.845 MHz/455 kHz (+0.7 MHz FM)  
Sensitivity: Unavailable Selectable preamplifier: No  
Selectable attenuator: Yes Tone control: Yes  
Antenna connector: 1/8" miniplug  
Auxiliary connector: No  
Dimensions: 7-3/4"W x 5"H x 1-1/2"D  
Weight: Approx. 2 lbs. Warranty: One year  
Power requirement(s): 4 AA batteries; 6VDC (AC adaptor inc.)  
Accessories included: Stereo earphones, AC adaptor, earpads, carrying case, compact antenna, external antenna adaptor, books and manual

## SONY ICF-SW55

For the traveler on the go, reliable shortwave coverage — AM and SSB — are at your fingertips with the popular SW55. Just check all the features found in this compact powerhouse:

- Frequency range and modes: 150 kHz-30 MHz AM/SSB, 76-108 MHz FM
- Station Name tuning with LCD display
- 125 Frequency Memory
- .1/1 kHz Tuning Steps
- EEPROM Memory (no battery backup required)
- FM Stereo (earphones only)
- World Time Clock
- Includes carrying case, soft pouch, world band guidebook, AC adaptor, AN-71 compact antenna, stereo earphones.



Order RCV15  
Only  
**\$349<sup>95</sup>**

Retail ~~\$240<sup>95</sup>~~  
\$7.50 UPS  
\$14.50 UPS 2nd Day Air  
\$17.50 US Priority Mail  
\$20.50 Canadian APP  
\$13 Canadian UPS



# UNIVERSAL M8000 MULTIMODE DECODER



Now, the most advanced data reader/decoder ever produced! Nothing could be simpler: plug the new M8000 into your receiver's or scanner's speaker or earphone jack, connect a printer or VGA color monitor, and copy Morse code, RTTY, ASCII, TOR (FEC and ARQ), packet, FDM, Russian Cyrillic, bit inversion, facsimile and even piccolo--all off the air! The M8000 will even automatically tune its filters!

Ideal for testing data transmissions--reads digital pager transmissions (GOLAY and POCSAG) when connected to any scanner (unlawful for unauthorized listening!). Print squelch prevents noise from generating garbled messages, while internal displays alert you to baud rates, control characters, tuning graphs and other information, all in 16 vibrant colors!

Operates on 120 or 240 VAC, 50/60 Hz, and measures 16-3/8" W x 3-1/2" H x 12-3/4" D. Truly a remarkable monitoring accessory for the serious utilities enthusiast.

Best Buy

### SPECIFICATIONS

#### RECEPTION MODES:

- Morse (5-120 WPM)
- RTTY (45/50/57/75/100 baud and 20-250 baud non-standard)
- ASCII (75/110/150/300/600/1050/1200/1800 baud)
- SITOR (A/B/AMTOR A/AMTOR B/ARQTOR/FECTOR)
- FDM/VFT (8/12/16/24 channel)
- Piccolo
- TDM/ARQ (M2/M4/E/E3/S/SWED)
- FEC (A/S)
- Packet (300/1200 baud)
- Pager (Golay/POCSAG)
- Facsimile (60/90/120/240 LPM, AM/FM)
- Cyrillic (Russian third shift)

Optional 19-inch rack panel mounting kit

\$19.95

Order DEM6  
Retail price \$1399<sup>95</sup>  
Grove price only  
**\$1298<sup>95</sup>**  
\$10.50 UPS  
\$20.50 UPS 2nd Day Air  
\$20.50 US Priority Mail  
\$35.50 Canadian APP  
\$25.50 Canadian UPS



Campers, hikers, geologists, explorers, boaters, motorists, balloonists, fliers, cyclists, mountain climbers—find your position within a few feet anywhere on Earth with the new, low-cost...

## ICOM GP-22 SATELLITE POSITION LOCATOR

Use the same precision satellites that helped us win the Gulf War. This tiny (2-1/2" x 5-1/4", 11 oz) earth station fits in the palm of your hand! The easy-to-read digital display reveals bearing information from up

to five earth-orbiting satellites, providing your latitude and longitude to within 300 feet (limited by the Department of Defense)—even your altitude!

Easy to use. Track your direction or return to a precise location. Create a route. Confirm your waypoints. Compute estimated time of arrival (ETA). Display heading, speed, bearing and range. Compute world and local time.

Powered by rechargeable battery pack or optional AA cells. Includes carrying case, cigarette lighter power cord, AC wall adaptor/charger, illustrated instruction book.



Order GP22  
Only  
**\$754<sup>95</sup>**  
\$7.50 UPS  
\$11.50 2nd Day Air  
\$12.50 Priority Mail  
\$13.50 Canadian UPS  
\$16.50 Canadian APP



# THE GROVE SKYWIRE ANTENNA

Now with improved waterproof feedline connector at no extra charge!

Best Buy ✓

Highest performance and lowest cost—an unbeatable combination! Why restrict your frequency coverage with the gaps found in expensive trap dipoles or unpredictable random wire when you can get unsurpassed full-frequency reception with the Grove Skywire?

Comes assembled with SO-239 UHF female connector ready for your PL-259 (UHF male) equipped coaxial cable (50 or 75 ohm) see page 29; includes two professional porcelain end insulators and complete instructions.

## Outdoor dipole for worldwide shortwave reception

HAMS! Ideal for transmitting when used with a transmatch. (1.8-30 MHz at up to 250 watts)

Order ANT 2 Only  
**\$29.95**  
\$SUPS  
\$7.50 UPS 2nd Day  
\$5 US Priority Mail  
\$7 Canadian APP  
\$8.50 Canadian UPS

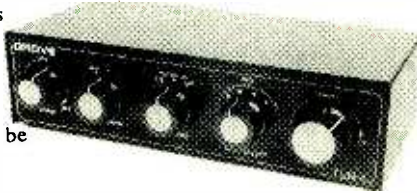
### SPECIFICATIONS

Length: 66 feet  
Feedpoint impedance: 50 or 75 ohm (nominal)  
Feedpoint location: 22 feet from end  
Elements: 18 AWG (16 x 30) bare stranded copper  
Connector housing: Heavy duty black phenolic

**Build your own SW dipole!** ACC101 CH239 SW Dipole Connector only **\$9.95**  
Wire not included!

# GROVE'S INDOOR/OUTDOOR ANTENNA SYSTEM

Here's the shortwave monitor's dream—a high performance, amplified antenna system for general coverage shortwave and medium wave monitoring. For indoor use, the ANT-6 Hidden Antenna—a thin profile, flexible wire antenna—can be inconspicuously run along molding, out a window to a tree, even under a rug. For outdoor use, the ANT-2 Skywire Antenna—a 66-foot, off-center fed antenna—includes pre-measured stranded copper antenna wire, porcelain end insulators and custom center insulator for your PL-259 coax connection. And when connected to the powerful TUN-4 signal booster, you have instant coverage from 100 kHz to 30 MHz!



Yes, global short wave reception will be at your fingertips, and you can operate two radios at one time!

Easy to use and extremely flexible, the TUN-4 has a built-in, solid-state booster amplifier to give additional strength to all received signals from 100 kHz through 30 MHz, broadcasters and utilities stations. Wall adaptor (120VAC/12VDC) included.

### SPECIFICATIONS

Gain: Approximately 20 dB  
Freq Range: 100 kHz-30MHz in 4 bands  
Preselector Type: Series-tuned L-section filter  
Power Required: 9 to 18 volts DC (12 VDC nom.) @ 30 mA.  
Connectors: SO239 (4) signal line, 2.1 mm DIN power  
Cabinet: Custom formed aluminum, baked enamel finish  
Dimensions: 9-1/4"W x 3"H x 4"D  
Weight: 1-1/2 lbs.

## WHAT YOU NEED TO ORDER:

- ANT 2** Skywire Antenna (above) **\$29.95**
- or
- ANT6** Hidden Antenna (see pg. 25 for specs) **\$19.95**
- TUN-4** MiniTuner Plus **\$99.95**
- CKSW** Accessory kit **\$12.95**

includes 20' antenna wire, banana plug plus 3 adaptors for all portable and tabletop multiband radios equipped for external antenna connections.

### Shipping charges for system ordered together:

- \$7.50 UPS
- \$11.50 UPS 2nd Day Air
- \$8.50 US Priority Mail
- \$15.50 Canadian UPS
- \$13.50 Canadian APP

## The Top 100 SW Frequencies

- 8879 International airlines
- 8891 International airlines
- 8921 International airlines
- 8972 U.S. Navy, Atlantic
- 8984 U.S. Coast Guard air/ground
- 8989 U.S. Air Force air/ground
- 8993 U.S. Air Force air/ground
- 9014 U.S. Air Force air/ground
- 10493 FEMA emergency net
- 10780 NASA air/ground
- 11176 U.S. Air Force air/ground
- 11182 Scott Air Force Base, air/ground
- 11200 RAF, flight weather
- 11229 U.S. Air Force diplomatic
- 11233 Canadian Air Force air/ground
- 11234 RAF, air ground
- 11243 Strategic air command
- 11246 U.S. Air Force air/ground
- 11282 International airlines
- 12290 U.S. Coast Guard
- 12326 Ship to shore
- 13089 U.S. Coast marine weather
- 13181 U.S. Navy
- 13201 U.S. Air Force air/ground
- 13215 U.S. Air Force air/ground
- 13241 U.S. Air Force air/ground
- 13270 Flying weather
- 13282 Flight weather
- 13306 International airlines
- 13354 NOAA Hurricane Hunters
- 14325 NOAA Hurricane Hunters
- 14441.5 Navy MARS
- 14447 Navy MARS
- 15000AM WWV Time Signals
- 15015 U.S. Air Force

### INTERNATIONAL BROADCASTERS

(Schedules subject to change)

- 5960 Canada
- 6040 Germany
- 6165 Netherlands
- 6175 England
- 7325 England
- 7355 USA
- 7375 Costa Rica
- 9530 Spain
- 9685 Sweden
- 9755 Canada
- 9745 Ecuador
- 12095 England
- 13660 Cuba
- 13760 USA
- 15155 Ecuador
- 17795 Australia
- 21740 Australia

### TIME SIGNALS

- WWV:5000 10000 15000 20000
- CHU: 3330 7335 14670



# MFJ 752C SIGNAL ENHANCER II



Reduce interference and enhance sound with the latest all-mode, dual, tunable filter. Connect between your receiver's or scanner's external speaker jack and an external speaker or headset, then tune the two filters to peak or notch audio signals.

Remove annoying whistles with the 70 dB notch filter. Set audio bandwidths from a sharp 40 Hz to full range sound. Suppress static crashes and impulse noise with the ANL clipper.

External speaker, headphones and AC power supply required.

Order FTR1 **\$99<sup>95</sup>**

\$5.50 UPS  
 \$9.50 UPS 2nd Day  
 \$8 US Priority Mail  
 \$11.50 Canadian APP  
 \$10.50 Canadian UPS

**ACCESSORY:**  
ACC20 AC Power Supply \$9.95

# LIGHTNING/EMP PROTECTOR

## For Scanners / Shortwave Receivers

While nothing can withstand a second to short-circuit bursts of 250,000 direct lightning hit, the new Grove LA-1 connects between your antenna cable and radio to prevent induced voltages from nearby lightning strokes, high-powered transmitters, and other massive energy surges from burning out your equipment\*



Not a flimsy spark gap or simple diode shunt, the Grove LA-1 uses state-of-the-art gas discharge technology, proven in government tests to be the best deterrent against lightning and electromagnetic pulse (EMP) surges. Responds in one ten-millionth of a second to short-circuit bursts of 250,000 volts at currents of 5000 amps, while allowing normal signal voltages (and even control voltages up to 50 volts AC or DC) to pass undisturbed! Extremely low signal loss—0.2 dB at 1500 MHz! Ideal for protecting scanners, shortwave receivers, CB and ham equipment, VCRs, TVs, satellite receivers, FM stereosystems and more. May be used with transmitters up to 100 watts.

The tiny protector measures only 3/4" D x 1-1/2" L and comes equipped with standard F connectors for home entertainment equipment and Grove accessories. Adaptors are available as shown below.

- Best Buy** ✓
- |                                    |                |                      |
|------------------------------------|----------------|----------------------|
| <b>LA1F</b> (with F conn)          | <b>\$19.95</b> | \$3.50 UPS           |
| <b>LA1B</b> (with BNC conn)        | <b>\$24.95</b> | \$6.50 UPS 2nd Day;  |
| <b>LA1P</b> (with PL-259 UHF conn) | <b>\$24.95</b> | \$4 US Priority Mail |
| <b>LA1M</b> (with Motorola conn)   | <b>\$29.95</b> | \$6.50 Canadian APP  |
|                                    |                | \$8.50 Canadian UPS  |

\*Will not prevent AC power line surges; such protectors are available from Radio Shack, computer stores, and most department stores.

# REALISTIC® AMPLIFIED SHORTWAVE ANTENNA



**Best Buy** ✓

It's an active antenna and amplified preselector all in one! Operated by an internal nine-volt battery (not supplied) or an optional AC wall adaptor, this new signal booster is ideal for virtually any 3-30 MHz shortwave receive, desktop or portable.

Offering a variable attenuator/gain control from 0-20 dB and razor-sharp tuning, the Realistic booster has its own 29" telescoping whip, or will accept an external antenna through its RCA phono-type antenna connector. Receiver antenna interconnect cable with 1/8" (3.5 mm) plug included for Sony and similar receivers (other adaptors available; see accessories below).

Take heart, apartment dwellers and suitcase travellers, strong signals can come in small packages!

Order ANT 17 **\$29<sup>95</sup>**

\$4.50 UPS  
 \$6.50 UPS 2nd Day Air  
 \$4 US Priority Mail  
 \$6.50 Canadian APP  
 \$8.50 Canadian UPS

- ACCESSORIES**
- ACC20 AC wall adaptor **\$9.95**  
 ACC108 RCA & PL-259 (UHF) adaptors, random wire antenna **\$9.95**

# UNIVERSAL REEL ANTENNA

## For Shortwave Portables

**Best Buy** ✓

Whether you have a Sony, Sangean, Realistic, Grundig or other whip-portable shortwave radio, this new, 23-foot, reel-out antenna can be firmly attached for better reception. When not in use it can be conveniently stored in a pouch or even your pocket!

Comes with whip clip and 1/8" (3.5 mm) standard antenna adaptor.



Order ANT 16 **\$12<sup>95</sup>** Only

\$4.50 UPS  
 \$6.50 UPS 2nd Day Air  
 \$4 US Priority Mail  
 \$6.50 Canadian APP  
 \$8.50 Canadian UPS

For Technical Support  
**CALL LARRY**  
**704-837-7081**





## Caveat: ECPA '86

The Electronic Communications Privacy Act of 1986 forbids the monitoring of certain services receivable on scanners. Although there is no evidence at present that the new law is being enforced, violations are punishable by fine and/or imprisonment. The following list is included as a guide only and Grove Enterprises assumes no liability for its accuracy or interpretation.

The law forbids monitoring: 1. Encrypted or scrambled signals; 2. Paid subsidiary carrier authorization (SCA); 3. Mobile telephones or voice paging; 4. Remote broadcast or studio/transmitter links.

You may monitor any other transmission "readily accessible to the public" including public safety, federal and military, aircraft and maritime, amateur and CB, business and industrial, private land mobile, cordless telephones, and any interference-causing protected transmission long enough to identify its source.

A new law makes it unlawful to manufacture a cellular-receiving scanner after April 26, 1994, but it lawful to own one.

## Choosing a Scanner

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The consumer electronics marketplace bulges with products competing for your dollar. By following a few simple rules you will make the right choice in buying that new scanner.

### Frequency Range

The most common frequency ranges monitored by scanner enthusiasts are: 30-50 MHz (VHF low band), 144-174 MHz (VHF high band) and 450-512 MHz (UHF). Most scanners now include the 406-420 MHz federal government land mobile and 420-450 MHz amateur band as well. These bands all utilize narrow band FM for communications.

The civilian VHF aircraft band (118-136 MHz, AM mode) provides another interesting target for monitoring as does the emerging 806-960 MHz band, sometimes called the cellular band or microwave mobile (806-960 MHz), now in use in all major metropolitan areas. Very few receivers include the military UHF aircraft band (225-400 MHz, AM mode).

The prospective scanner buyer should decide which of these aspects of listening are of greatest interest before purchasing a radio.

### Programmable or Crystal?

Stay away from crystal type scanners unless you won't be changing frequencies. For the majority of listeners, keyboard programmable scanners are the way to go—no question about it.

### Mobile, Base, or Handheld?

Scanners come in a variety of models to meet the particular needs of the listener. Do a lot of driving? Install a mobile unit. Constantly in and out of the car, office or home? You may prefer a hand-held. Do most of your listening in the office

of home? A base unit would be more practical.

Many models are capable of more than one application, accepting power from AC mains as well as mobile battery supply. AC wall adaptors charge batteries in hand-helds and power the scanner when plugged in.

Most hand-held scanners have small speakers which do not compete well in a noisy environment; an earphone or external speaker will solve that problem.

### Technical Specifications

The terminology used to rate a scanner's performance may be explained simply.

**Sensitivity** refers to the weakest signal voltage that the radio will respond to readably; the lower the number, the better. Good sensitivity is about 0.5 microvolts.

**Selectivity** is the radio's ability to reject adjacent frequency interference; the sharper, the better, especially in urban areas. Average selectivity for a scanner would be about 30 kHz (sometimes stated as +/- 15 kHz) at -50 dB.

**Dynamic range** is the ability of a scanner to handle extremely strong as well as extremely weak signals. Since none of them does it very well, this specification is never given.

**Intermodulation** ("intermod") is an internally-generated interference produced when strong signals mix together, producing spurious signals. It is often recognizable because of its distorted contents from two or more signals and its appearance at numerous frequencies. Intermod results from inadequate dynamic range.

**Images** are produced in every receiver. They are recognizable as a duplicate of the legitimate signal, offset by 21.4, 21.6 or 21.7 MHz (twice the intermediate frequency—I.F.) from the actual frequency, depending upon the scanner. With up-conversion design, image frequencies fall outside the tuning range and aren't a problem.

### Which Scanner is the Best?

Like answering "Which car is the best?", we must list qualifications. At the present time, programmable scanners are available from Uniden, ICOM, AOR, and Radio Shack. Additionally, the Kenwood RZ-1, and ICOM R-1, R-100, and R-9000 offer shortwave, VHF/UHF coverage and scannable memories.

Most popular scanners have excellent sensitivity and reasonable selectivity (reject adjacent channel interference), but suffer from intermodulation and image interference from strong signal overload, especially when used with an outdoor antenna.

The PRO-2006 is more immune to interference from intermodulation and images, making it an excellent choice for strong or weak signal areas like large cities.

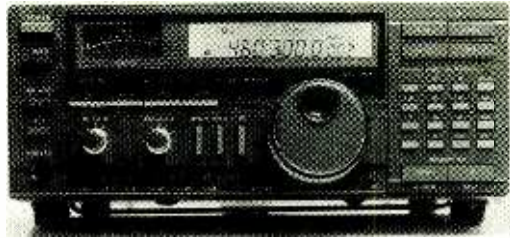
In comparison, while the Bearcat BC890XLT, BC2500XLT and BC8500XLT have superb sensitivity, they are easily overloaded by strong signals; use them in rural or deep suburban locations, or with their own attachable whip antennas in the city.

*If you have further questions regarding selecting a scanner, call our Technical office at 704-837-7081.*





# ICOM R7100



Best Buy

## VHF/UHF Communications Receiver

ICOM has done it again! They took the most popular features of the legend R7000, added a few features that listeners wanted, and released this new, compact receiver.

The R7100 offers continuous frequency coverage (no gaps) from 25 to 2000 MHz with a brilliant LCD readout, selectable tuning steps, USB/LSB/AM/FM modes with wide and narrow selectivity switching.

900 scannable memory locations store frequency, channel number, mode and search steps; ten search banks with memory channel lockout, 5 or 12 channel-per-second scan speed and scan-resume delay are also found on this model.

High sensitivity and stable SSB reception are additional perks, as are sensitive, all-mode squelch and easy pushbutton function selection.

Order SCN15  
**\$1289**  
\$15 UPS  
\$28.50 UPS 2nd Day Air  
\$35.50 US Priority Mail  
\$27.50 Canadian UPS;  
\$43.50 Canadian APP

### OPTIONAL ACCESSORIES

- ACC36 UT36 Voice Synthesizer \$35.95
- ACC71 SP20 Speaker \$164.95
- ACC72 TVR7100 Video Adaptor \$209.95
- ACC74 CT17 Computer Interface \$95.95
- ACC78 Service Manual \$40.95
- ACC83 MB5 Mounting Bracket \$40.95
- ANT8N 46" Extendable Whip Antenna \$23.95
- Installation of one or more accessories \$20

### SPECIFICATIONS

Frequency range: 25-2000 MHz  
Keypad frequency entry: Yes  
Tuning steps: 100 Hz; 1/5/10/12.5/20/25/100 kHz; 1 MHz  
RIT (fine tuning): No  
Display: LCD  
Dimmer: yes  
Type of listening recommended: Utility monitoring  
Receiving modes: AM, WAM, FM, WFM, NFM, USB, SSB  
Memory: 900 channels  
Scan: 5/12 ch/sec Banks: 9  
Lockout: Yes Priority: Yes  
Search: Yes  
Delay: 0/2/5/10 seconds; infinite  
Squelch: Yes  
Clock: Yes with 2 event timer  
Audio output power: 2 W @ 10% THD  
Record output: Yes  
Recorder activator: Yes  
S meter: Analog  
Computer interface: Optional  
Conversion scheme: Triple up-conversion under (778.7 or 266.7, 10.7 MHz; 455 kHz)  
Sensitivity: 0.35 mV NFM  
Selectable preamplifier: No  
Selectable attenuator: Yes  
Selectivity: @-6dB: 2.4 kHz SSB, 6 kHz AM/NFM, 15 kHz AM/FM, 150 kHz WFM  
Image rejection: 50 dB  
Frequency stability: +/- 1.5 ppm 25-250 MHz; +/- 5 ppm 25-1000, +/- 10 ppm 1300 MHz  
Dynamic range: Unknown  
Noise blanker/limiter: ANL  
Antenna connector: N female  
Auxiliary connector: 10.7 MHz IF Output  
Dimensions: 9-1/2"W x 3-3/4"H x 9-1/2"D  
Weight: 13 lbs.  
Power requirements: 13.8 VDC, 117/240 VAC  
Warranty: One year  
Accessories included: Plugs, fuses, DC cord, spare screws

SDU  
100

# ICOM R7000

## Continuous Coverage VHF/UHF Receiver

SDU  
100



Used by government and military agencies worldwide, the ICOM R7000 provides total spectrum 25-1000 (triple conversion) and 1025-2000 (quadruple conversion) MHz frequency coverage with 100 Hz fluorescent readout accuracy! Add to this enormous tuning range 99 memory channels with priority function, keyboard entry or dial tuning, FM/AM/SSB modes, five

tuning speeds, S-meter/center tuning meter, 2.8/9/15/150 kHz filter selection, noise blanker, internal speaker with 2.5 watts of audio power, spurious signal suppression greater than 60 dB, high

sensitivity, and programmable scanning with auto-write memory, and you have the most advanced scanner receiver ever designed for the serious VHF/UHF listener.

Order SCN4  
**\$1239**  
\$15 UPS; \$33.50 UPS 2nd Day Air  
\$35.50 US Priority Mail  
\$27.50 Canadian UPS  
\$43.50 Canadian APP

## A Scanner Sampler

© Grove Enterprises, Inc. 1993

The spectrum above 30 MHz is saturated with two-way intrigue—air to ground, ship to shore, military and federal government, public safety, hams, businesses, trains—if you know where to look.

By convention, the VHF and UHF portion of the bands are divided into discrete segments (bands), names as follows: 30-50 MHz, VHF low band; 72-76 MHz, VHF mid band; 108-174 MHz, VHF high band; 225-512 MHz, UHF; and 806-960 MHz, microwave mobile or cellular band.

- 35.02 McDonald's order window
- 40.50 Army Search/Rescue
- 41.50 Army aircraft

46.61 Cordless phones	151.625 Itinerant walkie talkies	243.0 Military aircraft calling/distress
-46.97	154.37 Fire mutual aid	
46.75 Pres. Helicopter	154.570 McDonald's order window	255.4 MI flight weather
47.42 Red Cross	154.600 McDonald's order window	257.8 Mil tower calling
49.83 Wireless baby monitors	155.34 Hospital/ambulance	259.7 Space Shuttle
-49.89	155.37 Police/mutual aid	311.0 SAC primary
121.5 Air emerg/calling	156.8 Boats call/distress	321.0 SAC secondary
122.0 Flight weather	157.05 Coast Guard	344.6 Mil flight weather
122.2 Flight service	157.10 Coast Guard	349.4 MAC primary
122.75 Gov't air to air	157.15 Coast Guard	381.8 CG aircraft
122.8 Small airport UNICOM	162.40 Weather service	415.200 Fed protection service
122.9 Gov't aircraft	-162.55	415.700 Air Force One
122.925 Natural resources air	163.200 U.S. Marshall	417.200 Fed Protection Service
123.1 Air search & rescue	165.2875 ATF	462.675 GMRS
123.45 Pilots air to air	165.375 Secret Service	462.95 Paramedics
126.2 Military air towers	165.950 IRS	-463.175
135.575 AT3-3 satellite	167.050 FCC	464.500 PGA tournament
-135.625	167.5625 FBI	469.500 NASCAR racing
	170.875 Federal Prisons	
	170.925 Federal Prisons	
	236.6 Air Force Towers	
	241.0 National Guard	



# ICOM R-100 MOBILE/DESKTOP SCANNER

For the full-spectrum listener, this compact scanner is hard to beat: continuous tuning range from 100 kHz through 1856 MHz with direct keypad entry or knob tuning, 100 channel memory, switchable preamp and attenuator, programmable 24-hour clock timer, 10 search ranges, LCD bargraph S meter, AM and wide/narrow FM mode detection (no SSB) just begin the list of features.

### SPECIFICATIONS

**Frequency range:** 100 kHz-1856 MHz  
**Keypad frequency entry:** Yes  
**Tuning steps:** 1/5/8/9/10/12.5/20/25 kHz  
**RIT (fine tuning):** Tuning knob  
**Display:** Backlit LCD  
**Dimmer:** On/Off  
**Type of listening recommended:** Domestic and international broadcasting, including FM and TV audio; VHF/UHF scanning  
**Receiving modes:** AM, narrow FM, wide FM  
**Memory:** 100 channels  
**Scan:** Three modes/20 channels per second  
**Banks:** More with programmable characteristics  
**Lockout:** Yes      **Priority:** Yes  
**Search:** 10 ranges  
**Delay:** 3 programmable functions  
**Squelch:** All modes  
**Clock:** 24 hour with timer and sleep switch  
**Audio output power:** 2.5 watts  
**S meter:** LCD bargraph  
**Computer interface:** No  
**Conversion scheme:** Triple conversion

**Sensitivity:** 500 kHz-1.6 MHz 10 uV AM; 1.6-50 MHz 5.6 uV narrow FM/3.3 uV AM; 50-905 MHz 0.4 uV narrow FM/1 uV AM  
**Selectable preamplifier:** 15 dB  
**Selectable attenuator:** 20 dB  
**Selectivity:** (-6 dB) narrow FM 15 kHz; 180 kHz wide FM; AM 6 kHz  
**Image rejection:** Unknown  
**Frequency stability:** Unknown  
**Dynamic range:** Unknown  
**Noise blanker/limiter:** Yes  
**Antenna connector:** PL259/N  
**Auxiliary connector:** No  
**Dimensions:** 5.8"W x 2"H x 7.1"D  
**Weight:** 3.1 lbs.  
**Power requirements:** 12 VDC  
**Warranty:** One year  
**Accessories included:** VHF/UHF telescoping antenna, HF wire antenna, DC power cable, mounting bracket, fuses, speaker plug, cable tie and screws.

Order SCN14  
 Grove discount price only  
**\$657<sup>95</sup>**  
 \$8.50 UPS  
 \$14.50 UPS 2nd Day Air  
 \$16.50 US Priority Mail  
 \$12.50 Canadian UPS  
 \$19.50 Canadian APP

**ACCESSORIES:**  
 ACC75 AC Adaptor \$24.95

# ICOM R1 General Coverage Pocket Scanner

### SPECIFICATIONS

**Frequency range:** 100 kHz-1300 MHz  
**Keypad frequency entry:** Yes  
**Tuning steps:** 0.5/5/8/9/10/12.5/15/20/25/30/50 kHz  
**RIT (fine tuning):** Tuning knob  
**Display:** Edge-lit LCD  
**Dimmer:** On/Off  
**Type of listening recommended:** Domestic & international broadcasting, including FM and TV audio; VHF/UHF scanning  
**Receiving modes:** AM, narrowband FM, wideband FM  
**Memory:** 100 channels  
**Scan:** 20 channels/second  
**Banks:** No  
**Lockout:** Yes  
**Priority:** Yes  
**Search:** 10 ranges with autoloading  
**Delay:** 2 second, 10 second timed  
**Squelch:** All modes  
**Clock:** With on/off timer  
**Audio output power:** 150 milliwatts @ 8 ohms  
**Record audio output:** Earphone jack  
**S meter:** LCD bargraph  
**Conversion scheme:** Trip conversion 266.7/10.7 MHz/455 kHz  
**Sensitivity:** NFM, 0.4 uV; AM, 0.79 uV, WFM 3.2 uV  
**Selectable attenuator:** No  
**Selectivity:** (-6 dB) AM 15 kHz; narrow FM 15 kHz; wide FM 150 kHz  
**Noise blanker/limiter:** No  
**Antenna connector:** BNC  
**Dimensions:** 1-7/8"W x 4"H x 1-1/2"D  
**Weight:** 9.9 ounces  
**Power requirements:** Internal nicads; 120 VAC wall charger/adaptor included; 6-16 VDC external  
**Warranty:** One year  
**Accessories included:** Flex antenna, AC wall adaptor/charger, belt clip

Imagine, a shortwave and VHF/UHF scanner with continuous 100 kHz-1300 MHz (no gaps!) frequency coverage that fits in your shirt pocket! You select the mode—AM, FM wide or narrow—and install up to 100 of your favorite shortwave and scanner frequencies into memory. An edge-lit LCD shows frequency, memory channel, and other settings as well.

Less than 2" wide, the R1 scans, searches and autoloading, has knob tuning, a signal strength indicator, and even a 24-hour clock timer! This high-sensitivity scanner comes with flex whip, rechargeable battery, AC wall charger/adaptor and belt clip.

### ACCESSORIES:

<b>ANT8</b>	Range extending telescoping whip	<b>\$16.95</b>
<b>ACC19</b>	R1 Carrying case (no battery pack)	<b>\$22.95</b>
<b>ACC30</b>	BP-90 Replaceable AA battery case	<b>\$18.95</b>
<b>ACC33</b>	BP-90 Carrying case	<b>\$19.95</b>
<b>ACC32</b>	BP-84 Triple-life battery pack	<b>\$79.95</b>
<b>ACC34</b>	BP-84 Carrying case	<b>\$19.95</b>
<b>ACC31</b>	CP-12 Cigarette power cord	<b>\$20.95</b>
<b>ACC48</b>	BC-72A Desk Charger	<b>\$99.95</b>
<b>ACC76</b>	Service Manual	<b>\$35</b>
<b>OCC81</b>	Owner's Manual	<b>\$9.95</b>
<b>ACC90</b>	BA12 Battery Charger Adaptor	<b>\$19.95</b>
<b>HDP1</b>	Headphones	<b>\$19.95</b>



Order SCN13  
 Retail \$599  
 Only  
**\$449<sup>95</sup>**  
 \$6.50 UPS  
 \$9.50 UPS 2nd Day Air  
 \$11.50 US Priority Mail  
 \$9.50 Canadian UPS  
 \$12.50 Canadian APP



# UNIDEN BC-2500XLT

## Latest Version! Now Improved!

### SUPER HANDHELD



This brand new, 400 channel powerhouse offers wide frequency coverage (25-550, 760-1300 MHz, less cellular), Turbo Scan (100 channels per second), instant NOAA weather access, high contrast LCD, rechargeable battery pack, continuous tuning dial, search store, channel activity counter, and much, much more!

Order SCN18  
Only  
**\$359<sup>95</sup>**  
\$6.50 UPS  
\$9.50 2nd Day Air  
\$9.50 US Priority Mail  
\$10.50 Canadian UPS  
\$12.50 Canadian APP

#### SPECIFICATIONS

Frequency range: 25-550, 760-1300 MHz (less cellular)  
Keypad frequency entry: Yes  
Tuning steps: 5, 12.5, 25, 50 kHz  
RIT or fine tuning: Tuning dial  
Display: Backlit LCD  
Dimmer: No  
Recommended use: Full-coverage scanning  
Receiving modes: AM, NFM, WFM  
Memory: 400 channels  
Scan: 100/20 channels per second  
Banks: 20  
Lockout: Any channel  
Priority: 10 channels  
Search: Automatic memory store  
Delay: 2 second, all channel  
Squelch: Yes  
Audio output power: 400 milliwatts  
Record audio output: Speaker and earphone jacks  
Sensitivity: 1 uV, 25-550 MHz; 1.5 uV, 550-1100 MHz;  
3 uV, 1100-1300 MHz; 3 uV, WFM  
Antenna connector: BNC  
Dimensions: 2-3/4"W x 7-1/2"H x 1-1/4"D  
Weight: 17 oz.  
Power requirement(s): 12 VDC, attachable nicad battery pack  
Warranty: One year  
Accessories included: Flex whip, battery pack, AC adaptor/charger, carrying case, manual

Wide coverage, high performance,  
desktop/mobile scanner!

# UNIDEN BC-890XLT

Uniden stuns the market with this low cost scanner which features wide frequency coverage (29-54, 108-174, 216-512, 806-956 MHz), 200 memory channels, 100-channel-per-second TurboScan, weather alert, CTCSS (optional), channel activity counter, 10 channel priority, search autostore, tape recorder output, memory channel transfer, and much, much more!



Order SCN19  
Only  
**\$269<sup>95</sup>**  
\$7.50 UPS  
\$14.50 2nd Day Air  
\$15.50 US Priority Mail  
\$17.50 Canadian APP  
\$11.50 Canadian UPS

#### SPECIFICATIONS

Frequency range: 29-54, 108-174, 216-512, 806-956 MHz (less cellular)  
Keypad frequency entry: Yes  
Tuning steps: 5/12.5/25 kHz  
RIT or fine tuning: Continuous tuning dial  
Display: Backlit LCD  
Dimmer: No  
Recommended use: Wide coverage mobile  
Receiving modes: AM, NFM  
Memory: 200 channels  
Scan: 100/20 channels per second  
Banks: 10  
Lockout: Any channel

Priority: 10 channels  
Search: With memory autostore  
Delay: 2 seconds, any channel  
Squelch: Yes  
Clock: No  
Audio output power: 2.7 watts  
Record audio output: Tape output  
Sensitivity (12 dB SINAD): 0.75 uV NFM, 1.1 uV AM (nom)  
Antenna connector: BNC  
Auxiliary connector: RCA jack  
Dimensions: 10-1/2"W x 3-1/2"H x 7-1/2"D  
Weight: 3 lbs. 14 oz.  
Power requirement(s): 12 VDC  
Warranty: One year  
Accessories inc: AC adaptor, telescoping whip, instructions

SDU  
100

**ACCESSORIES:**  
ACC96 CTCSS Squelch Decoder  
Installation Fee

\$59.95 ACC23 Mobile Cig Lighter Adaptor \$9.95  
\$10.00 ACC109 DC Power Cord \$9.95  
ACC110 Mobile Mounting Bracket \$9.50



# UNIDEN BC-200XLT

Unlike its competitors, the BC200XLT comes equipped with a detachable nicad battery pack, leatherette holster, AC wall charger/adaptor, and earplug.

Instant weather scan is pre-programmed. Audio has plenty of punch for noise locations. The rugged, rubberized keypad has excellent tactile feedback.



**Order SCN9** Retail \$489<sup>95</sup>  
**NOW Only**  
**\$229<sup>95</sup>**  
 \$6.50 UPS  
 \$9.50 UPS 2nd Day Air  
 \$9.50 US Priority Mail  
 \$10.50 Canadian UPS  
 \$12.50 Canadian APP

**ACCESSORIES:**

- ACC99** Extra Bearcat Battery pack **\$39.95**  
*(plus \$4 UPS shipping if ordered separately)*
- ACC16** Extra Metro West long-life battery pack **\$65.95**  
*(see page 27 for more details)*
- ACC70** Pro-Charge 7 *(see page 27 for more details)* **\$36.95**
- HDP1&** Headphones *(see page 28 for more details)* **\$19.95**
- ACC35** 3/32" Adaptor for headphones **\$1.50**

**SPECIFICATIONS**

Frequency range: 29-54, 118-174, 406-512, 806-956 MHz (less cellular)  
 Keypad frequency entry: Yes  
 Tuning steps: 5/12.5 kHz determined by frequency range  
 RIT (fine tuning): No  
 Display: Edgelit LCD  
 Dimmer: On/Off  
 Type of listening recommended: VHF/UHF utilities  
 Receiving modes: AM/narrow FM determined by frequency range  
 Memory: 200 channels  
 Scan: 16 channels per second  
 Banks: 10  
 Lockout: Yes  
 Priority: Ten channels  
 Search: Yes  
 Delay: Individual channels  
 Squelch: Yes  
 Audio output power: 450 milliwatts  
 Record audio output: Earphone jack  
 Recorder activator: No  
 S meter: No  
 Computer interface: No  
 Conversion scheme: Double conversion  
 Sensitivity: 0.4 uV 29-54/136-174 MHz, 0.5 uV 406-512 MHz, 0.8 uV 118-136 MHz, 1uV 806-956 MHz  
 Selectable attenuator: No  
 Selectivity: (-55 dB) 50 kHz  
 Image rejection: Unavailable  
 Frequency stability: Unavailable  
 Dynamic range: Unavailable  
 Noise blanker/limiter: No  
 Antenna connector: BNC  
 Dimensions: 2-11/16"W x 7-1/2"H x 1-3/8"D  
 Weight: 1-1/4 lbs.  
 Power requirements: 12 VDC (internal nicads)  
 Warranty: One year  
 Accessories included: Earplug, AC wall adaptor/charger, flex whip, leatherette case



# UNIDEN BC-760XLT

Measuring a tiny 2" high by 7" wide and deep, this scanner is ideal for mobile installations. Many agencies use CTCSS ("PL") sub-audible encoding to separate groups of users. With the optional ACC96 decoder and ACC97 switch installed in your BC760XLT, you can choose which channels you want to hear with normal squelch, and which will respond only to the proper tones all at the same time!

The 760 also has pre-programmed service search capability, just push a button to find active police, fire, aircraft, maritime, emergency, and weather channels!

**SPECIFICATIONS**

Frequency range: 29-54, 118-174, 406-512, 806-956 MHz (less cellular)  
 Keypad frequency entry: yes  
 Tuning steps: 5/12.5 kHz determined by frequency range  
 RIT (fine tuning): No  
 Display: Backlit LCD  
 Dimmer: No  
 Type of listening recommended: VHF/UHF utilities  
 Receiving modes: AM, narrow FM determined by frequency range  
 Memory: 100 channels plus pre-programmed police, fire, aircraft, maritime, emergency, weather frequencies  
 Scan: 15 channels per second  
 Banks: 5  
 Lockout: Yes  
 Priority: Channel one  
 Search: Yes  
 Delay: yes  
 Squelch: Yes  
 Audio output power: 3 watts  
 Record audio output: External speaker jack; no activator  
 S meter: No  
 Computer interface: No  
 Conversion scheme: Dual conversion  
 Sensitivity: 0.4 uV 29054/136-174 MHz, 0.5 uV 406-512 MHz, 0.8 uV 118-136 MHz, 1uV 806-956 MHz  
 Selectable preamplifier: Optional accessory  
 Selectable attenuator: No  
 Selectivity: (-55 dB) 50 kHz  
 Noise blanker/limiter: No  
 Tone control: No  
 Antenna connector: BNC  
 Dimensions: 6-5/16"W x 1-5/8"H x 7-3/8"D  
 Weight: 1-1/4 lbs.  
 Power requirements: 12 VDC, 120 VAC wall adaptor included  
 Warranty: 1 year  
 Accessories inc: Mobile mount kit, DC cord, attachable whip

**Order SCN12** Retail \$399<sup>95</sup>  
**Only**  
**\$269<sup>95</sup>**

\$7.50 UPS  
 \$13.50 UPS 2nd Day Air  
 \$15.50 US Priority Mail  
 \$12 Canadian UPS  
 \$20.50 Canadian APP

**OPTIONAL ACCESSORIES**

- ACC96** CTCSS Squelch Decoder **\$59.95**
  - ACC97** ON/OFF plug-in switch **\$13.95**
  - ACC98** Preamplifier (plug-in) **\$29.95**
  - Installation of ACC96 and 97** **\$10.00**
- (must use ACC96 and ACC97 together)*



Latest Version!

# UNIDEN BC-8500XLT

This new Bearcat is Uniden's top of the line, featuring wide frequency coverage (25-550, 760-1300 MHz (less cellular), a tuning dial, 500 memory channels (250 with alphanumeric display capability), 100 channel-per-second "TurboScan", search with automatic storage of active frequencies, a count feature to alert users which channels are active, and a CTCSS (tone squelch) option (not yet available).

A powerful 3 watt amplifier provides loud, clear sound from the internal speaker or optional external speaker. Channels may be individually selected in any combination for external tape recording. Tuning steps are automatically defaulted to the best choice for whichever range is being tuned (also manually selectable).



Order SCN21 Today!  
Only  
**\$386<sup>95</sup>**  
\$7.50 UPS  
\$14.50 2nd Day Air  
\$15.50 US Priority Mail  
\$17.50 Canadian APP  
\$11.50 Canadian UPS

## SPECIFICATIONS

Frequency range: 25-550, 760-1300 MHz (less cellular)  
Tuning steps: 5, 12.5, 25, 50 kHz  
Display: Backlit LCD  
Dimmer: Two step and off  
Recommended use: Remote areas for outside antenna  
Receiving modes: AM, NFM, WFM  
Memory: 500 channels (250 alphanumeric) with activation counter  
Scan: 100 or 20 ch/second  
Banks: 20  
Lockout: Individual channel  
Priority: 10 channels  
Search: With autostore  
Delay: All channel  
Squelch: Yes  
Clock: No  
Audio output power: 3 watts  
Record audio output: Selectable channels  
Recorder activator: No  
Signal strength indicator: No  
Computer interface: No  
Conversion scheme: Triple up conversion  
Sensitivity: 0.5 microvolt (nom.)  
Selectable preamplifier: No  
Selectable attenuator: No  
Antenna connector: BNC  
Auxiliary connector: Recorder output  
Dimensions: 10-1/2"W x 3-1/2"H x 7-1/2"D  
Weight: 4 lbs.  
Power Requirements: 120 VAC/12 VDC  
Warranty: One year

SDU  
100

# UNIDEN BC-855XLT

Don't be fooled by its low price. The BC855XLT is a low-profile, desktop scanner with outstanding performance. Offering a frequency range of 29-54, 108-174, 406-512 and 806-956 MHz (less cellular, restorable), this sleekly-designed scanner includes 50 memory channels, individual channel lockout and delay, automatic squelch, priority, a non-volatile memory and powerful, crisp 1.3 watt audio!

All land mobile public service bands, civilian aircraft band, instant weather channel access are yours, and its BNC jack accommodates a snap-on whip (provided) or your external antenna. A 12-volt AC wall adaptor is included.



## SPECIFICATIONS

Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular)  
Keypad frequency entry: Yes  
Tuning steps: 5/12.5 kHz determined by frequency range  
RIT (fine tuning): No  
Display: Edgelit LCD  
Dimmer: No  
Type of listening recommended: VHF/UHF utilities  
Receiving modes: AM/narrow FM determined by frequency range  
Memory: 50 channels  
Scan: 5/15 channels per second (selectable)  
Banks: 5  
Lockout: Yes  
Priority: Channel one  
Search: Yes  
Delay: Individual channel  
Squelch: Yes  
Audio output power: 1.3 watts  
Record audio output: Earphone jack  
Recorder activator: No  
S meter: No  
Computer interface: No  
Conversion scheme: Double conversion  
Sensitivity: 0.5 uV or better 29-512-MHz FM, 0.8 uV 108-136 MHz, 1 uV 806-956 MHz  
Selectable attenuator: No  
Selectivity: (-55 dB) 50 kHz  
Noise blanker/limiter: No  
Tone control: No  
Antenna connector: BNC  
Dimensions: 9"W x 6-1/2"D x 2-1/4"H  
Weight: 1 lb. 6 oz.  
Power requirements: 12 VDC  
Warranty: One year  
Accessories included: 120 VAC wall adaptor, whip

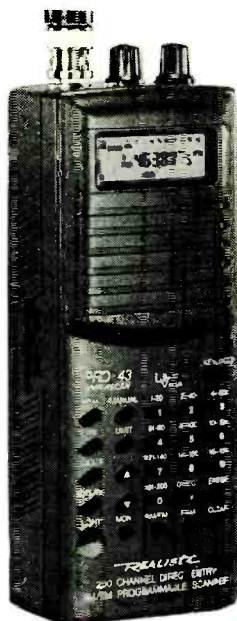
Order SCN8  
Retail \$299<sup>95</sup>  
Sale Price Only  
**\$169<sup>95</sup>**

\$6.50 UPS  
\$9.50 2nd Day Air  
\$9.50 Priority Mail  
\$10.50 Canadian UPS  
\$13 Canadian APP



**SPECIFICATIONS**

Frequency range: 30-50, 118-174, 220-512, 806-999.9875 MHz (less cellular)  
 Keypad frequency entry: Yes  
 Tuning steps: 5/12.5/25 kHz determined by frequency range  
 RIT or fine tuning: No  
 Display: Edgellit LCD  
 Dimmer: On/off  
 Recommended use: VHF/UHF utilities  
 Receiving modes: AM/FM narrow  
 Memory: 200 channels  
 Scan: 25 channels per second  
 Banks: 10 Lockout: Yes  
 Priority: Channel one  
 Search: 50 channels per second  
 Delay: Individual channel, 2 seconds  
 Squelch: Yes  
 Audio output power: 250 milliwatts  
 Record audio output: Earphone jack  
 Recorder activator: No  
 Computer interface: No  
 Conversion scheme: Triple conversion: 608/48.5 MHz/455 kHz  
 Sensitivity: 1 microvolt or better  
 Selectable attenuator: No  
 IF selectivity: (-50 dB) 40 kHz  
 Antenna connector: BNC  
 Dimensions: 2-1/4" W x 5-3/4"H x 1-1/2"D  
 Weight: 14.5 ounces  
 Power requirements: 9 VDC (6 AA cells)  
 Warranty: One year—unit must be returned to Grove Enterprises within first year for warranty repair—see page 1.  
 Accessories Inc: Belt clip, flex whip antenna



Best Buy

**REALISTIC® PRO-43  
HANDHELD SCANNER**

Yes, Realistic is now leading the market with their new 200 channel, programmable, handheld scanner with increased frequency range: 30-50, 118-174, 220-512 and 806-1000 MHz (less cellular).

Military and civilian aircraft, public safety, amateur, government, maritime, business—all VHF/UHF communications services in a compact 2-1/4" W x 5-3/4"H x 1-1/2"D handheld weighing only 14-1/2 ounces, sturdy belt clip and BNC flex whip included.

Runs off 6 AA alkaline or nicad batteries (not included). With its fast 25 per second scan rate, this triple-conversion scanner is a winning companion!

**ACCESSORIES:**

ANT 8	Range extending antenna	\$16.95
ACC38	DC Adaptor	\$12.95
ACC47	Nicad batteries (6 required)	\$2.25/each
ACC100	AC Wall Adaptor/Charger	\$6.95

Order SCN 17  
 Retail \$349  
 Grove price only \$293.95  
 \$6.50 UPS  
 \$9.50 2nd Day Air  
 \$9.50 US Priority Mail  
 \$10.50 Canadian UPS  
 \$13 Canadian APP

**REALISTIC®  
PRO-2006**



Best Buy

**SPECIFICATIONS**

Frequency range: 25-520, 760-1300 MHz (less cellular)  
 Keypad frequency entry: Yes  
 Tuning steps: 5, 12.5, 30 (if cellular restored), 50 kHz  
 RIT (fine tuning): No  
 Display: Backlit LCD  
 Dimmer: Yes  
 Type of listening recommended: VHF/UHF communications; casual FM broadcast  
 Receiving modes: AM, wide & narrow FM  
 Memory: 400 channels; frequency and mode  
 Scan: 26 channels per second  
 Banks: 10 Lockout: Individual channel  
 Priority: Any channel Search: 26 channels per second  
 Delay: 2 seconds, individual channels  
 Squelch: Yes  
 Audio output power: 1.3 watts @ 8 ohms  
 Record audio output: 600 mV @ 10K ohms  
 Recorder activator: No  
 Smeter: No  
 Computer interface: No  
 Conversion scheme: Triple up-conversion  
 Sensitivity: 0.5 uV NFM 25-1100 MHz; 2 uV AM; 3 uV WFM  
 Selectable attenuator: Yes, 10 dB  
 Selectivity: (-6/-50 dB) 18/30 kHz NFM/AM; 300/600 kHz WFM  
 Noise blanker/limiter: No  
 Tone control: No  
 Antenna connector: BNC  
 Dimensions: 8-1/2"W x 4"H x 8"D  
 Weight: 4-3/4 lbs.  
 Power requirements: 120 VAC @ 60 Hz; 13.8 VDC (10 watts)  
 Warranty: One year—unit must be returned to Grove Enterprises within first year for warranty repair—see page 1.  
 Accessories included: Telescoping whip, manual

Order SCN 6  
 Retail \$399  
 Grove price only \$359  
 \$7.50 UPS  
 \$15 2nd Day Air  
 \$16 US Priority Mail  
 \$12.50 Canadian UPS  
 \$19.50 APP

With no crystals needed, this exceptional unit delivers a wide range of frequencies not found on most scanners—including public service, broadcast FM, military bands and CB! Resists strong signal overload interference.

Rapid 26-channel-per second scan and search complements this scanner's excellent interference immunity for metropolitan monitoring. Built-in speaker and telescoping antenna are included. Jacks provide for external speaker, tape recorder, and DC adaptor.

**Mobile Mounting Bracket  
for PRO-2006**

Turn this desktop into a mobile unit for only \$24.95!

The heavy, rubberized steel clasps hug tightly around the PRO-2006 while the adjustable mounting bracket can be fastened firmly with hand-tightened thumbscrews. Take the best scanner on the road with you!

Order ACC102 \$27.95

plus \$4 UPS shipping if ordered separately



**SPECIFICATIONS**

Frequency range: 29-54, 108-174, 406-512, 806-956 MHz (less cellular)  
 Keypad frequency entry: yes  
 Tuning steps: 5 kHz  
 RIT or fine tuning: No  
 Display: Backlit LCD  
 Dimmer: No  
 Recommended use: General purpose scanning  
 Receiving modes: NFM, AM (civilian air band only)  
 Memory: 100 channels plus 10 search-monitor channels  
 Scan: 20 channels per second, up or down  
 Banks: 10  
 Lockout: Individual channel  
 Priority: Any channel  
 Search: Yes, up or down  
 Delay: Any channel  
 Squelch: Yes  
 Audio output power: 220 milliwatts  
 Record audio output: Earphone jack (full power)  
 Recorder activator: No  
 Conversion scheme: Dual, 10.8 MHz and 450 kHz  
 Sensitivity: 0.8 microvolts nominal  
 Antenna connector: BNC  
 Dimensions: 2-3/4"W x 5"H x 1-3/8"D  
 Weight: Approx. 1 lb  
 Power requirement(s): 6 volts (4 replaceable AA cells)  
 Warranty: One year—unit must be returned to Grove Ent. within first year for warranty repair—see page 1  
 Accessories included: Flex whip, belt clip, manual



Best Buy

**REALISTIC® PRO-46  
HANDHELD SCANNER**

Monitor low, band, high band, civilian aircraft, UHF and 800 MHz; enter up to 100 channels into fast-scan memory. Be ready for anything, any time with replaceable alkaline or nicad batteries (4 AA required).

Instant weather channel access; keyboard lock prevents accidental commands; memory erase command. Compact, sensitive, easy to operate. Comes with whip, sturdy belt clip and excellent instruction manual.

Order SCN 20  
Grove price only  
**\$193<sup>95</sup>**

\$6.50 UPS  
\$9.50 2nd Day Air  
\$9.50 US Priority Mail  
\$10.50 Canadian UPS  
\$12.50 Canadian APP

**ACCESSORIES:**

- ANT 8 Range extending antenna \$16.95
- ACC38 DC Adaptor \$12.95
- ACC47 Nicad batteries (4 required) \$2.25/each
- ACC100 AC Wall Adaptor/Charger \$6.95

**REALISTIC® PRO-2026  
MOBILE SCANNER**

Made for Radio Shack by Uriden, the PRO-2026 has the major features of the popular BC760XLT, but is designed for mobile operation only (the Bearcat accessories will not work with the PRO-2026).

Frequency range is 29-54, 108-174, 406-512 and 806-956 MHz (less cellular). Any channel may be selected for priority, sampled every few seconds for activity. Factory-preset police, fire, ambulance, aircraft, marine and weather channels may be scanned by pressing the appropriate button when driving in new locations.

A great mobile scanner (mounting bracket included) at a great price, only \$189.95!



Best Buy

**SPECIFICATIONS**

Frequency Range: 29-54, 108-174, 406-512, 806-956 (less cellular)  
 Keypad frequency entry: Yes  
 Tuning steps: 5\*12.5 kHz  
 RIT or fine tuning: No  
 Display: Fluorescent  
 Dimmer: No  
 Recommended use: Mobile  
 Receiving modes: AM/NFM  
 Memory: 100 channels  
 Scan: 14 channels per second  
 Banks: 5 banks of 20 channels each  
 Lockout: Individual channel  
 Priority: Any one channel  
 Search: 18 steps per second  
 Delay: Individual channel  
 Squelch: Yes

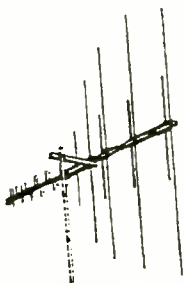
Audio output power: 1.1 watts  
 Record audio output: No  
 Recorder activator: No  
 Conversion scheme: Dual conversion, 10.8 MHz/450 kHz  
 Sensitivity: 0.7 microvolts average  
 Selectable attenuator: No  
 IF selectivity: (-50 dB) 30 kHz  
 Selectable AGC: No  
 Antenna connector: BNC  
 Dimensions: 6-5/8"W x 1-5/8"H x 7-3/8"D  
 Weight: 2 lbs. 3 oz.  
 Warranty: One year—unit must be returned to Grove Ent. within first year for warranty repair—see page 1.  
 Accessories included: Mobile mount kit

Order SCN 16  
Grove price only  
**\$219<sup>95</sup>**

\$5.50 UPS  
\$9.50 UPS 2nd Day Air  
\$9.50 US Priority Mail  
\$10.50 Canadian UPS  
\$12.50 Canadian APP



**The Best Scanner Antenna Money Can Buy!**



6-9 dB gain  
over other  
scanner  
antennas!  
Rotator  
available  
on page 27!

**SCANNER BEAM**

Our world-renowned Scanner Beam has been improved to provide unexcelled 30-50 MHz low band reception, 108-136 MHz aircraft, 136-174 MHz high band, 225-400 MHz military aircraft and satellites, 406-512 MHz UHF, and 806-960 MHz microwave mobile.

HAMS NOTE—can be used for transmitting up to 25 watts on 144, 220, and 420 MHz bands. 50/75 ohms nominal impedance.

May be used with inexpensive TV antenna rotator for boresight accuracy, or fixed in one direction as required for those elusive, distant stations. Local signals still come in loud and clear from all directions.

Balun transformer, offset pipe and all mounting hardware included (requires TV type F connector on your coax—available on pg. 29). Approximate size 8'H x 5'L.

**Only shipped in U.S. and Canada**

Order ANT1  
Only  
**\$59<sup>95</sup>**  
\$6.50 UPS  
\$10 UPS 2nd Day Air  
\$11.50 US Priority Mail  
\$13.50 Canadian APP  
\$10.50 Canadian UPS

**Which Scanner Antenna?**

**HAND-HELD** - The whip antenna included with your scanner is fine for local reception of strong signals, but if you are interested in reaching out further, a larger external antenna is necessary. The Grove ANT-8 adjustable whip and ANT-14 Austin Condor Flex Antenna will increase range on any hand-held scanner or transceiver equipped with a BNC connector (not screwthread).

Hand-held radios may also be connected to mobile and rooftop base antennas as well, provided they are equipped with BNC connectors.

**MOBILE** - Inside a vehicle, a scanner's attachable whip is shielded by the vehicle body and an external antennas is recommended. A rooftop location is ideal, providing uniform response in all directions. Mounted elsewhere (fender, trunk, bumper), the pattern will favor the direction of the car body.

The short length and low height of mobile antennas limit their distance, and loading coils restrict their frequency range. 800 MHz coverage is more by accident than design. The mobile scanning enthusiast must be content with local listening.

Mobile scanner antennas like the popular Grove ANT4 come equipped with a Motorola plug or BNC connector and have strong magnetic bases which will not come loose at normal road speeds.

Amplified antennas offer much greater range, but may overload and cause intermod in strong signal areas.

If an outside antennas is undesirable, the car's existing AM/FM antenna may be used with a multicoupler like the Grove ANT-63 with some compromise in signal strengths. In weak signal areas, a preamplifier like the Grove PRE-4 or GRE Super Amplifier will boost reception range.

**BASE** - Many discons advertise 25-1300 (or higher) MHz response. While it is true that any antenna will get some signals at virtually any frequency, most discons have poor response below 100 MHz and erratic response above that.

Several discons are extremely well constructed including the Diamond D-130. It is an excellent, omnidirectional, VHF/UHF transmitting antenna and performs well for local reception.

Most low-cost base antennas work well for local coverage (25-50 miles distance). Remember, the smaller the dimensions of the antenna, the poorer it will perform on low band (30-50 MHz).

The best nondirectional, all-band scanner antennas on the market are the Antennacraft ANT-7 Scantenna, sold by Grove, and the Channel Master 5094A Moni'Tenna available from Channel Master dealers.

An "omnidirectional" antenna mounted within a couple of feet of a metal mast or another antenna becomes directional due to signal reflection. In this case, turn the mast or antenna while listening to signals of interest to determine the best overall position, then tighten it down.

For extended range, a directional antenna like the new Grove Scanner Beam, used with an inexpensive TV rotator, offers gain in its forward direction while receiving local signals all around. VHF and UHF reception in excess of 100 miles under favorable conditions are possible.

**THE SCANTENNA FROM ANTENNACRAFT**



This new, full-frequency, omnidirectional scanner antenna will equal or outperform any competitor on the market. Its dipole-cluster design utilizes broadband techniques to provide continuous frequency coverage from 25-1300 MHz, offering superb reception of public safety, civilian and military aircraft, hams, personal communication devices, maritime, CB — anything in its frequency range! Requires TV type F connector on your coax—available on pg. 29. Approximate size 7-1/2'H x 4-1/2'W.



Order ANT 7  
Only  
**\$39<sup>95</sup>**  
\$6.50 UPS  
\$10 UPS 2nd Day Air  
\$7.50 US Priority Mail  
\$11.50 Canadian APP  
\$10.50 Canadian UPS

**Only shipped in U.S. and Canada**

**Best Discone on the Market for VHF/UHF Receivers**

**PROFESSIONAL WIDEBAND DISCONE**

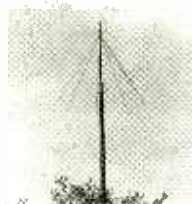
The discone antenna is used by government and military agencies worldwide because of its recognized high performance, wide bandwidth characteristics. Now Diamond offers a professional grade discone at a popular price.

Designed for use with wide-frequency coverage VHF/UHF scanners and receivers, the Diamond D130J discone consists of 16 rugged, stainless steel elements and is capable of transmitting up to 200 watts in the amateur 50, 144, 220, 432, 900, and 1200 MHz bands.

As a receiving antenna, the D130J is omnidirectional for continuous 25-1000 MHz (and above) coverage. A base-loaded, vertical top element is used as a low band (30-50 MHz) frequency extender.

The elements are arranged on a 24-inch support pipe equipped with two strong mounting brackets to accommodate any standard mast-pipe (1" to 2-1/8" diameter).

Choose 50 or 100 feet of coax from page 29.



Order ANT 9  
Only  
**\$85<sup>95</sup>**  
\$6.50 UPS  
\$10 UPS 2nd Day Air  
\$7.50 US Priority Mail  
\$10.50 Canadian APP  
\$9.50 Canadian UPS

**SPECIFICATIONS**

Frequency coverage	25-1300 MHz
Impedance	50 ohms nominal
Power rating	200 watts
Connector	UHF
Antenna style	Discone
Vertical length	66 inches
Weight	2.2 pounds





GROVE EXCLUSIVE!

MAGNETIC MOUNT MOBILE ANTENNA

For years, mobile scanning enthusiasts have had to settle for compromised reception from antennas designed long ago for limited coverage scanners. Now, Grove offers the first high-performance mobile antenna designed in our labs for new, wide-frequency-coverage scanners.

Utilizing Grove's exclusive bifilar helix construction, this sleek, black, 24"



fiberglass whip, mounted on a strong magnetic base, assures premium signal

reception on 30-50 MHz low band, 88-108 MHz FM broadcast, 118-136 MHz aircraft, 136-174 MHz high band, 225-400 MHz military aircraft, 406-512 MHz UHF land mobile and 806-960 MHz microwave mobile.

Tested to withstand interstate highway speed and equipped with 12 feet of coaxial cable with Motorola and BNC connector, the ANT-4 will perform where others fail.

ANT4 \$6 UPS \$10 UPS 2nd Day Air \$6.50 US Priority Mail \$10 Canadian APP \$9 Canadian UPS \$49.95

ANT4W \$5 UPS \$7.50 UPS 2nd Day Air \$5 US Priority Mail \$6.50 Canadian APP \$8 Canadian UPS \$24.95

(Whip antenna alone for your 3/8" x 24 TPI threaded mount)

WINDSHIELD MOUNT SCANNER ANTENNA

Order ANT 13

\$29.95

No holes and no magnets, this 22" Valor Glas-Master is designed for today's wide-frequency-coverage mobile scanners, 30-1200 MHz (not for transmitting). Simply clean an area on your rear window (cleansing pad included) and stick the antenna base to the glass. A companion coupler on the inside of the window does the rest!

15' of cable with BNC and Motorola connectors included—no assembly required.

\$5 UPS \$10.50 UPS 2nd Day Air \$5.50 US Priority Mail \$8.50 Canadian UPS \$8 Canadian APP

ACCESSORY: ACC94 Adhesive re-mount kit \$4.95



EXTEND THE RECEPTION OF YOUR HANDHELD RADIO

Today's hand-held VHF/UHF scanners and handie-talkies from Bearcat, Regency, Cobra, Radio Shack, ICOM, Yaesu, and Kenwood have excellent sensitivity and talk power, but their range is reduced by their short "rubber ducky" antennas. Grove has the solution!

Just replace that inefficient flex antenna with our universal full-length whip—and stand back! Extendable from 7 to 46 inches, the ANT-8 is made of chrome-plated brass and equipped with a standard BNC base. Transmits on 45-960 MHz; receives 25-1300 MHz.

If your interest doesn't include 30-50 MHz low



band, choose our new ANT-19 with its full adjustability from 4"-18" (transmits and receives from 144-960 MHz).

Order

ANT-8 (7"-46") \$16.95

ANT-19 (4"-18") \$12.95

ANT-8B \$21.95

ANT-8N \$23.95

(w/right-angle N adaptor)

\$4 UPS \$6.50 UPS 2nd Day Air \$4.50 First Class Mail \$4.50 Canadian APP \$8 Canadian UPS



Coaxial Cable

At VHF/UHF frequencies, common CB-type RG-58/U coax will actually absorb signals. We recommend low-loss RG-6/U like the Grove CB-50 and CB-100 cables with custom connectors. It offers 100% shielding, small diameter, flexibility and low cost.

For the lowest possible losses, especially in runs in excess of 100 feet, use Belden 9913 or RG-11/U mini. These cables and connectors are available from some electronics distributors and TV and video accessory outlets.

Don't be concerned with impedance; although your scanner is designed to work with 50 ohm cable, no antenna made maintains a constant impedance over the wide frequency range of modern scanners. You want low loss and 100% (or close to it) shielding.

Preamplifiers

One of the most misunderstood accessories is the preamplifier. Its purpose is to boost weak signals which would remain unheard on a receiver without it. To do this it needs to have a very low noise figure, but very little gain.

Antenna-mounted preamplifiers are especially helpful in overcoming losses in long coaxial cables (over 100 feet and above 400 MHz).

Wideband (untuned) preamplifiers like the Grove PRE-4 and GRE Super Amplifier work well in low-signal-strength environments, but when used with outside antennas in a metropolitan area they saturate easily, causing desensitization (signals are weaker than before) and generate intermodulation (spurious signals) as well.

Filters and Attenuators

The most common cause of interference is strong signal overload. An attenuator reduces all signals, regardless of frequency, by the same amount; band-reject (stop-band) filters and wave traps remove a specific swath of spectrum; low-pass filters cut off all signals above a certain frequency; high-pass filters cut off all frequencies below a certain frequency; and notch filters attempt to remove one specific frequency.

The Grove FTR-5 is a combination filter designed to reduce interference from shortwave, A.M., TV and FM broadcast stations, a common problem, as well as any one user-selected signal in the 100-174 MHz range.

For Technical Support CALL LARRY 704-837-7081





**Start with our Scantenna or Scanner Beam then add our PRE-4 Wideband Preamplifier**



**SPECIFICATIONS**  
**GAIN:** 20 dB max.  
**CONNECTORS:** Type F for signal line; 2.1 mm. DIN for power  
**CABINET:** Custom formed aluminum, baked enamel finish  
**DIMENSIONS:** 4"W x 2"H x 3"D  
**WEIGHT:** 10 oz.

Shipping charges for system ordered together:  
 \$10.50 UPS \$17.50 UPS 2nd Day Air  
 \$16 US Priority Mail \$17.50 Canadian UPS  
 \$20.50 Canadian Air Parcel Post

## GROVE'S OUTDOOR SCANNER ANTENNA SYSTEM

The PRE 4 Power Ant has taken all the best from its successful predecessors and combined them into one powerful signal booster for scanners, even TV and FM stereos!

Equipped with a high gain, low noise, solid state amplifier stage, the PRE-4's front panel control allows custom selection of up to 20 dB of amplification!

The weatherproof remote booster module may be attached at the antenna for maximum effectiveness to overcome coax cable losses, or may be mounted on the back of the control box for convenience. Power is supplied to the remote module through your coax.

Two output connectors are provided allowing you to use two scanners on one antenna at the same time! All connectors are type F for maximum signal transfer. 120VAC/12VDC wall adaptor included.

### WHAT YOU NEED TO ORDER:

**ANT 7 Scantenna (see page 22) \$39.95**  
 or  
**ANT 1 Scanner Beam (see page 22) \$59.95**  
 plus

**PRE 4 Preamplifier \$59.95**

**CK-SC Scanner Interconnect Kit \$12.95**  
 (includes one 3' F/F cable with adaptors for most scanners)

*\*Not recommended for metropolitan use*

**Connects to any scanner equipped with an external antenna jack**

## GROVE'S INDOOR SCANNER ANTENNA SYSTEM

**The Apartment Dweller's Dream**

The Grove Hidden Antenna System is a high performance, amplified indoor antenna for scanner monitoring. The 66-inch flexible ANT6 can be tucked in a corner, hung behind a drape—just about anywhere out of sight. And when connected to the powerful PRE4 signal booster, you have instant coverage from 30 to over 1000 MHz.

Yes, wide area scanner coverage will be at your fingertips, and you can operate two scanners at one time!



### WHAT YOU NEED TO ORDER:

**ANT 6 Hidden Antenna (see page 25) \$19.95**

**PRE 4 Preamplifier \$59.95**

**CK-SC Scanner Interconnect Kit \$12.95**

(includes one 3' F/F cable with adaptors for most scanners)

Shipping charges for system ordered together:

\$7.50 UPS  
 \$11.50 UPS 2nd Day Air  
 \$8.50 US Priority Mail  
 \$15.50 Canadian UPS  
 \$13.50 Canadian APP



## AUSTIN CONDOR HIGH PERFORMANCE FLEX ANTENNA



For years we have been looking for a replacement "rubber duckie" that really makes a difference on handheld scanners. It's here! The Austin "Condor" is guaranteed to improve weak signal scanner reception—on all frequency ranges—when compared to the original scanner antenna.

Order



**ANT 14**

**\$29<sup>95</sup>**

**ANT 14B**

**\$34<sup>95</sup>**

(w/BNC right-angle conn)

**ANT 14N**

**\$36<sup>95</sup>**

(w/N right-angle conn)

\$4.50 UPS  
\$6.50 UPS 2nd Day Air  
\$4.50 US Priority Mail  
\$8.50 Canadian UPS  
\$6.50 Canadian APP

## GROVE HIDDEN ANTENNA



The Hidden Antenna may be used alone with your scanner for improved signal reception, over your attachable whip or may be connected to the powerful Grove PRE4 or TUN4 for considerably increase signal strength on scanners and shortwave receivers.

This five-foot, thin-profile, flexible wire antenna can be hung in a corner, behind a drape—just about anywhere out of sight. Comes fully assembled with 20 feet of coax and F male connector, with 3 adaptors for PL259 (UHF), Motorola and BNC connections.

\$4.50 UPS  
\$7.50 UPS 2nd Day Air  
\$4 US Parcel Post  
\$6.50 Canadian APP  
\$8.50 Canadian UPS

For Technical Support  
**CALL SUE**  
**704-837-7081**



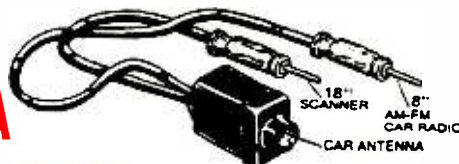
Order **ANT 6**

Only

**\$19<sup>95</sup>**

## Convert Your Car Antenna Into a Scanner Antenna!

## MOBILE ANTENNA MULTICOUPLER



How would you like to enjoy excellent 30-960 MHz mobile scanner reception using your existing AM/FM auto antenna? That's right; no holes, no magnets, no scratched paint or clumsy cables going through doors and windows. Ideal for low-profile monitoring installations where a separate scanner antenna is desirable.

The Para Dynamics PDC 63 Mobile Multicoupler takes only seconds to install and allows simultaneous use of your AM/FM car radio as well as your mobile scanner. Comes equipped with your choice of Motorola or BNC connector.

Order **CPL-63M** **\$14<sup>95</sup>**

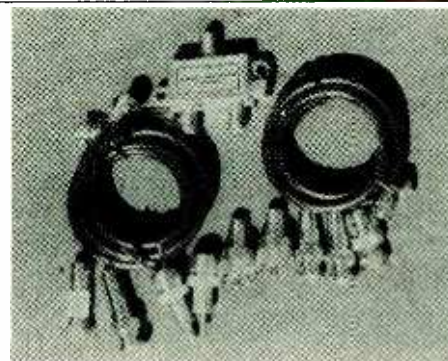
(Motorola)

Order **CPL-63B** **\$16<sup>95</sup>**

(BNC)

\$4 UPS  
\$6.50 2nd Day Air  
\$4.50 US Priority Mail  
\$8.50 Canadian UPS  
\$6.50 Canadian APP

## DUAL SCANNER MULTICOUPLER



Would you like to connect two scanners (or one scanner with separate antenna jacks) to one antenna cable? The new Grove CPL-SC universal multicoupler is the answer! Insertion loss only 3 dB maximum; port isolation typically 25 dB; impedance 50-75 ohms.

Consisting of a wide-frequency-coverage splitter (25-1300 MHz or more) and two 3' output cables with adaptors for UHF (PL-259), Motorola, F, and BNC connectors (input and output), you'll be set for any combination.

Order  
**CPL-SC**

**\$29<sup>95</sup>**

\$4 UPS  
\$6.50 UPS 2nd Day Air  
\$4.50 US Priority Mail  
\$8 Canadian UPS  
\$6.50 Canadian Air PP

ADP 15 adaptor for ICOM  
AH-7000 discone, \$5.95



## METRO WEST LONG LIFE BATTERY PACK

For BC200XLT, BC205XLT, and BC100XLT

Over the years, MetroWest has introduced a number of innovative accessories for hand-held scanners, but none is more welcome than their new, double-life battery pack for the popular Uniden BC200XLT hand-held scanner.

The "Pro-Pack 1200" is numbered for its 1200 mA charge capacity, twice that of the BP200 which comes with the BC200XLT from Uniden. The replacement look-alike slips right on the scanner to replace the original.

About 1/4" taller and slightly fatter than the Uniden pack, the Pro-Pack 1200 does not allow

the top strap of the Uniden case to button over the top as it did before, but is still may wrap around the front or back securely.

Because the charger jack on the battery pack had to be relocated due to battery density, the scanner must be removed from its holster before it can be recharged. The user may wish to punch a second hole at the new location for plug-in convenience. An AC wall adaptor/charger is included.



Order ACC16  
Only  
**\$65<sup>95</sup>**  
\$4.50 UPS  
\$7.50 2nd Day Air  
\$6.50 US Priority Mail  
\$8.50 Canadian UPS  
\$8.50 Canadian APP

## METRO WEST PRO-CHARGE 7

Drop-In Charger for the Metrowest Battery!



Charge your high-capacity Metrowest battery like the pros with this drop-in charger (not for original Bearcat battery pack). Automatic circuit provides a full charge in just seven hours, yet prevents overcharging! Powered by your 12 VDC wall adaptor or from the Grove ACC23 cigarette lighter cord.

Lightweight (8 oz.) and compact (3-1/4" x 4-1/2" x 1-3/4"); two-color LED indicator shows charge status.

Order ACC70  
Only  
**\$36<sup>95</sup>**  
\$4.50 UPS  
\$7.50 2nd Day Air  
\$6.50 US Priority Mail  
\$8.50 Canadian UPS  
\$8.50 Canadian APP

## UNIVERSAL POWER SUPPLY/CHARGER

Our universal AC adaptor is especially rugged, capable of switching to your choice of 3, 4.5, 6, 7.5, 9 or 12 volts DC at a current of 500 milliamps (1/2 amp)! Another switch lets you choose + or - polarity.

An array of plugs on its interconnect cord assures proper mating to any electronic accessory. Plugs into standard house current (120 VAC, 60 Hz).

Best Buy

Order ACC20  
A \$15 dollar value  
for Only  
**\$9<sup>95</sup>**  
plus \$4.50 UPS  
or Priority Mail



## RECHARGEABLE AA NICAD BATTERIES

650 Milliamp High capacity AA Nicads for use with the PRO-43 as well as other handheld scanners.

Order ACC 47  
**\$225/ea** plus \$2 shipping any quantity

## MOBILE CIGARETTE LIGHTER POWER ADAPTOR

For Bearcat Scanners!

Simply plug the Grove ACC23 into your vehicle's cigarette lighter to charge the batteries and/or operate your Bearcat scanner or any other mobile accessory, including radar detectors and the Grove PRE4 Power Ant, which use a 12 volts DC, center pin positive, 2.1 mm barrel connector.

This power adaptor has an internal, replaceable 3A fuse.



Order ACC23  
Only  
**\$9<sup>95</sup>**  
INCLUDING FIRST CLASS MAIL SHIPPING



## THE INNOVA POWERPAK

This rechargeable battery pack provides 12 volt DC at up to 10 amps maximum (fused) from its sealed, 6.5 ampere-hour, lead-acid battery. LED indicators signal recharge, low battery and system ready status. Handy grip and carrying strap included.

Ideal for campers, field day, cellular telephones, DC power tools, emergency lighting, boating, camcorders, scanner and shortwave receivers, ham and CB emergency power—anywhere battery operated equipment must be used for extended periods.

Includes cigarette lighter plug for recharging from a vehicle. Equipped with cigarette lighter socket for standard accessories.

Fast recharge—as little as one hour from a running vehicle, or 8-10 hours from the optional AC adaptor. 7-1/4"W x 3-1/4"D x 10"H, 6.8 lbs.



For Technical Support  
CALL SUE  
704-837-7081



Order PWR2  
Only

**\$49<sup>95</sup>**

\$6 UPS  
\$12.50 UPS 2nd Day Air  
\$11 US Priority Mail  
\$15 Canadian UPS  
\$14.50 Canadian APP

### ACCESSORIES

ACC113	AC wall charger	\$12 <sup>95</sup>
ACC114	6.8 W solar charger panel (special order)	\$129 <sup>95</sup>
ACC115	AC inverter	\$79 <sup>95</sup>
ACC116	3-12 VDC @ 500 mA universal cigarette lighter adaptor	\$11 <sup>95</sup>
ACC118	Storage pouch for cables, accessories	\$9 <sup>95</sup>

## LIFETIME GUARANTEE!



## ONE-HOUR RECHARGEABLE NICAD SYSTEM

You can't buy better, faster-charging NiCd batteries than the Gates Millenium. These 750 mAH AA cells will provide noticeably longer operation for scanners, portable radios, recorders, and accessories, and they come with a lifetime manufacturer's warranty! The Rapidcharger will recharge 2 or 4 Millenium AA cells at a time in just one hour.

**\$\$ ORDER BOTH AND SAVE \$\$**  
Rapidcharger plus 4 AA cells **\$24<sup>95</sup>**

### ORDER TODAY:

ACC119	Rapidcharger	\$19 <sup>95</sup>
ACC120	AA cells	(2) \$5 <sup>95</sup> (4) \$9 <sup>95</sup>

\$5 UPS  
\$7.50 UPS 2nd Day Air  
\$6 US Priority Mail  
\$9 Canadian UPS  
\$8 Canadian APP

## NEW! HEAVY DUTY ANTENNA ROTATOR

Ideal for the Grove Scanner Beam, amateur VHF/UHF antennas, TV and FM antennas, this new rotator features a heavy-duty motor with high torque (tested through 70 MPH winds) with brake pads to protect the drive train.

Two synchronized motors give precise station location; extra-strength machine gears break through ice loads without binding. Mounts on masts up to 2" diameter. Requires 3 conductor cable (optional). Fast and easy installation.



### ACCESSORIES:

ACC121	50 feet 3-conductor cable	\$5 <sup>95</sup>
ACC122	100 feet 3-conductor cable	\$8 <sup>95</sup>

Order ROT1  
Only

**\$59<sup>95</sup>**

\$6 UPS  
\$12.50 UPS 2nd Day Air  
\$11 US Priority Mail  
\$15 Canadian UPS  
\$14.50 Canadian APP



## M-400 UNIVERSAL DECODER

Featuring simple, pushbutton mode selection, this self-contained, compact, minu-driven decoder, when connected to your scanner's or VHF/UHF receiver's external speaker jack, will reveal CTCSS (PL) subaudible tones, DCS (DPL) squelch tones, POCSAG and GOLAY digital paging messages, DTMF (Touch Tone\*) telephone numbers, even air-go-ground ACARS digital aircraft messages!

Connected to your shortwave receiver (SSB mode), you can read RTTY, SITOR, FEC-A, SWED-ARQ, and even FAX pictures when used with a printer! There is no Morse code or packet capability. A jack is included to attach an external speaker so that you can still listen if your internal speaker is disconnected when using the M-400.

Input jacks provided for either audio or discriminator interconnect. AC wall adaptor, full manual and pair of 1/8" (3.5 mm) plugs included.



Order DEM 9  
Only  
**\$399<sup>95</sup>**  
\$7.50 UPS  
\$14.50 UPS 2nd Day Air  
\$17.50 US Priority Mail  
\$20.50 Canadian APP  
\$13 Canadian UPS

### SPECIFICATIONS

**MODES:** Baudot (45, 50, 57, 100 baud)  
ASCII (75, 110, 150 baud)  
SITOR A & B (Automatically selected)  
FEC-A (96 & 144 baud)  
SWED-ARQ (S, M and L lengths)  
FAX (120 LPM/576 IOC, to parallel printer port)  
Paging (GOLAY, POCSAG) ACARS  
Echoed squelch (CTCSS, all 41 frequencies; DCS all 104 codes); Tone dialing (DTMF, all 16 digits)

**FILTER:** Low tone (mark) 1275 Hz  
Shifts: 170, 425, 850 Hz; plus 100-1000 Hz variable  
**INPUTS:** Speaker, 4-16 ohms @ 100 mW max.  
Discriminator, 10K ohms @ 0.25 V max.  
**OUTPUT:** ASCII 8 bit Centronics standard, DB25 connector  
**DISPLAY:** Two-line, 20 characters each, 5/7 dot matrix LCD  
Power required: 11-16 VDC @ 200 mA, AC adaptor included  
**SIZE:** 8-3/4"W x 2-1/2"D x 8"D  
**WEIGHT:** 2 lbs



Order HDP 1  
Only  
**\$19<sup>95</sup>**  
\$5 UPS  
\$7.50 UPS 2nd Day Air  
\$6 US Priority Mail  
\$9 Canadian UPS  
\$6 Canadian APP

## COMMUNICATIONS HEADPHONES

Imagine—an ear-cushioned headset with adjustable volume controls for each earpiece and a stereo/mono switch built in! These new phones have a power handling capacity of 0.5 watts, frequency response of 20-18,000 Hz, sensitivity of 105 dB and 32 ohm impedance to match all

**ACCESSORIES:**  
**ACC80 Universal Adaptor**  
**One or two 1/4" headphone**  
**jacks to 3/32" (2.5 mm) or**  
**1/8" (3.5 mm) plug — fits**  
**all model scanners \$12.95**  
**ACC35 3/32" Adaptor**  
**(fits BC200XLT) \$1.50**

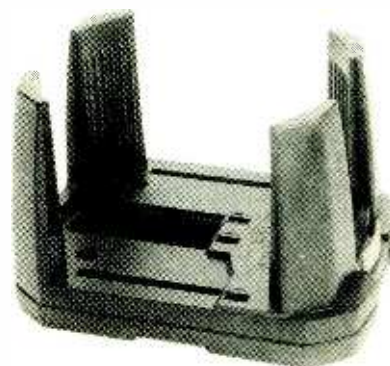
## HANDHELD RADIO MOUNT

How many times have you tried to set your hand-held scanner or handie-talkie on a table, ledge or car seat, just to have it fall over? That problem is solved with this handy holder.

Its sturdy jaws do an excellent job of supporting your radio — even with cables and antennas connected — on a desk or table top or even the bumpy environment of a vehicle, plane or boat.

Cushion pads are provided for an even better grip, especially on small handhelds like the ICOM R-1 and Realistic PRO-43.

Order ACC106  
Only  
**\$9<sup>95</sup>**  
\$4.50 UPS  
\$7 2nd Day Air  
\$4.50 US Priority Mail  
\$7 Canadian APP



## CLIP-ON MINI SPEAKER For Handheld Radios



Best Buy

Order SPK 9  
Only  
**\$9<sup>95</sup>**  
\$4 UPS  
\$6.50 UPS 2nd Day Air  
\$4 US Priority Mail  
\$7.50 Canadian UPS  
\$5.50 Canadian APP

Brand new! This tiny (2" square), lightweight (2-3/4 oz.) speaker plugs into any standard 1/8" (3.5 mm) earphone jack and provides excellent, concentrated sound when clipped to a lapel or collar. Ideal for crowded or noisy locations where you don't want your scanner blaring and don't want the confinement of an earphone.

**ACC35 3/32"**  
**(2.5 mm) adaptor**  
**(for BC200XLT,**  
**etc.)**  
**\$1.50**



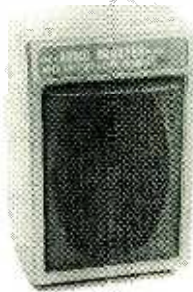
## NAVAL HTS-2 COMPACT AMPLIFIED SPEAKER

**Includes Tape Recorder Activator!**

Designed for handheld walkie talkies and scanners, this amplified speaker puts out a resounding one watt of audio in noisy locations!

Powered by AA nicads or alkalines, battery saver automatically shuts off power when no sound is present. It activates a tape recorder whenever sound is present (1/8", 3/32" cables included)!

Compact (2-3/4" W x 4-1/2" H x 2-1/4" D) and lightweight (10 ounces), this amplified speaker can be snugly placed on your radio desk or stuck by Velcro to your vehicle's dashboard. LED signal light, audio level adjustment and amplifier bypass switch are included!



### ACCESSORIES:

ACC23 Cigarette lighter power adaptor	\$9.95
ACC20 AC wall power supply	\$9.95
ACC47 Nicad AA batteries (4 required)	\$1.95/each

Order SPK11  
Only  
**\$29<sup>95</sup>**  
\$5 LPS  
\$7.50 UPS 2nd Day Air  
\$6.50 US Priority Mail  
\$9.50 Canadian UPS or APP

## PREMIUM LOW-LOSS RG6/U CABLE WITH ADAPTORS



Have you had trouble finding the right coaxial adaptors for linking your antenna and receiver? We can help! Simply tell us what adaptors you need, or what antenna and radio you will be using. We will provide you with a cable which is ready to attach between your antenna and receiver!

### CB50

(50 feet w/ adaptors)

**\$19<sup>95</sup>**

\$5 UPS  
\$8.50 UPS 2nd Day Air  
\$6 US Priority Mail  
\$8 Canadian APP  
\$8.50 Canadian UPS

### CB100

(100 feet w/ adaptors)

**\$29<sup>95</sup>**

\$5.50 UPS  
\$9.50 UPS 2nd Day Air  
\$7 US Priority Mail  
\$9 Canadian APP  
\$9.50 Canadian UPS

**No other lengths available**

### Cable loss per 100 ft:

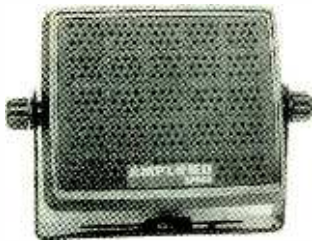
1.6 dB @ 50 MHz  
2.6 dB @ 170 MHz  
4.6 dB @ 450 MHz

## AMPLIFIED EXTENSION SPEAKER

The new Grove SP10 amplified extension speaker turns your scanner's mousy squeak into a lion's roar! Your radio's volume control automatically sets the SP10's output power. Ideal for emergency vehicles—or your own car (rugged metal tilt bracket included). Fills noisy locations with clear, room-expanding sound.

Capable of delivering a powerful 10 watts when connected to your radio's external speaker or earphone jack, yet small enough for under-dash mounting. Connect the SP10 to your vehicle's 12 volt system for mobile applications, or order the SP10A for AC operation.

Imagine—crisp, room-filling sound from your Realistic, Bearcat, or other compact receiver. Sleek, black communications styling and no more small-speaker blues!



### Order SP10

(for mobile use) only

**\$39<sup>95</sup>**

### Order SP10A

(for 120 VAC) only

**\$49<sup>95</sup>**

\$5 UPS  
\$9.50 UPS 2nd Day Air  
\$6.50 US Priority Mail  
\$9.50 Canadian UPS or APP

### SPECIFICATIONS

Dimensions: 4-1/2"H x 5"W (less bracket)  
Weight: 26 ounces  
Speaker size: 4" square  
Impedance: 3-16 ohms nom.  
Input audio voltage: 1.5 V P-Pmax.  
Audio power: 18 watts peak  
Operational power: 12 VDC @ less than 200 mA typ.  
Audio cable: 10 ft., 3.5 mm (1/8") mini phone plug  
DC cable: 5 ft., color-coded; in-line 2 A. fuse

## ADAPTORS AVAILABLE

ADP1	UHF Female to F male
ADP2	F Female to PL259 Male
ADP3	F Female to N Male
ADP4	F Female to Male Mini-Plug
ADP5	N Female to BNC Male
ADP6	UHF Female to Male Mini-Plug
ADP7	UHF Female to N Male
ADP9	F Female to BNC Male
ADP11	UHF female to MOT male
ADP13	BNC/BNC (right angle elbow)
ADP14	F female to RCA male
ADP15	N female to F male
ADP17	BNC female to F male
ADP18	F/2 wires
ADP19	UHF/2 wires
ADP22	MOT/BNC
ADP24	BNC female to PL259 male
ADP25	F female to Motorola male
ADP26	F/F Barrel
ADP27	Banana Plug

Adaptors may be ordered separately for \$5.95 each.  
Free shipping if ordered with other products;  
\$1.50 for one or more shipped alone.

**If you are unsure which adaptor is needed,  
call Larry or Sue at 704-837-7081  
for assistance.**



Order GSM2  
Order GSM3  
**\$99.95** each  
\$6 UPS  
\$7.50 UPS 2nd Day Air  
\$5 US Priority Mail  
\$8.50 Canadian UPS  
\$7.50 Canadian APP

## ELF RADIATION DETECTOR

By special arrangement with the manufacturer, Grove brings you this sensitive, dependable ELF (extremely low frequency) exposure meter to arm you against the hazards of electromagnetic radiation.

Not limited to just 60 Hz like competitive narrow-frequency units, this meter measures from 30-300 Hz to detect harmonic radiation from power lines and other sources.

Simply switch this pocket instrument on and read instantly the radiation from computers, radios, home stereo and video systems, appliances, power lines, electric blankets and more. Standard 9-volt battery included.

Choose from low-level GSM2 (0.1-199.9 milligauss) or standard GSM3 (1-1999 milligauss), only \$99.95 each including vinyl zipper pouch and informative instructions.

## POCKET FREQUENCY COUNTERS

frequencies of transmitters, walkie-talkies, mobile radios, base stations, cordless phones, ham and CB radios, radio control units and other signal emitters.

This tiny, precision instrument offers outstanding sensitivity and TCXO (temperature compensated crystal oscillator) accuracy of 1 part per million. Price includes rechargeable battery pack and AC wall charger/adaptor, but not antenna (available from the list of accessories below). Operates for several hours on a fresh charge, or continuously with the wall adaptor.

The effective range varies from about one foot (cordless phones) up to 75 feet or more for more powerful transmitters.

From **Realistic®!**

Handsomely housed in a rugged wrap-around metal case with ergonomic side grips, this pocketable counter is ideal for measuring frequencies between 1 and 1300 MHz (2-20 mV sensitivity) from nearby transmitters and sports a large, 8-digit, edgelit LCD readout with a resolution of 100 hertz.

Powered by four (optional) AA alkaline rechargeable NiCd cells, or a 9-volt wall adaptor/recharger; 1.28 and 0.128 second sampling rates; 1 PPM accuracy; 19" telescopic whip included.



From **Optoelectronics!**

Just look at the advanced features of the premium 3000A: Digital filtering and auto capture, ten-digit LCD readout, backlite for clear night-time viewing; total-spectrum 10 Hz-3000 MHz frequency range—from sub-audible through microwave! 1 mV typical sensitivity; 16-segment LCD signal-strength bargraph for tuning nearby transmitters or tracking hidden transmitters; even lab measurement capability of period, time interval and ratio are included at no extra cost.

For surveillance applications ("sweeping" rooms for hidden bugs), an optional audible tone alerts you to the presence of an unseen transmitter, changing its pitch as you approach its hidden location without having to see the bargraph!



Order CTR 5  
Only **\$99.95**  
\$6.50 UPS  
\$9.50 UPS 2nd Day Air  
\$8.50 US Priority Mail  
\$9.50 Canadian UPS  
\$10.50 Canadian APP

Order CTR 6L  
Only **\$319.95**  
\$6.50 UPS  
\$9.50 UPS 2nd Day Air  
\$8.50 US Priority Mail  
\$9.50 Canadian UPS  
\$10.50 Canadian APP

### ACCESSORIES:

- ACC11 Zippered soft case **\$15.95**
- ANT19 4"-18" telescoping whip **\$12.95**
- ANT8 7"-46" long-range telescoping whip **\$16.95**
- ACC6 Test probe for circuit testing **\$20.95**





# SCANNER FILTER

Years ago, our first scanner filter allowed the listener to reject any signal in the VHF high band which was causing overload problems. It was a step in the right direction.

But interference problems, are far more severe now, with multiple sources disrupting listening. A simple notch filter is no longer the answer. Enter: The new Grove FTR5 Scanner Filter! Ideal for use with outside antennas and with signal boosters (preamplifiers)—anytime interference is troublesome.

An adjustable 100-220 MHz 30 dB notch filter allows you to reduce or eliminate single-frequency interference from aircraft, mobile telephone repeaters, paging signals, NOAA weather stations, nearby amateur or other repeaters.

High-Q microstripline circuitry features custom-wound inductors for deep interference rejection. A rugged weatherproof enclosure allows standards masthead mounting. Standard F connectors are provided for convenient interconnection with other adaptors or accessories.



- Order
- FTR5 F connectors \$39<sup>95</sup>**
  - FTR5B BNC adaptor \$44<sup>95</sup>**
  - FTR5M Motorola adap \$44<sup>95</sup>**
  - FTR5P PL259 adaptor \$44<sup>95</sup>**
  - FTR5N N adaptor \$44<sup>95</sup>**
- \$3.50 UPS  
\$6.50 2nd Day Air  
\$4.50 US Priority Mail  
\$8.50 Canadian UPS  
\$6.50 Canadian APP

### SPECIFICATIONS

Passes: 30-50, 118-174, 225-1500 MHz  
Rejects: 0-30, 50-118, 174-225 MHz  
Frequency Range: 30-2000 MHz (nom.)  
Insertion Loss: less than 30dB  
Dimensions: 6" L x 1-1/8" D  
Weight: 3 ounces

# GRE SUPER AMPLIFIER

Would you like more range out of your hand-held scanner? Try the new GRE Super Amplifier with built-in battery and 20 dB (adjustable) gain from 100-1000 MHz!

BNC connectors allow the Super Amplifier to be mounted between the scanner and rubber ducky antenna; a bypass switch permits the unit to be disabled without having to remove it.

A 9-volt alkaline battery (not supplied) will provide up to 24 hours of continuous operation; a convenient external power jack permits the unit to be used continuously from a 9 VDC wall adaptor (not supplied).



Order **PRE1**  
Retail for \$69  
Sale price only

## \$49<sup>95</sup>

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\$7.50 UPS 2nd Day Air  
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## RECEIVE CONTINUOUS 810-912 MHz ON YOUR PROGRAMMABLE SCANNER

# GRE SUPER CONVERTERS

Looking for the best way to get uninterrupted 810-912 MHz coverage on your hand-held or desktop scanner? Whether your scanner doesn't have that range now, or is one of the models with certain 800 MHz frequencies factory-censored, these high-sensitivity converters from GRE will fill in the gap!

Simply install a nine-volt battery (not supplied); BNC connectors are provided to interconnect with your scanner. Use an 800 MHz-capable external antenna or attach a whip adjusted to about 4" (or 12" for gain) like the Grove ANT-19 (\$12.95) or ANT-8 (\$16.95).

When you tune 410-512 MHz on your scanner, you will be receiving 810-912 MHz! Just add 400 to the frequency displayed on your scanner, and you'll know your receive frequency when the scanner is switched on. A handy bypass switch allows you to restore normal operation of your scanner without having to remove the converter.



Factory price \$94

- ORDER CVR2** for handheld scanners **\$79<sup>95</sup>**
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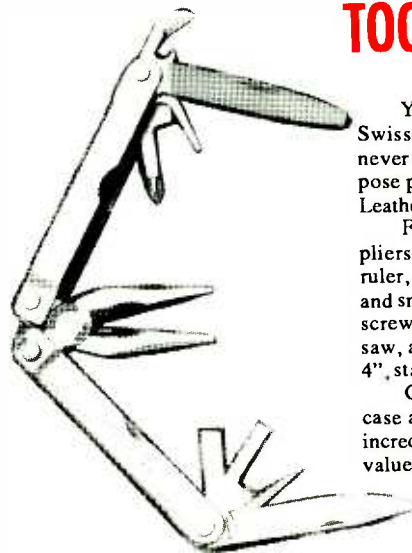
Made in the U.S.A.

# THE LEATHERMAN® TOOL

You've seen the legend Swiss Army knife, but you've never seen a quality, multipurpose pocket tool like the Leatherman®.

Full-size needlenose/regular pliers, wire cutters, knife blade, ruler, can/bottle opener, large and small screwdrivers, Phillips screwdriver, metal/wood file/saw, awl/punch—all in a sturdy, 4", stainless steel frame!

Comes with leather belt case and 25 year warranty! An incredible, American-made value.



Order **TOOL 1**

- Only **\$39<sup>95</sup>**
- \$4.50 UPS
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  - \$8.50 Canadian UPS;
  - \$7 Canadian APP



## 24-HOUR STUDIO CLOCK

Nothing lends an air of authority in a radio station like the clock on the studio wall. It is traditional, recognizable, functional, and now, with a modern precision quartz movement, accurate to 1/2 second per day.

This studio clock from Grove Enterprises is a professional 13" Seth Thomas, featuring a 24-hour

movement with bold, black numerals and a red sweep-second hand.

A convenient set knob allows precise set-up at installation; add an inexpensive alkaline AA cell (not included) and you have at least a year of unattended, accurate time — even during power outages.

Order CLK1  
Only  
**\$24<sup>95</sup>**  
\$6 UPS  
\$9.50 UPS 2nd Day Air  
\$6.50 US Parcel Post  
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## MFJ DUAL DIGITAL CLOCK

This compact digital timepiece features two large, accurate, LCD quartz movements, one to provide accurate 24 hour UTC radio time, the other for 12 hour local time. Mounted in a rugged extruded aluminum frame with a handsome brushed accent, the clock features high-contrast, 5/8 inch numerals,

easy to see anywhere in your radio room.

Powered by a long-life battery, the clock may be switched to show seconds as well. Measuring a scant 4-1/2"W x 2"H, the MFJ108B dual time clock can easily fit on any radio desk and provide valuable time information instantly.



Order CLK2  
**\$19<sup>95</sup>**  
\$4 UPS  
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## MFJ WORLD MAP CLOCK

This new desk digital world map/clock adds a touch of golden elegance to your radio room. Time zones are available at the touch of a button, and the day of the week, date, and local 12 or 24 hour time with one second per day accuracy are also displayed in large LCD characters.

Key cities across the globe are highlighted to make identification easier and an alarm tone can be set to alert you to any particular time. The MFJ-112 measures 4" H x 3-1/2" W and battery is included.

Order CLK4  
Only  
**\$24<sup>95</sup>**  
\$4.50 UPS  
\$6.50 2nd Day Air  
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## COLOR WALL CHART OF THE RADIO SPECTRUM

Now Grove offers this incredible 50" x 32", full color, fold-out wall chart of the United States radio spectrum!

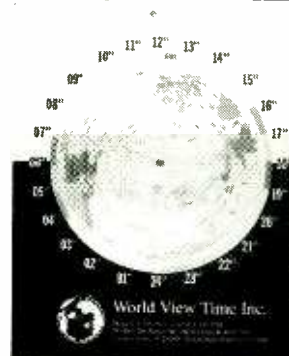
Printed on heavy gloss paper, the chart of the spectrum shows both government and non-government frequency allocations from 3 kHz through 300,000 MHz (300 GHz)—the entire radio spectrum!

28 services are shown in separate colors: land mobile, aeronautical, maritime, space, fixed, amateur, radio and TV broadcasting and more. No other low-cost publication provides so much band allocation detail at a glance as this handsome, professional wall chart.

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Only  
**\$9<sup>95</sup>**  
\$4.50 UPS  
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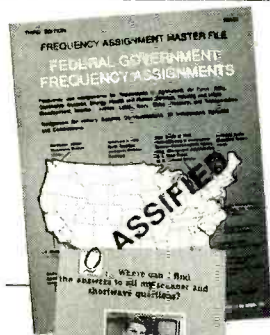
## WORLD TIME CONVERSION WHEEL

This colorful and accurate accessory reveals 24 hour time anywhere in the world at a glance. Polar projection features colored land masses with accurate 24 hour time zones on a glossy, durable, global map with metal axis hub. Select your time, and it's ready to use!



Order CHT 2  
Only  
**\$8<sup>95</sup>**

**INCLUDES FIRST CLASS MAIL SHIPPING**



## FEDERAL FREQUENCY ASSIGNMENT MASTER FILE

This new 3rd edition, now with 350 controversial pages, it provides the most comprehensive look at federal government frequencies in print.

Over 100 agencies, from the Central Intelligence

Agency to the National Security Agency are listed; scanner and shortwave as well.

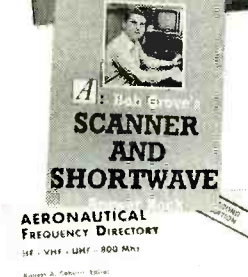
No matter where you're located, you'll hear many of these frequencies in use. Alphabetized by department and agency and their

locations, then listed in frequency order, this compendium is the most authoritative reference for armchair monitoring of "forbidden" frequencies we've ever seen!

**BOK1**

**\$24<sup>95</sup>**

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## SCANNER AND SHORTWAVE ANSWER BOOK

*By Bob Grove* What is the best antenna for your requirements? When do you need a preselector rather than a preamp? What is the difference between "meter band," megahertz" and "kilohertz"? How can you determine the source of

electrical interference and cure it?

These are samples of the hundreds of questions expertly answered by Bob Grove's guide to monitoring. If you have questions about listening and equipment, chances are you'll find the answers here!

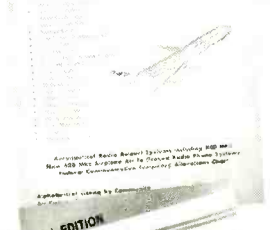
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## OFFICIAL AERONAUTICAL FREQUENCY DIRECTORY

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Arranged alphabetically by state, lists include service,

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## AIR SCAN

*By Tom Kneitel* This fifth edition of the exhaustive frequency directory for aircraft monitoring enthusiasts includes 2-30 MHz shortwave SSB as well as VHF-AM/FM and UHF-FM

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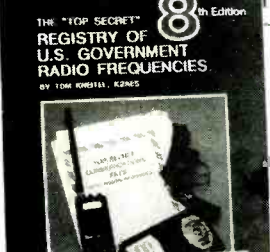
Military and federal tactical frequencies, flight service stations, NASA support frequencies, conservation agencies, even air show frequencies!

Public safety agencies employing air-to-air and air-to-ground communications are provided as well throughout the VHF low, high, and UHF bands.

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## TOP SECRET REGISTRY

*By Tom Kneitel* This new 8th edition continues the tradition of having the largest amount of federal frequency data ever compiled into a single volume.

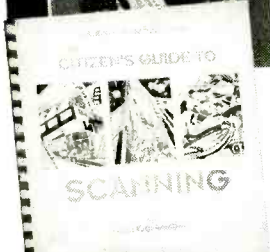
Concentrating on VHF and UHF scanner frequency ranges, agencies include Secret Service, Customs, DEA, CIA, NSA, White House, Border Patrol, ATF, and dozens of other

government bureaus who would prefer not to have their communications frequencies published.

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## CITIZEN'S GUIDE TO SCANNING

*By Laura Quarantiello* Are you new to scanning? Would you like to know more about the hobby and how to get the most out of your scanner? Try this new guide to expanding your

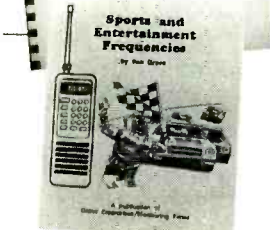
radio horizons. Frequency lists for finding public safety, aircraft, boats, federal and military agencies, business communications, railroads, telephones, sports and entertainment, spacecraft,

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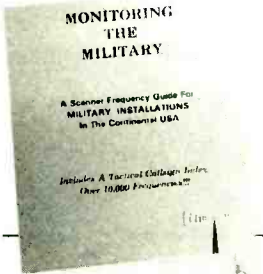
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Over 2000 frequencies for sports events, tourist attractions, stadiums and arenas, and even fast food restaurant chains! Handy 4" x 5".

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## MONITORING THE MILITARY

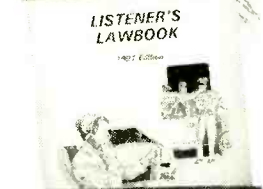
*Second Edition by Darryl Symington* Over 130,000 frequencies plus a tactical callsign index highlight this updated military scanning guide.

Hundreds of Air Force, Navy and Army bases as well as munitions and supply depots nationwide are listed alphabetically, covering fire/

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## LISTENERS LAWBOOK

*By Frank Terranella* Attorney Frank Terranella, whose specialty is radio law, has collected all of the monitoring laws across America, state by state (as

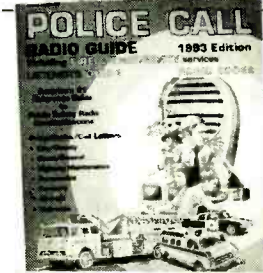
applicable), and includes a thorough discussion of the 1934 Communications Act, the 1986 Electronic Communications Privacy

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48 pages, 8-1/2" x 11".

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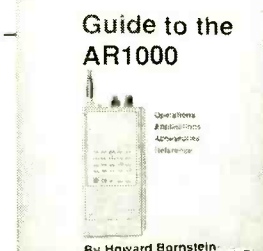
local government, federal agencies, forestry services, military bases, national parks, railroads, airlines, and maritime. All frequencies have been updated directly from licenses through 10/93.

Order the volume for your region or the entire nationwide set!

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## GUIDE TO THE AR1000

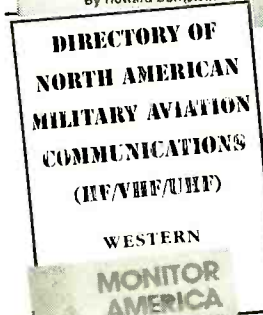
*By Howard Bornstein* An extensive guide covering operations, applications, accessories and references for the AOR AR-1000 handheld scanner.

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## MONITOR AMERICA

This 2nd edition contains over 800 pages of frequencies for federal, state, county and city public safety

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Identify those elusive DX stations by their musical interval signals, slogans and

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Listings by frequency include ship and shore stations, embassy communica-

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Thousands of utilities (two-way communications)

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Tables of frequencies used by DEA, ATF, FBI, cellular telephones, FAA, aircraft flight test, U.S.

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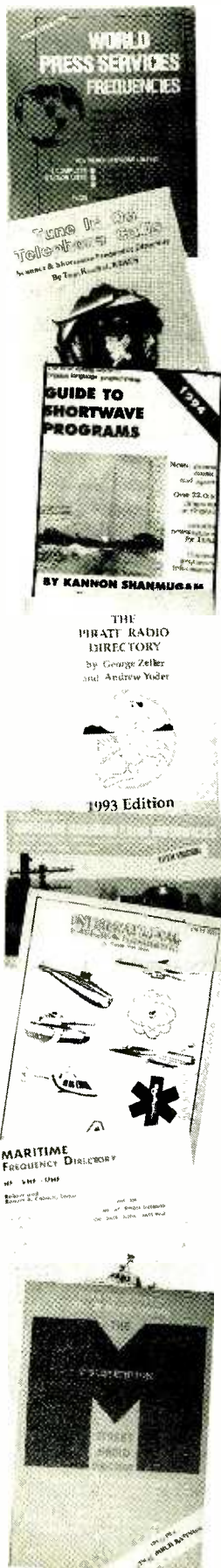
Also includes Larry Magne's highly acclaimed, no-holds-barred, 1993

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Get the most from your shortwave receiver by using the foremost guide to world band listening.

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*By Thomas Harrington*  
Previous editions of this popular news frequency directory sold out quickly. This all new 1992 edition is cross-referenced by time,

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Additional chapters list abbreviations and explain about equipment, accessories and tuning tips. This book is a must if you have a shortwave digital demodulator.

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160 information-packed pages let you know just how vulnerable your calls are!

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## INTERNATIONAL CALLSIGN DIRECTORY

**BOK51**

*By Gayle Van Horn* The most exhaustive list of tactical callsigns and their identifications ever assembled for shortwave and scanner listeners in a massive, 250 page directory!

Codes from the US Air Force, Navy, Army, Customs, Secret Service, Marine Corps, and foreign military as well as internationally registered callsigns

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## US MARITIME FREQUENCY DIRECTORY

**BOK 52**

*By Robert Gad and Robert A. Coburn* Whether your maritime listening interests involve a scanner or a shortwave receiver, this is

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**BOK 53**

*1993-1994 Edition*  
Considered by experts as the most authoritative and comprehensive guide to AM and FM broadcasting stations

in the US and Canada, this latest edition by the publishers of the prestigious M Street Journal is packed with program formats,

frequencies, Arbitron (and other) ratings, market information and addresses of thousands of licensees.

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### CANADIAN MILITARY RADIO FREQUENCY GUIDE

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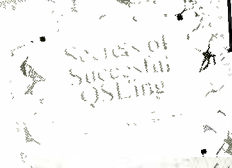
*By Robert S. Ing* Previously, shortwave and scanner monitors have had to rely on occasional club bulletins or U.S. frequency

directories for Canadian utilities information. This new book lists Canada's extensive worldwide military frequencies and locations of

CFARS, Coast Guard, UN, NATO, NORAD, Snowbird, and many other military deployments.

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### SECRETS TO SUCCESSFUL QSLING

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*By Gerry Dexter* The master of QSL collecting has updated his classic, bringing you 120 pages of new hints and insights for getting those

rare verifications from shortwave broadcasters and utility stations alike! Chapters include recommendations from experts,

amusing stories about QSL hunting experiences and how to display and preserve QSL cards.

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### WRTH EQUIPMENT BUYER'S GUIDE—1994

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From the publishers of the World Radio TV Handbook, this handy, 270 page volume lists receivers, antennas and accessories currently

available to the shortwave monitoring enthusiast. Products are reviewed for prospective buyers, while additional chapters explain

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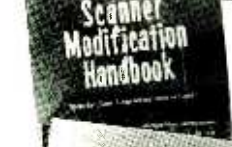
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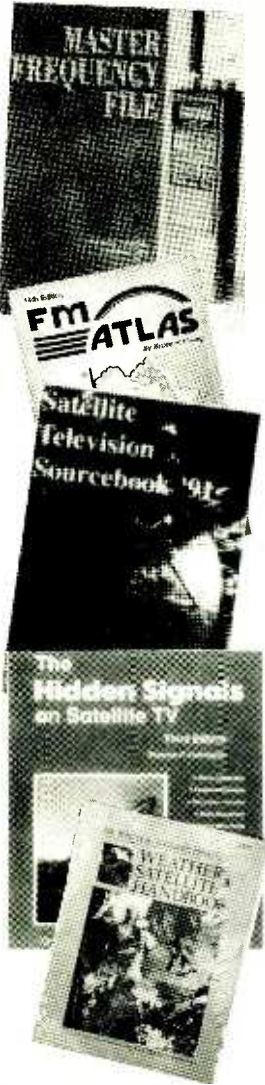
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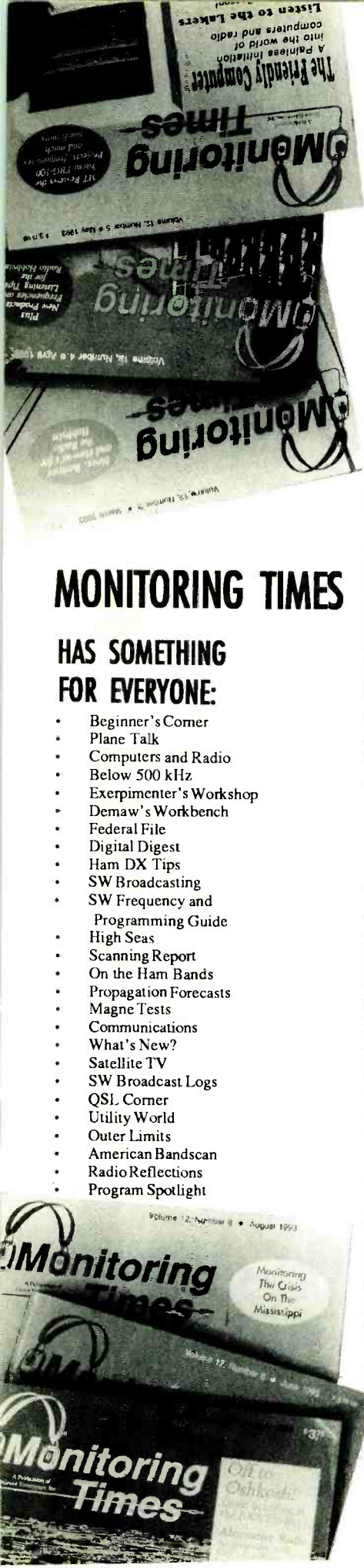
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