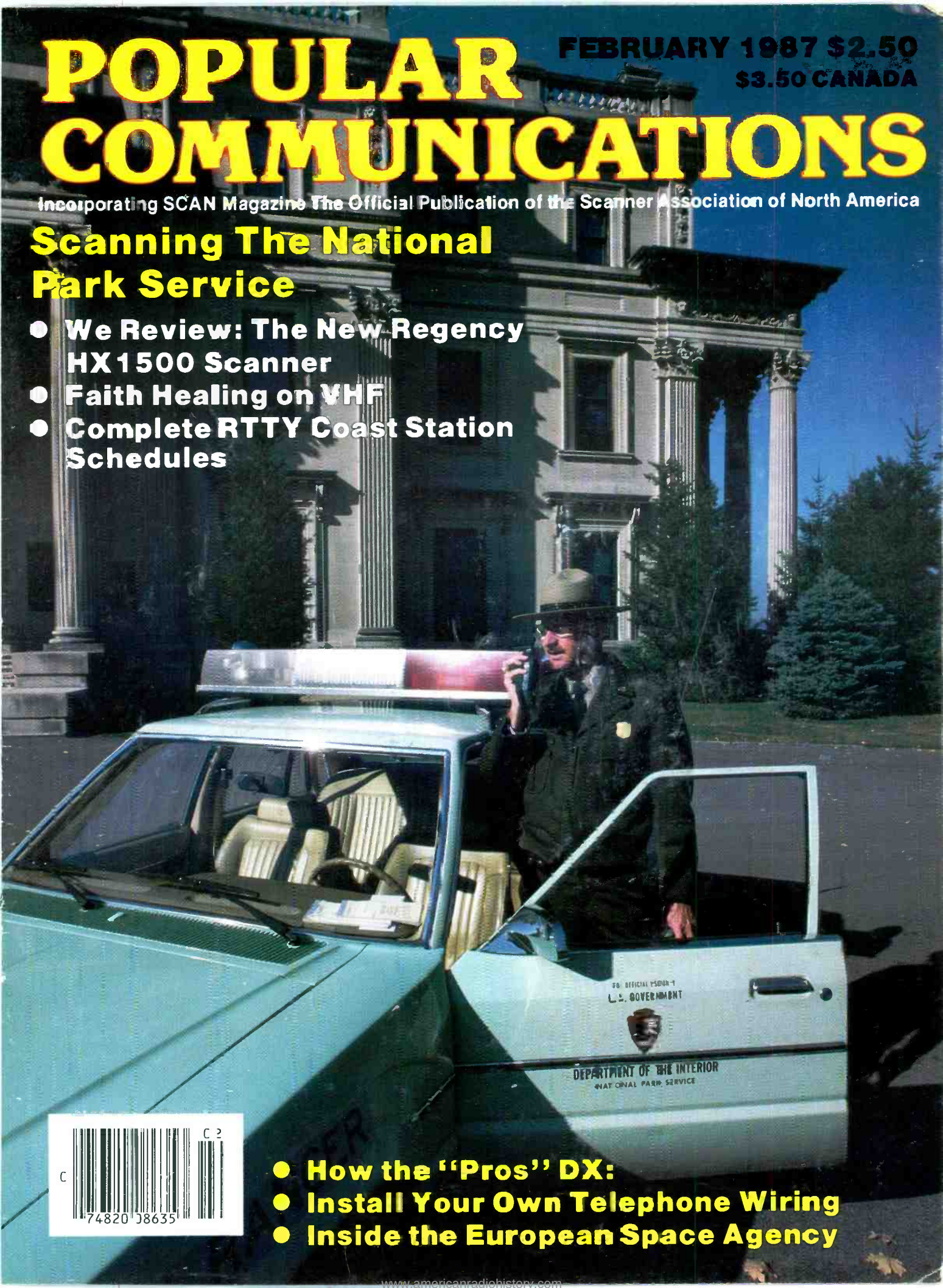
FEBRUARY 1987 $2.50
$3.50 CANADA

POPULAR COMMUNICATIONS

Incorporating SCAN Magazine The Official Publication of the Scanner Association of North America

Scanning The National Park Service

- We Review: The New Regency HX1500 Scanner
- Faith Healing on VHF
- Complete RTTY Coast Station Schedules



- How the "Pros" DX:
- Install Your Own Telephone Wiring
- Inside the European Space Agency

SHORTWAVE HEADQUARTERS

Our 16th Year! Order Toll Free 800-368-3270

EEB—The Nation's Leading SWL Supplier

R-2000 KENWOOD SALE

Kenwood offers a communication receiver to suit your listening pleasure. It covers the full spectrum: Long, Medium, and Shortwave. AM-CW-SSB-FM Wide-Narrow Selectivity, Noise Blanker, and more.

R-2000 Special Sale..... $499.95
VHF Converter (VC-10)..... $149.95

FREE EEB will extend your warranty from 3 to 6 months. EEB is a Kenwood Factory Authorized Service Center.

NEW KENWOOD R-5000 NEW

SALE SALE

All-Band All-Mode Receiver Covers 100 kHz–30 MHz (108–174 MHz with VC-20 option)

- 100 Memory Channels
- Direct Keyboard Frequency Entry
- Programmable Scanning (Center-Stop Tuning)
- Computer Control Option
- Built-In Power Supply
- Many More Options Available.

Special Introductory Price . . . $749.95
VC-20 Option . . . $169.95

SONY ICF 2010

SALE CALL

- 150 kHz to 20 MHz AM, CW, SSB
- 76 MHz to 108 MHz FM
- 116 MHz to 136 MHz AM Air Band
- 32 Programmable Memories
- 4 Event Timer
- Synchronous Detector
- Wide/Narrow Bandwidth

"This is one of the finest receivers available today under $500"

A.C. Adapter Included Sale Price $319.95

SALE CALL

SONY ICF 2002

- Ultimate compact HiTech at an affordable price
- 25% size of famous SONY ICF 2001, SONY's best seller
- 150 kHz - 30 MHz
- AM, FM
- Memories
- Keyboard entry
- Scan
- 24 hour clock

Sale Price $249.95 A.C. Adapter AC9W . . . $14.95

SANGEAN ATS-801

ONLY **$99.95**
+ $4.00 UPS
LIST $199.95

- SW 5.8-15.5 MHz FM 88-108 MHz
- LW 155-281 MW530-1620 kHz
- 25 Program Memories
- Digital Frequency & Clock Readout
- Manual or Autotone
- Same Weight and Size as SONY ICF 2002
- Free Stereo Hdset + 100 pg. SWL Book

Optional A.C. Adapter $9.95

NEW EMBASSY NEW

Line of SWL Receivers

2 NEW Models
The Ambassador 2020
and
The Diplomat 4950

SEE OUR AD THIS ISSUE FOR FULL DETAILS.

AMECO Tunable Pre Amp-Antenna

- 200 kHz–30 MHz
- Preselector
- Indoor Active Antenna
- Matches Most Any Antenna
- Improves Gain and Noise Figure
- 9V Battery PWR (not included)
- AC Adapter Optional ($9.95)

$74.95 plus $ UPS

DXer's Dream
TOSHIBA RP-F11 (KENWOOD R-11)

Full page in 1985 WRTV inside front cover for details

- Covers all International & Tropical Bands
- S Meter, Safety Off Lock

SAVE $40.00 SALE **$89.95**
+ 4.00 UPS

"One of the finest receivers available under $130.00"
List $129.95
Optional AC wall adapter TAC 64 $11.95

NEW Ten-Tec RX 325 RECEIVER

SALE SALE

- 300 kHz to 29.999 MHz
- AM, LSB (CW), USB (CW)
- 25 Memories
- Programmable Band and Memory Scanning
- Quartz Clock with Timer
- ULTRA COMPACT—only 3¼" × 9½" × 7", Weight 5 lbs. 5 oz!
- 115 VAC or 13.8 Capability
- Mobile Mounting Bracket (option)

Sale Price . . . $629.95

NRD-525 General Coverage Receiver

- 90 kHz to 34 MHz
- Options for 34–60 MHz, 114–174 MHz and 423–456 MHz
- 200 Memory Channels
- 2 Clocks/Timer To Control Radio & Extra Equipment (tape recorder)
- Computer Interface Option. **Sale Price $1179.00**

*G.E. WORLD MONITOR

Sale $169.95
List $229.95 ($5.00 UPS)

Digital readout, wide and narrow selectivity BFO for SSB & CW
- 3.5–31 MHz SW/MW/FM
- 120V/220V or battery

NEW WORLD RADIO TV HANDBOOK NEW 1987 EDITION

- Shortwave Listener's Bible
- All Worldwide SW Stations Listed
- Target Areas
- Equipment Reviews
- Every SWLer Needs One

ORDER TODAY
$19.95 Postpaid US

DATA BASE INTERNATIONAL 1987 Edition NEW

- Up-to-date Picture of SW Broadcasting
- Frequency by Frequency, Hour by Hour
- Station Name, Location, Frequency, Time, Language, Target Area, Power
- Innovative Computer Display. Makes Easy Reading of Complex Information.
- In-depth Equipment Review.

See Our Ad This Issue For More Details.

ANTENNAS

SONY AN-1 $79.95 + $6.00 UPS
A.C. Adapter $9.95

- Outdoor active antenna
- Pull in hard to capture signals
- Perfect for SWL where no outdoor antennas allowed.

EAVESDROPPER SALE
$59.95 + $4.00 UPS

- Balanced trapped Dipole
- Maximum performance, Minimum local noise
- All SW Bands 60–11 meters
- Only 43 feet long - 100 ft. feed line
- Complete - Everything you need.

MFJ 1024 $119.95 + $5.00 UPS
A.C. Adapter $9.95

- Outdoor active antenna
- Performs as well as units costing $180.00
- WRTVH rates it high

BUTTERNUT SWL 2-30
$49.50 + $4.00 UPS

- Tune the weak ones in
- Stub tuned Dipole Maximum S/N Ratio
- 73 feet long - 50 feet feed line

AEA CP-1 Computer Patch

SAVE $90.00

SWL Test Software and your Commodore C-64 will turn your Communications Receiver into a CW/RTTY Intercept station.

- Determines RTTY Speed and ASCII or Baudot Indication
- Copies AMTOR-ARQ-FEC
- Determines Bit inversion and Transposition Patterns.
- Complete Printer Control
- Copies Russian RTTY - Japanese RTTY & CW
- We checked them all. This is the best.

LIST $359.95
PACKAGE DEAL **$269.95**

NEW EEB's 1987 SWL CATALOG

Covering: Radios, Scanners, Antennas, Accessories, RTTY & CW, Books, and Much More! Send $1.00 For Your Copy.

Catalog Price Refundable With Your 1st Order!

Store Policies

- Prices and Specs Subject to change.
- Prices do not include Shipping Charges.
- We ship UPS Daily - Cost for U.S. Mail is 3 times more than UPS.
- Payments: BankCard - Money Orders Personal Checks - will delay shipping 3 weeks - No CODs.
- Returned purchases subject to 20% Restocking Fee.

ORDER DESK HOURS (Eastern):
MONDAY - FRIDAY 10 A.M. to 5 P.M.
SATURDAY 10 A.M. to 4 P.M.
Technical and VA orders call (703) 938-3350

Electronic Equipment Bank
516 Mill Street N.E.,
Vienna, VA 22180
Telephone (703) 938-3350

STORE HOURS (Eastern):
Same as Order Desk Hours
Closed Mondays
Thursday 10 A.M. to 9 P.M.

Electronic Equipment Bank—Order Toll Free 800-368-3270

CIRCLE 30 ON FREE INFORMATION CARD

YAESU FRG9600

SAVE $180

60-905 MHz

SALE $499.95 + $7 UPS

A premium VHF/UHF scanning communications receiver.

- The 9600 is no typical scanner. And it's easy to see why.
- You won't miss any local action with continuous coverage from 60 to 905 MHz.
- You have more operating modes to listen in on: upper or lower sideband—CW, AM wide or narrow, and FM wide or narrow.
- You can even watch television programs by plugging in a video monitor into the optional video output—**$25.**
- Scan in steps of 5, 10, 12½, 25 and 100 KHz. Store any frequency and related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.
- Plus there's much more, including a 24-hour clock, multiplexed output, LCD read-out, signal strength graph, and an AC power adapter.

YAESU FRG-8800

SAVE $80

150 KHZ-30 MHz

SALE $519.95 + $8 UPS

The FRG-7700 was a great receiver. Now the new generation FRG8800 takes you a step forward.

- CAT computer compatible
- 12 memories—scan—RIT
- Keyboard frequency entry
- Dual 24 hour clock timer recorder control
- Optional FRV8800 VHF converter 118-174 MHz $119
- All mode AM-SSB-CW-FM
- Green LCD display
- 150 KHz o 30 MHz

EEB Exclusive Options

1. 24 hour bench test and complete realignment for optimum performance including double-extended warranty $40.
2. 4 KHz ceramic filter replaces 6 KHz AM wide ceramic filter, installed $50.
3. 2.4 KHz mechanical filter replaces SSB ceramic filter, installed $95.
4. Spike protection, internal, $25.

THE BEST GETS BETTER AT EEB

The Most Exotic VHF-UHF Receiver Ever Offered To General Public

ICR 7000 ONLY $949 + $10 UPS

EEB introduces the new ICOM R7000 VHF/UHF receiver, which also is available as the R7000 HP (high performance) with EEB-designed modifications that remarkably improve the sensitivity, audio frequency response, selectivity, and more.

In conformance with their record as a responsible manufacturer, ICOM has done everythng possible to hold down production costs while leaving open the potential for post-production modification (e.g., R71A) that can substantially improve performance and give the discriminating operator a more cost effective unit with enhanced specifications.

You have read about EEB's R71A modification in *World Radio TV Handbook*. Now we have done it again with the ICOM R7000 VHF/UHF receiver.

When you are making an investment in this kind of equipment, it only makes sense to maximize your options by selecting the ICOM R7000 and then to go that last yard toward ultimate performance by choosing the R7000 HP from EEB.

ICOM R-7000

Commercial Receiver VHF-UHF 25-2000 MHz

- 25-2000 MHz coverage
- Precise frequency entry via keyboard
- 96 programmable memories
- Scan-memory-mode-select memory-frequency
- 5 tuning speeds: 1, 1.0, 5, 10, 12.5, 25 KHz
- Narrow/wide filter selection
- Memory back-up • Noise blanker
- "S" meter or center meter for FM
- AM & FM wide, FM narrow, SSB, CW

EEB HP Options

- Front end upgrade improves sensitivity
- Audio mod—better volume, less distortion
- Optional band pass filters
- Power supply cooling mod to reduce chassis heat • Spike protection, on AC line
- IF output for spectral display 10.7 (STD) 21.4, 30 MHz others available
- 24 hour bench test and realignment for optimum performance
- Extended warranty to 6 months
- Final alignment and overall checkout.
- Installation of ICOM options purchased with your new R7000 at no charge
- More details next month's ad. Call or write for free flyer of EEB mods.

EEB'S FAMOUS R71A HP

EEB is ICOM's #1 R71A dealer and there is good reason. We offer more modification to enhance your listening pleasure and take better care of you. This is our 15th year. Buy with confidence.

ICOM R71A

ONLY $799 + $8 UPS

- 100 KMz to 30 MHz • Keyboard entry • 32 programmable memories
- SSB-CW-AM-RTTY (FM optional)
- Wide dynamic range • Digital PLL
- Memory scan • Band pass & notch tuning • Computer control via MEC 71A & C64 • See ICOM's ads for more details

ICOM Options

Free installation when purchased with your R71A from EEB

CK-70: DC Kit for 13.8 VDC operation
CR-64: High stability oscillator
CK-70: DC kit for VDC operation
CR-64: High stability oscillator
EX309: Computer interface connector
EX310: Voice synthesizer
FL32A: CW narrow filter (500 Hz)
FL44A: Crystal filter (2.4 KHz)
FL63A: CW narrower filter (250Hz)
RC-11: Infrared remote control

EEB HP Options

R71 (HP) High Performance. EEB has the reputation of excellence when it comes to R71A modifications. Many of our modifications are proprietary and not offered by any other source. EEB now offers a package deal including our most popular option—known as the R71(HP) High Performance and includes the following:

- 24 hour bench test.
- Narrow filter (choice of 3, see below). Replaces stock ceramic SSB filter. Improved selectivity and shape factor.
- Front end upgrade—improves dynamic range (plus) preamp enabled below 1600 KHz.
- 4 KHz filter replaces stock. 6 KHz wide filter—improves AM selectivity.
- Audio output modification—increases audio output; reduces distortion.
- AGC time constant changed to better suit SW listening.
- Spike protection added.
- RFI line filter.
- Installation of ICOM options purchased with your R71A HP.
- Final alignment and overall checkout.
- Free extended 6 month warranty.

R71 HP (MF) Mechanical Filter	add $200
R71 HP (XF) 8 Pole, 2.4 KHz xtal filter	add $250
R71 HP (XFS) Super 2.1 KHz filter	add $300

EEB

- We ship world-wide
- Shipping charges not included
- Prices & specifications subject to change without notice

10 miles west of Washington, D.C.
Sorry—No COD's 10-5 Tues., Wed., Fri.
10-9 Thursday
10-4 Saturday
Closed Sunday and Monday

ELECTRONIC EQUIPMENT BANK
516 Mill Street, N.E.
Vienna, VA 22180
Order Toll Free: 800-368-3270
Technical and VA Orders (703) 938-3350

CIRCLE 9 ON READER SERVICE CARD

"The Largest Dealer of Scanners in the World"

SCANNER WORLD, USA

10 New Scotland Ave., Albany, NY 12208 518/436-9606

Bearcat® 300

Special $239.99 (7.00 shipping)

50 Channels — Mobile/Base

Features include simple raised button keyboard programming of the following frequency ranges: 32-50 MHz, 118-136 MHz, 144-174 MHz, 421-512 MHz. Vacuum flourescent display, dim control, priority, count transmissions, non-volatile memory retains memory without power back-up, automatic search, scan speed control, automatic search, scan delay, lockout, service search, automatic squelch, crystalless, digital clock, external speaker & tape jack, auxiliary equipment control, plus much more. Built inside the rugged metal cabinet. Includes AC & DC cords, telescopic antenna, mobile mounting kit, and one year factory warranty on the Bearcat 300 for only **$239.99** and $7.00 shipping. (Optional extended warranty: 3 years $39.99, or 2 years (29.99)

REGENCY HX1500

Digital programmable 55 channel hand-held scanner. Frequency coverage 29-54 MHz, 118-174 MHz, 406-420 MHz, 440-512 MHz. Covers Public Service bands plus aircraft, trains, marine, plus many others. Has priority, search, lockout, scan, banks, sealed rubber keyboard. 90 day factory warranty. Includes flexible rubber antenna, belt clip and earphone.

$234.99 *(plus 6.50 shipping each)*

Optional Accessories:

B-8 Ni-Cad Batteries	15.99
Ma-518 Wall Charger/Adapter	12.99
HXCase HEavy Leather Case	19.99
MA257 Cigarette Lighter Adapter	16.99

(3 year extended warranty $39.99; 2 year $29.99)

BEARCAT 50XL Programmable Hand-Held	124.99	(5.00)
AD100U AC Adapter/Charger for 50 XL	12.95	(*)
BP50 Ni-Cad Battery Pack for 50XL	12.95	(*)
CA50 Carry Case for 50XL	11.99	(*)
BEARCAT 180 AC Digital Scanner	126.99	(6.00)
BEARCAT 140 AC Programmable Scanner	94.99	(5.00)
BEARCAT 145XL AC Programmable Scanner	104.99	(5.00)
BEARCAT 175XL AC Digital Scanner	159.99	(5.00)
BEARCAT 100XL Digital Hand-held	199.99	(6.50)
BEARCAT 210XW AC/DC Digital Scanner	199.99	(6.50)
BEARCAT 200 AC Digital Scanner	129.99	(6.50)
BEARCAT 155 AC Digital Scanner	124.99	(6.50)
BEARCAT Weather Alert	39.99	(4.00)
BEARCAT 20/20 AC/DC Digital Scanner	229.99	(5.50)
BEARCAT 300 AC/DC Digital Scanner	239.99	(7.00)
BEARCAT 800 XLT AC/DC Digital Scanner	319.99	(6.00)
REGENCY MA-257 Cigarette cord for HX1000/1200	16.99	(*)
REGENCY MA-917 Ni-cad Battery for HX1000/1200	24.99	(*)
REGENCY HX-CASE Hvy Leath. case for HX1000/1200	19.99	(*)
REGENCY MA-256 Drop in charger for HX1000/1200	89.99	(5.00)
REGENCY R-1060 Programmable 10 chan. AC Scan.	94.99	(5.00)
REGENCY HX-2000 Digital Hand-Held	159.99	(7.00)
REGENCY MX-3000 AC/DC Digital Scanner	216.99	(6.50)
REGENCY HX-2200 Digital Hand-Held Scanner	172.99	(7.00)
REGENCY MX-5000 AC/DC Digital Scanner	329.99	(6.50)
REGENCY MX-4200 AC/DC Digital Scanner	186.99	(7.00)
REGENCY Z-30 AC/DC Digital Scanner	129.99	(5.50)
REGENCY Z-60 AC/DC Digital Scanner	172.99	(5.50)
Mobile Mounting Bracket for Z Scanners	5.99	(*)
REGENCY R-806 Crystal Scanner	79.99	(4.00)
REGENCY ACT-R-1 AC/DC Crys. Single Channel	75.99	(4.00)
REGENCY RH-256 High Band Transceiver	399.99	(7.75)
REGENCY UC 102 Hi-VHF Hand Transceiver	124.99	(5.50)
REGENCY RU150B UHF Transceiver	439.99	(7.75)
Book "Top Secret Registry of Gov't Freuency"	12.95	(*)
Book "Covert Intelligence, Electronic Eavesdropping"	8.95	(*)
Book "Betty Bearcat Frequency Directory"	14.95	(*)
Book "Rail Scan Directory"	7.95	(*)
Book "Air Scan Directory"	12.95	(*)
RCD MRP-1 Single Channel Hand-Held	38.99	(3.00)
JIL SX-200 AC/DC Digital Scanner	189.99	(6.75)
FANON M8HLU DC Crystal Scanner	99.99	(5.00)
FANON PSK-1 AC Adapted for M8HLU	12.99	(*)
FOX BMP-1060 AC/DC Digital Scanner	129.99	(5.50)
FOX Mounting Bracket for BMP-1060	9.99	(*)
WHISTLER Remote Spectrum Radar Detector	199.99	(5.00)
ANT-1 Magnet Mount Mobile Scanner Antenna	29.99	(3.00)
ANT-6 Base Scanner Antenna w/50' cable	29.99	(3.00)

Regency® Z30

30 Channel Automatic Programmable Scanner

Scanner World Special

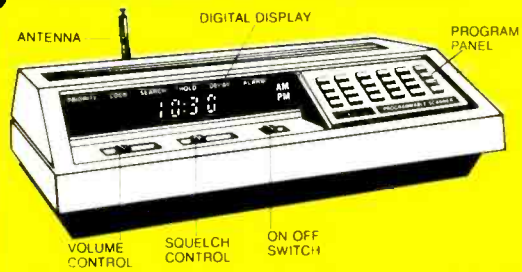
$129.99

(plus $5.50 shipping each)

Optional Accessories:

Cigarette Lighter Plug RGMPC . $4.95

Z Mobile Bracket — ***Special*** . . . $5.99



The Regency Z30 is a compact, programmable 30 channel, multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands: 30-50, 144-174, and 440-512 MHz. Size 10¾"Wx2-7/8"Hx8-3/8"D.

Sophisticated microprocess-controlled circuitry eliminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z30 scans approximately 15 channels per second.

Any combination of two to thirty channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

Other features include scan delay, priority and a bright/dim switch to control the brightness of the 9-digit Vacuum-Fluorescent display. The Z30 can be operated on either 120 VAC or 12 VDC. Includes one year warranty from Regency Electronics (optional 3 yr extended warranty only $39.99, gives you a total of 4 yrs complete warranty or 2 yr extended warranty only $29.99, gives you a total of 3 yrs complete warranty.)

Regency® HX2200

$172.99

(Plus $7.00 shipping each)

Digital Programmable 20 Channel Hand-Held Scanner with raised button keyboard for easy programming of the following frequency ranges: 118-136 MHz, 138-174 MHz, 406-512 MHz, 800-950 MHz (NOTE: This is the only hand-held portable scanner which will receive the 800-950 MHz range plus high band, air, and UHF). Features include priority, scan delay, memory backup, dual scan speed, channel lockout, jacks for external antenna and earphone, 90 day factory warranty, keyboard lockswitch, sidelit liquid crystal display for night use, program AM or FM mode, search or scan, size is 3" x 7" x 1½". Complete HX2200 package includes Ni-Cad rechargeable batteries, wall charger adapter, protective carry case, and rubber antenna. All for the low price of only $172.99 plus $7.00 shipping each. (Optional extended warranty: 3 years $39.99, or 2 years $29.99)

Regency® MX4200

$186.99 *(Plus $7.00 shipping each)*

Digital programmable 20 channel scanner operates as a Base or Mobile unit or can be used as a portable with rechargeable Ni-Cad betteries included. MX4200 covers the following frequency ranges: 30-50 MHz, 118-174 MHz, 406-512 MHz, 800-950 MHz. Features compact size of 5⅞" x 2½" x 7⅛", memory backup, scan delay, priority, dual scan speed, channel lockout, jacks for earphone and external antenna, keyboard lockswitch, one year factory warranty. Sidelit liquid crystal display for night use, program AM or FM mode, search or scan, reset button. Complete MX4200 package includes telescopic antenna, mobile mounting bracket, mobile power cord, rechargeable Ni-Cad batteries, wall charger adapter. All for the low price of **$186.99** plus $7.00 shipping each. (Optional extended warranty: 3 years $39.99, 2 years $29.99). Optional cigarette lighter Plug #4200MPC $4.99.

Bearcat 100 XL

$199.99 (6.50 shipping) *Handheld digital programmable, no crystal portable scanner. 16 channels, search feature, plus more! Frequency range: 30-50, 118-174, 406-512 MHz. Included in the package is a flexible rubber antenna, earphone, battery charger/AC adapter, 6 AA Ni-Cad rechargeable batteries and a heavy duty carry case. All for the low price of:*

$199.99 (6.50 shipping)

(3 year extended warranty only $39.99, 2 year $29.99)

REGENCY RH-256 B

PROGRAMMABLE TRANSCEIVER

RH-256B Transceiver, 16 channel 12 VDC 2-way Radio fully programmable in transmit and receive mode. Includes built-in CTCSS tones for encode/decode, time-out timer, scan delay, 25 watts transmit power, priority, plus more. Frequency spread as shipped 152-158 MHz. Package includes mobile mike, bracket, mobile antenna, and all cables and instructions for installation. ***Special package deal only:*** ***$399.99*** *(7.75 shipping)*

(2 year extended warranty $49.99 - 3 year $69.99)

ORDERING INFORMATION

Call (518) 436-9606 to place orders by phone or mail orders to ***Scanner World,*** 10 New Scotland Av., Albany, NY 12208. Orders will be shipped same day received by United Parcel Service. ***Scanner World*** accepts VISA, MasterCard (COD shipments by United Parcel will be for cash or certified checks only). Mail orders with personal or business checks will be held 4 weeks for bank clearance. Orders with cashiers checks or money orders shipped same day received. Prices, specifications and terms subject to change without prior notice. If items are out of stock we will backorder and notify you of delivery date. All shipments are F.O.B. ***Scanner World*** warehouse in Albany, NY. We are not responsible for typographical errors. All merchandise carries full manufacturers warranty. Bid Proposals and Purchase orders accepted from Government agencies. Free full line catalogue available upon request. No minimum order. New York State Residents add 7% sales tax.

SHIPPING CHARGES

(*) Add ($) per scanner, and $3.00* for all accessories ordered at same time. C.O.D. shipments will be charged an additional $3.00 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service. Shipping charges are for continental USA only. Outside of continental USA, ask for shipping charge per scanner.

Scanner World, USA

10 New Scotland Ave., Albany, NY 12208

(518) 436-9606

Most orders Shipped Same Day Received!

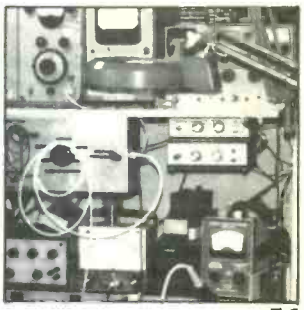
Offices: 76 North Broadway, Hicksville, NY 11801. Telephone 516 681-2922. Popular Communications (ISSN 0733-3315) is published monthly by Popular Communications, Inc. Corporate officers: Richard A. Ross, Pres.; Thomas S. Kneitel, Vice Pres.; Alan M. Dorhoffer, Secretary. Second class postage paid at Hicksville, NY and additional offices. Subscription prices: Domestic—one year $16.00, two years $31.00, three years $46.00. Canada/Mexico—one year $20.00, two years $39.00, three years $58.00. Foreign—one year $22.00, two years $43.00, three years $64.00. Foreign Air Mail—one year $75.00, two years $149.00, three years $223.00. Printed in the United States of America.
Postmaster: Please send change of address to Popular Communications, 76 North Broadway, Hicksville, NY 11801.

POPULAR COMMUNICATIONS

FEBRUARY 1987 **VOL. 5, NO.6**


22


24


56

FEATURES

This month's cover: *Park Ranger Donald Burquist who is with the National Park Service at Roosevelt-Vanderbilt National Historic Site at Hyde Park, New York. Photo by Larry Mulvehill, WB2ZPI.*

DEPARTMENTS

BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

How To Be A Fearless Buyer!

Inasmuch as February has become the symbol for truth (thanks to George Washington and his famous mythical cherry tree incident), I thought that this would be an opportune moment to discuss something that does need a bit of attention.

In just about every field of endeavor, there are different types of suppliers. Some direct their major efforts to insiders and those in-the-know. Others are seldom interested in reaching that crowd and seek primarily to move merchandise to the general public. There's nothing inherently right or wrong with either policy, they're just different approaches. However, if you were a photographer shopping for an expensive camera, you'd seek out a professional supplier specializing in photographic equipment rather than a place that offers discount cameras along with cut-rate typewriters, computers, stereos, toaster ovens and major appliances.

You'd do this because you want the supplier to have in-depth knowledge of his wares and because you want to deal with someone who can adequately discuss your needs. Most photographers go so far as to insist that even their film be obtained from such a specialty supplier, disdaining seemingly-identical film available from drug stores and supermarkets!

The reason I bring this up is that buying communications equipment and related accessories fits into a similar category where the intentions, integrity, and knowledge of the supplier are very important to you, as a customer. What with the parade of new communications products continuing at a rapid pace in order to snag the imagination of a communications-hungry public, the chances for misinformation (accidental or deliberate) are increasing. Likewise, there are more discontinued models, more gray market items, and more opportunities for an uninformed salesperson to cause a customer to end up with a product unsuited to his/her needs.

I've been quite astonished by some of the misinformation being tossed around for the benefit of the general public in an effort to interest these mostly-uninformed people to become members of the communications community. A major metropolitan newspaper regularly carries an ad from a stereo store offering cellular mobile telephone (CMT) equipment; in fact, they claim to have been selling CMT's "since 1973," a full ten years before CMT's were invented! This apparent longevity in the CMT marketplace reassures naive customers that when they are offered a CMT battery for $200, the price is reasonable. *Radio Shack's* CMT batteries, by the way are only $9.95 each!

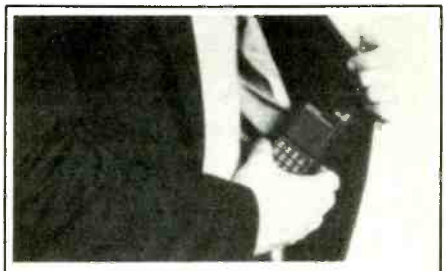
The stereo dealer who runs this ad says he was selling CMT's ten years before they were invented! His uninformed customers probably find it reassuring to know he's had that much experience in the CMT field. Don't you?

But, that's not the worst of the way a few suppliers are trying to move CMT's! This particular supplier, whose ad is typical of many seen in local newspapers, notes that the many benefits of CMT's can be had at "less than $.99 per day." The *use* of the equipment, which is *not* noted, is about 35 to 55 cents per minute, with the CMT owner paying for incoming as well as outgoing calls. Service usage costs average $120 per month on a national basis (in some areas they run $200 per month).

The inference that a person can have CMT service for "$1 a day" has added an unfortunate sleaze factor to his car stereo dealer's newspaper offering. The average cost of having a CMT is four to seven times the quoted cost.

It's unfortunate that a somewhat tacky element has invaded the CMT marketplace because it's a worthy service that has a lot to offer. Communications equipment specialty suppliers appear willing to be forthright about the service's actual costs and limitations, but there are other places that seem determined to run the market into the ground as quickly as possible. The average CMT buyer doesn't seem to know (or care to know) very much about communications, that makes it all the more important for such persons to deal with mobile communications professionals.

Next, I saw a recent issue of *Soldier of Fortune* that had a security equipment supplier offering several products such as closed-circuit TV's, telephone bug detectors, etc. Also included in their offerings was a unit described as a "pocket communicator." This name implies (to me, at least) that it is a low-power device, like a 49 MHz hands-free FM transceiver, that operates without the need for a license under the FCC's Part 15. The accompanying photo shows one of the devices being secreted inside a man's suit jacket.



Pocket Communicator

Stay in touch with this powerful **walkie talkie system.** This is a *truly* palm sized, tiny wireless communicator. It even has a built-in encryption system to keep your conversations private. Power output to 1 watt, frequency 440-450 MHz FM. models range up to 7 miles.

Hey, this thing is a Ham transceiver! You'd need a Ham license to operate it legally, even though the seller ignores such trivialities. The seller is offering them at $1,800 per pair. Ham dealers carry them for about $200 each!

The description of the device tells how a person can "stay in touch with this powerful walkie-talkie system." It talks about this "truly palm sized, tiny wireless communicator," with its built-in "encryption system to keep your communications private." Not bad—they seem to be saying it contains a voice

(Continued on page 70)

"Make your day, buy a Regency Scanner"

R1070 MX3000 HX1500

Go ahead, scan all the action. Fire, police emergency, and weather transmissions. It's all there on a Regency scanner.

At Home... If you're thinking about buying a scanner take a look at the economical Regency R1070. It covers all the standard public service frequencies, has a ten channel memory with digital display, and, it's programmable (no crystals required).

On the Road... Keep track of the action in your car with the Regency MX3000. It's got 30 channels with digital display, pressure sensitive keyboard for easy programming, and covers the standard public service frequencies. In addition, the compact, slant front panel design and mobile mounting bracket makes installation simple.

On the go... When you're on the go, and you need to stay tuned into the action, take along the Regency HX1500 hand-held portable. Its advanced features include: keyboard programming, 55 channels, ten public service banks including aircraft, liquid crystal display, and 4 independent scan banks.

Check one out today... For a free demonstration, visit your Authorized Regency Scanner Dealer today, or, write Regency Electronics, 7707 Records Street, Indianapolis, IN 46226

Regency® ELECTRONICS, INC.

7707 Records Street
Indianapolis, IN 46226

*Mobile use subject to restriction in certain localities. Celebrity look-alike — Joe Dimmick — Not to be construed as an advertisement or product approval by any celebrity.

CIRCLE 47 ON READER SERVICE CARD

MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Bucking For Buccaneers

Being an avid reader of *POP'COMM*'s Pirate's Den column (and Edward Teach is doing the best job yet with the subject), I've often wondered if and how pirate broadcasters are in contact with one another and coordinate their activities. Or, is it a case of "every man for himself?"

Rudy Klein
Anoka, WI

There are several clubs aimed at monitoring pirate activities and chances are that many pirate broadcasters belong to those organizations and, through their facilities, are able to maintain contact with one another. The most prominent of these groups was (and may still be) the Association of Clandestine Broadcasters (ACE), although we haven't seen anything of their newsletter since the end of 1985. About a year ago, a DX listener reported hearing a lively two-way communications net on 7430.5 kHz that had as its participants stations identifying themselves by the names of pirates such as Zeppelin Radio Worldwide, Radio North Coast International, KROK, etc. —Editor

Alice Well

I have followed the writings of *POP'COMM*'s Alice Brannigan for more than two years and I hope that you continue to run this material. From the photos you've run of Alice, I'd say that if she isn't singer Juice ("Angel of the Morning") Newton, then Alice is her identical twin. I'd bet on it!

Carl Fanning
Locust Grove, OK

Several times, Alice Brannigan has mentioned attending certain military communications conferences in the National Capital area. Please permit me to point out that each of those conferences has been open only to persons having been granted a governmental "Secret" clearance. Could it be that Alice is an officer in one of the military services?

L. R. McN., Capt., U.S. Army
Barkers Crossroads, VA

My guess is that Alice is the granddaughter of Bill Breniman, Executive Secretary of the Society of Wireless Pioneers.

Graydon Lewis, N7FCO
Naval Cryptologic Veterans Association
Eugene, OR

At the last radio swap meet I attended they held a contest to determine which regular contributor to *POP'COMM* each person would most like to DX with. I'm happy to report that the final results from the 78 persons who attended were: Alice Brannigan, 132 votes; everyone else, no votes. As you can see, you (along with everybody else) tied for second place.

Richard Ispen
Napa, CA

Anyone who reads *POP'COMM* is bound to notice that: A) Alice isn't listed as a Contributing Editor; B) She is always seen near fast, luxury cars; and C) She loves QSL cards. Now then: You like fast luxury cars. Like most Hams, you have a garage full of QSL cards. Furthermore, you never list Alice as a Contributing Editor because her stuff goes to the printer with yours. Therefore, Alice is your teenage daughter. You should be commended for giving her a break in the publishing business.

Ron Smith, WA4JNX
Birmingham, AL

If there really is a person such as Alice Brannigan, has anybody (other than the *POP'COMM* staff) ever actually met her?

Ron Emerson
Greendale, WI

Alice replies that all of the continuing flap about who she "really is" puzzles her. She adds that recently she had an in-person chat with Jeanne Ferrell of Gilfer Shortwave and that (hopefully) Jeanne would be able to attest to the fact that she's more than a figment of someone's imagination. —Editor

Power Trip

I'm planning a trip to Europe and will be taking along things that require electrical power, most notably my Kenwood R-2000 receiver, my electric razor and the unit needed to sterilize my contact lenses. The travel brochure says that England has 220 volts. Where can I get an adaptor?

Fred Burrelson,
Newport, RI

You'll not only need an adapter (that allows you to plug into the several types of wall outlets), but also a converter (that reduces voltage). Converters are made for different wattages and since your largest wattage requirement is probably the contact lens cleaner (pulling 50 to 70 watts) you may require the 50-watt size. But better check carefully, if you or your XYL is bringing a hair blower you may need 1,000 watts or more. Remember, too, that American appliances work on 60 Hz while European systems mostly use 50 Hz. The slower rate would not be a problem for the sterilizer but would be for a clock. Before using any electrical device abroad, make certain that the electrical system in the hotel has AC power. DC is sometimes found in older sections of European cities (although not often in hotels catering to tourists). Also, don't forget to have British plugs with you (that is, one with three flat prongs and one with two short, round prongs). Electronics and small-appliance stores are the places to shop for all of these items. Note that some countries may give you a hard time when you attempt to bring a communications receiver across their borders. It would be a good idea to check with the nations on your itinerary before you embark. —Editor

Code Mode

Not long ago I purchased an Info-Tech M-600 RTTY demodulator to permit me to DXplore RTTY and related station transmissions. I've had a lot of enjoyment from this equipment and now have a few questions. When monitoring the ARQ (SITOR) transmissions on the maritime bands, I've noticed the operators often use certain coded terms that aren't listed in any of the several publications I have. Please explain "GA?" and "BIBI," also the meaning of quote marks followed by a question mark ("?).

Ian MacGregor, KPA3RG
Warminister, PA

The "GA?" is a request for the other station in the contact to commence transmitting, literally, "Go Ahead?" When you come across a "BIBI," it's simply a way to say goodbye, literally "Bye Bye." The last sequence you mentioned doesn't have any literal or verbal translation, it's simply a series of symbols that causes the equipment to change from transmit to receive mode. These were chosen for that purpose because they would probably never show up in that particular configuration during any message text. Hope you send some of your loggings in for use in our monthly RTTY column! —Editor

One For The Road

I often see long convoys of U.S. Army vehicles traveling on the highways. These consist of Jeeps and trucks, all running with their headlights on. I notice that many of the vehicles sport low-band whip antennas and I was wondering if you might be able to publish the frequency or frequencies used by these convoys. Being a long-distance trucker, I'd like to monitor them on my scanner while I travel.

W.A. McAllister, KTX5JV
Austin, TX

Although it's quite possible that several frequencies may be used for military convoys, the only convoy I ever monitored was using 36.71 MHz. If readers have additional information they can pass along, please do so! —Editor

CALL TOLL FREE & COMPARE

COMMUNICATION DISCOUNTS

Scanners
Scanner models for mobile, base station, and handheld use.

Regency
HX 1500
55-channel
Handheld.

Bearcat
BC 210XW
20 channels, 8 bands. Synthesized programmable scanner. Automatic search. Direct channel access.

Telephones
by AT&T, Southwestern Bell, Cobra, and Panasonic

CBs
By Uniden, Midland, and Cobra

Radar Detectors
By Uniden, Cobra, and Whistler

Antennas
Indoor and outdoor antennas by Sony, MFJ, B&W, Butternut, and Antenna Specialist.

Interfaces
Decode Morse and RTTY. By MFJ or Kantronics. Packet equipment by MFJ and Kantronics.

Books
Full selection of books in stock.

SW Listening
Additional Receivers by Sony, Panasonic, and Bearcat.

More Helpers
- **Amateur** Radios and Accessories
- **Towers** and all types of antennas
- **Commercial** Land Mobile by Yaesu and others
- **Marine** By Icom and Regency Polaris

YAESU

FRG-8800
All mode including FM. 150 kHz - 30 MHz. 12 memories with multi-function scanner. Keypad entry.

FRG-9600
New Receiver for 60 - 905 MHz. 100 keypad-programmable memory channels. Band or memory scan.

KENWOOD

R-5000
General Coverage Receiver

R-2000
General Coverage Receiver. Ask about extended service agreements.

ICOM

R-7000
For listening to 25-100 MHz. 99 memory channels with back-up. Direct keyboard frequency access. Call for introductory special

R-71A
General Coverage Receiver. All-mode with FM optional. 32 memories. Accessories available include filters, remote control, voice synthesizer, and extended service agreement.

TEN-TEC

RX-325
General Coverage Receiver

CIRCLE 80 ON READER SERVICE CARD

Get the whole story! Send $1 for our Current Buyer's Guide-Catalog.

ege, inc.
VIRGINIA

13646 Jefferson Davis Highway
Woodbridge, Virginia 22191
Information & Service: (703) 643-1063
Sevice Department: (703) 494-8750

Orders & Quotes Toll Free: 800-336-4799
(In Virginia: 800-572-4201)

Store Hours: M-Th: 12 noon—6 pm
F: 12 noon—8 pm
Sat: 10 am—4 pm
Order Hours: M-F 9 am-7 pm
Sat 10 am-4 pm

ege, inc.
NEW ENGLAND

8 Stiles Road
Salem, New Hampshire 03079
New Hampshire Orders,*
Information & Service: (603) 898-3750

New England Orders & Quotes: 800-237-0047

Store Hours
MTWSat: 10 am—4 pm
ThF: 12 noon—8 pm
Sun: Closed

*Order and we'll credit you with $1 for the call.

LACOMBE DISTRIBUTORS
LOUISIANA

Our Associate Store:
Davis & Jackson Road, P.O. Box 293
Lacombe, Louisiana 70445
Information & Service: (504) 882-5355

Terms: No personal checks accepted. Prices do not include shipping. UPS COD fee: $2.35 per package. Prices are subject to change without notice or obligation. Products are not sold for evaluation. Authorized returns are subject to a 15% restocking and handling fee and credit will be issued for use on your next purchase. EGE supports the manufacturers' warranties. To get a copy of a warranty prior to purchase, call customer service at 703-643-1063 and it will be furnished at no cost.

Hard to get through on our 800 numbers?
Call before 10 a.m. or after 5 p.m., or call one of our regular numbers. If you pay for the call and order, we'll credit your order with $1.

Dealer Inquiries Invited

Dealing With The Electronic Communications Privacy Act

We have been inundated by letters and phone calls from concerned scanner owners wondering what they need to do, or not do, to stay "legal." There is also a great deal of concern over the penalties for technical violation of the new law. A typical response was a phone call we received from a volunteer fireman who had recently given a scanner to his parents . . . he certainly didn't want them to get into trouble with the law because of his gift. That, of course, has been one of our main concerns with this new law. It has the potential of criminalizing many innocent people. The fact that the Justice Department has stated that they do not intend to enforce these radio provisions of the law offers only small comfort. Nobody likes to be under a cloud of possible persecution at sometime in the future.

We will try to offer some guidance here on how to cope with the Electronic Communications Privacy Act (ECPA), but please be cautioned that we are *not* offering legal advice. One of the serious problems with ECPA is that it is very vague. A cynical reviewer might say that, in the face of some tough questions, the sponsors of this legislation decided not to answer those questions. Nonetheless, ECPA is now law and, because it is so vague, it will take years of court interpretations and decisions to ultimately bring us a clear picture. With that important caveat, let's try to sort out what it means.

To begin with, here is a list of radio communications you *can* listen to:

1. Governmental, law enforcement, civil defense, private land mobile, and public safety radio communications systems (including police and fire) where are "readily accessible to the public." (Obviously the definition of "readily accessible" is very important . . . read on for more details.)
2. Marine and aeronautical communications.
3. Amateur, CB, and General Mobile Radio Service communications.
4. Radio portion of cordless telephone communications linking the handset to the base unit.
5. Tone only paging signals.
6. Satellite transmissions of "network feeds," cable programming, and some audio subcarriers covered by Section 705(b) of the Communications Act.
7. Some audio subcarriers, transmitted by means other than satellite.
8. Signals causing harmful interference to "any lawfully operating station of consumer electronic equipment, to the extent necessary to identify the source of such interference."
9. Any other electronic communication made through a system which is "readily accessible to the general public."

Other than the above specific exemptions, radio communications defined as *not* readily accessible will be *illegal to monitor*! But just what is the definition of "readily accessible" anyway?

The types of radio transmission which are defined by ECPA as "*not readily accessible*", and therefore "off limits" for monitoring:

1. Encrypted (scrambled) signals.
2. Signals transmitted using "modulation techniques whose essential parameters have been withheld from the public with the intention of preserving the privacy of such communication." (Presumably this refers to some forms of spread spectrum transmission and possibly radioteletype using non-standard coding.)
3. Signals "carried on a subcarrier or other signal subsidiary to a radio transmission." (With some exceptions; we hope to have details on those shortly.)
4. Signals transmitted over a "communication system provided by a common carrier." (One of the exceptions here is tone-only paging.)
5. Signals transmitted on frequencies allocated under FCC rules Part 25 (communications-relay satellites), Part 74(D) (remote broadcast pick-up), Part 74(E) (radio broadcast auxiliary, including studio-to-transmitter links), Part 74(F) (TV broadcast auxiliary, including studio-to-transmitter links), Part 94 (private fixed microwave).

Penalties, in the unlikely event that someone is caught, vary according to the *intentions* of the listener (which is nearly impossible to prove) and the type of communications being intercepted. For most protected communications which are not encrypted, the penalty for interception is a criminal penalty of up to one year in jail and a fine of up to $100,000 for the first offense—*if* there is no bad purpose, such as a commercial advantage or personal gain. In some cases, for instance the monitoring of remote broadcast pickup transmissions, the penalties are civil rather than criminal. In the case of conventional mobile or cellular phone interception, the penalty for the first offense is a fine up to $500 with no jail penalty.

No doubt about it, we've entered a different and uncharted era of radio communications monitoring. Instead of being bound solely by the common sense provisions of the Communications Act, we now must live with a complex piece of legislation that has not yet been interpreted by the courts. At the moment, ECPA raises more questions than it answers. For instance, if a phone conversation pops up on your TV, you have the right to listen while you identify the source. Then you must shut your TV off, presumably even if the fault of the interference is with the company transmitting that phone conversation!

In all the frustration and confusion over this bizarre piece of legislation, it is important to keep things in perspective. We won more than we lost. Scanners have not been banned as originally proposed. Most of our monitoring activities will still be legal. We'll be covering other aspects of the law, such as the difference between "intentional" and "inadvertent" intercept, in future months. In the meantime, I'd like to thank the Association of North American Radio Clubs and others who have cooperated with SCAN in the analysis of ECPA.

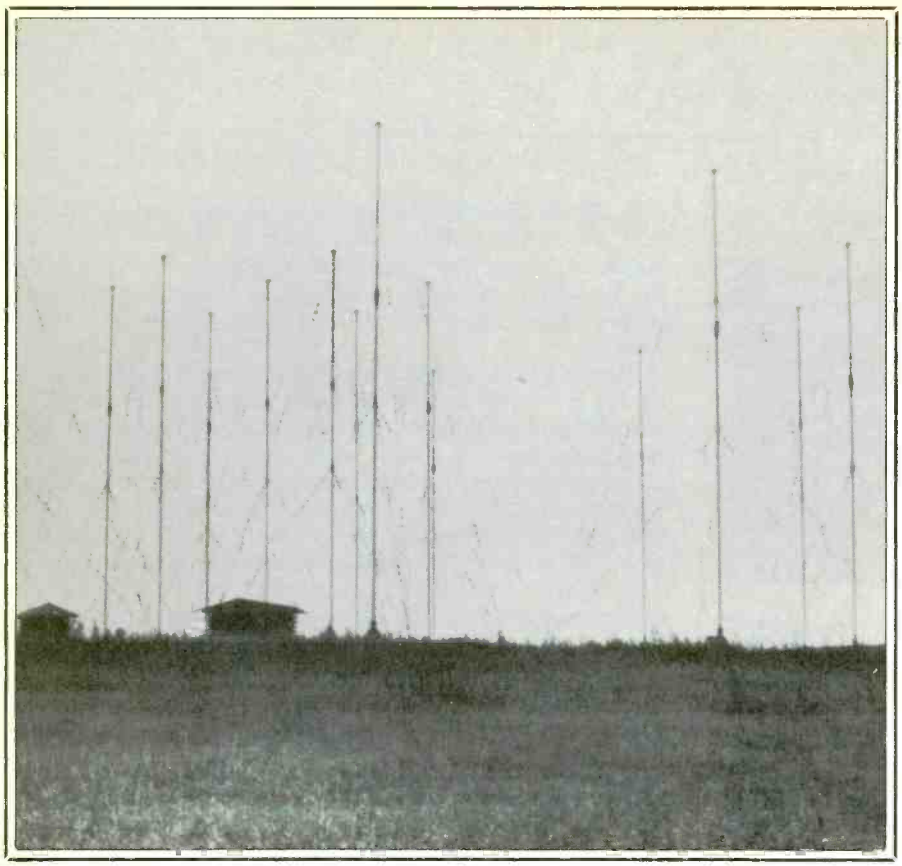
Proposals For Cellular Phone Warning Labels Put CTIA Staff On "Hot Seat"

Imagine that you have started a new trade association to promote the interests of suppliers of cellular phones . . . and that you are starting this organization, even though a well-established trade group already exists. What is the best way to "prove" that your new group is needed and worth the tens of thousands of dollars you are asking for? Do something spectacular, of course. Like convincing a technically naive House Judiciary staff to add cellular phones to a law intended to protect computer data bank transfers. Wow! Who else but the aggressive Cellular Telephone Industry Association (CTIA) could pull that off?

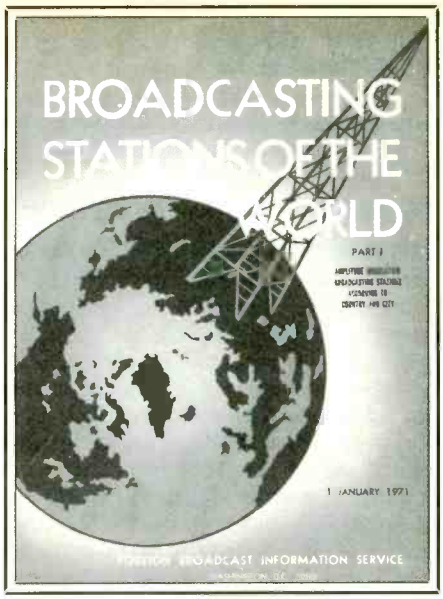
Unfortunately for CTIA, and especially its members who spent the money, something very interesting happened on the way to the new ECPA legislation. After all, the goal of CTIA was to make sure that the truth of cellular phone privacy didn't become widely known. In our battle with them in California, CTIA executives told me that they really didn't care if people listened-in on cellular phone conversations, they just didn't want the fact promoted in ads. In other words, they did not care about the reality of interception, they just didn't want people to know it could happen.

What CTIA did not count on was the ability of groups like SCAN to expose the truth about cellular communications so fully that a feature story ran recently in the *Wall Street Journal*. You can imagine the reaction of many CTIA members. CTIA has shot itself in the foot! Instead of achieving their goal of preserving the image that a

(Continued on page 61)



Part of the Adcock receiving antennas at the DW receiving installation at Brockhacken.



FBIS used to issue comprehensive logs, which were used by SWLs and DX'ers.

A Deutsche Welle monitor on the job.

Tuning In With The Pros

Here's The Way The Big Guys Do It

BY GERRY L. DEXTER

More than one shortwave listener has sat back in his chair, feet up, listening to Radio Bucharest; or paused in the pursuit of some weak, rare African and dreamed of actually getting paid for shortwave listening. What would it be like to be a professional monitor, sitting in front of a shortwave radio all day or all evening, prowling the bands in search of goodies?

There are people who have jobs like that, but those jobs aren't quite like they're imagined to be. The professional monitors listen to shortwave yes, but there's little or no browsing around allowed.

A number of governments and government broadcasters maintain their own monitoring posts and their employees certainly have one of the more exclusive jobs in the world of radio.

The Voice of America maintains a monitoring network on two levels. There are Technical Monitoring Offices (TMOs) located in Belgrade (Yugoslavia), Buenos Aires, Helsinki, Vienna, Hong Kong, Islamabad (Pakistan), and Nairobi (Kenya)—but only the latter three are staffed by Americans.

In addition, the VOA employs some 30 individual monitors at locations around the world—mostly in Africa, South Asia, and Latin America. These people send reception reports into the VOA's Washington headquarters each week. The reports cover reception over a three to four day period out of the week. Instead of the well-known SINPO reporting code the VOA uses an "SDO" code, an arrangement similar to SINPO's 1-5 reporting scale, but with the letters standing for signal strength, degradation, and overall quality. The reports are then entered into a computer that produces a "profile" of the VOA's reception in given areas based on transmitter usage, frequency, and propagation into that area. Any necessary changes in frequency or facilities can then be made in order to improve reception.

These monitors don't use fancy, high-priced sets. As of a couple of years ago they were all supplied with Sony 2001 receivers, chosen for their accurate frequency readout, quick band scanning, their portability and easy tuning. The use of a commercial "consumer" type receiver also puts the monitor more on the level of the average VOA listener which, in turn, gives VOA analysts a better feel for the way the Voice's signal is reaching the average listener.

In addition to doing work similar to the monitors, the Technical Monitoring Offices are also engaged in "spectrum occupancy" study—that is determining who is using what frequency and when. This work is done either manually, or through the use of a Huber machine (a sort of strip chart recorder), or through the use of very expensive Watkins-Johnson receivers driven by desktop computers. The TMOs also moni-

tor such stations as the BBC, Radio Canada International, Radio Free Europe/Radio Liberty, Radio Australia, Radio New Zealand, Kol Israel, and Radio RSA on a cooperative basis.

Monitors at the Hong Kong, Nairobi, and Islamabad offices will occasionally be sent out into the field to study reception within their particular assignment areas. Occasionally someone from the Washington headquarters will be sent out on special assignment to do frequency studies in particular spots, sometimes prior to the VOA's establishing a station in that area.

The TMOs also evaluate new portable receivers as they arrive in the marketplace with an eye toward possible use for the VOA monitors.

The VOA is in the process of creating an automated monitoring system which, it is hoped, will be in place by 1986. This system will be controlled either from Washington or by personnel at various U.S. embassies and would eliminate the need for contract monitors. It would provide instantaneous feedback on how VOA's signals were being received and would allow the station to make real time changes in antenna and site usage to maximize the signal into a target area.

The VOA isn't the only U.S. entry into shortwave broadcast monitoring. The Central Intelligence Agency has a special division called the Foreign Broadcast Information Service whose job it is to monitor foreign public media (including newspapers, magazines, and press wire services.) FBIS keeps much of its work a secret. Since it is part of the CIA, it feels it should maintain a low profile and thus will not even say where its field monitoring posts are located. It is known to have a fairly large number of them, particularly in Asia, the Middle East, and Africa.

FBIS employees select and translate into English material from foreign media which is then sent by teletype to Washington, where it is analyzed. The most important items are then sent via the FBIS Wire Service to key officials and departments within the government. Much of the information is also published in the FBIS Daily Report, which also goes to government agencies and is also made available to the public through the U.S. Department of Commerce, although at a rather high annual subscription fee.

To get a job with FBIS you need a minimum of a Bachelor's degree. Other helpful qualifications are majors in English, history, international relations, or print journalism. Experience in news writing, editing, and supervisory or leadership positions such as teaching are also helpful. You must be willing to spend about half of your career on overseas assignment and sweat through a thorough security check.

Once hired, you spend a year and a half in Washington, DC as an apprentice editor of the *Daily Report* and are also given formal instruction and training in such areas as copy editing, style, format, and learning to make selections based on the interests and requests of the "consumer" (U.S. Government). You learn to organize presentations and other basic elements which make up the field editor's duties.

The BBCMS headquarters located at Caversham Park.

Your first assignment is just a brief 12-week baptism at an overseas post where you are responsible for selecting, editing, and routing the FBIS monitored information. As an American you won't do any of the monitoring work yourself. That is left to foreign nationals working under your supervision. Your job is to coordinate their work and handle the output, a job FBIS says requires one to work independently and often under pressure. You need to know how to turn rough translations into clear, readable English and do it quickly.

Your work schedule will include evenings and weekends (at premium pay) and you'll serve in your first real post assignment for two years.

Many years ago the FBIS published annual station lists which were often used by DX'ers, but these were discontinued many years ago. Apparently the FBIS recognizes the value of information in DX hobby publications as it is on the subscription list for several.

Caversham Park's main listening room.

During the 1962 Cuban Missile Crisis, Nikita Kruschev sent a message to President Kennedy agreeing to pull his missiles out of Cuba. Kennedy responded to the message very quickly—even before he had received word directly from the Kremlin. Monitors at the BBC Monitoring Service had picked up the broadcast and relayed it to FBIS, which in turn put it into the president's hands.

The BBC Monitoring Service was born around the start of World War II. Up until that time, the Foreign Office had been monitoring a few of the Axis broadcasters. But once the Italians began an Arabic service to the Mediterranean with the aim of undermining the British position there, the Ministry of Information asked that the BBC set up a service to monitor what was being said on this and other foreign radios.

The first monitoring post was set up at Wood Norton near Evesham, but moved to its present location before the war was over. By that time the service had around 1,000 people on the payroll, but today that number has shrunk to under 400.

BBCMS is housed in a stately country mansion. Built in 1850, it was originally the home of a Welsh businessman and later became a boy's school. The large home sits on 90 acres of lawn and trees complete with a pond. It even has its own restaurant.

But there are two BBCMS installations—the listening facility (above) located at Caversham Park near Reading, about 40 miles from London. The technical facility is at Crowsley Park a few miles from Caversham.

Crowsley is where the big receiving antennas are located—including a dish for satellite TV reception that enables viewing of Soviet TV and several other countries as well. There are stack dipole antennas, rhombics, yagis, quarter-mile long beverage antennas—all the stuff of dreams for a shortwave listener.

The broadcast signals are received at Crowsley, where they are processed and amplified, then fed over phone lines to the monitoring facility at Caversham. Crowsley also receives the signals of the Voice of America and Radio Canada International and feeds those to BBC transmitters for broadcast relay as part of the cooperative relay agreements between these stations. Some 50 receivers are in racks occupying three walls of the main equipment room at Crowsley Park. High-priced Racal receivers are used, along with spectrum analyzers that show band activity. The receiving station also monitors the BBC's own domestic stations and receives the signals of the world's main press services over radioteletype.

At Caversham Park the main listening room is dominated by a long table-like affair which accommodates about 12 listening positions on each side. Each monitoring position is equipped with a Drake SPR4 receiver, a tape recorder (fast being replaced by cassette recorders), a pair of headphones, and a typewriter. Each monitor is assigned a listening schedule he or she must follow during his or her shift. Notes are taken on the broadcasts as they come in, and everything is taped. Later, the monitor will move to a listening cell to play back the tape and transcribe the broadcasts.

Often, when a real crisis is underway, monitors will be pulled off their regular shifts so as to put full concentration on the country or area in the limelight.

Monitors must be fluent in two or three languages and training takes about three months. But, it's as much as two years before a monitor is considered to be fully proficient at the job. The monitor has to be able to deal with less than perfect reception (yes, even here!) and become sufficiently familiar with the countries to which he or she is assigned to spot items of importance that might slip right past the unindoctrinated. The monitor must also develop the ability to spot unusual activity or programming by a station—often a sign that something is up and a coup or revolution may be in progress, or the death of a leader is about to be announced.

At the head of the monitoring table is a large control unit that receives the signals from Crowsley. The signals are then patched into the individual listening posts as required and according to a master work schedule. An eight track tape recorder is available for recording any of the feeds, one track containing a continuous time signal to help position particular items when played back.

A complicated conveyor belt system carries messages throughout the building. It was considered an obsolete system even when it was first designed and installed years ago, and the BBCMS knows there are more modern systems available. But, this one does the job and is in use "out of affection."

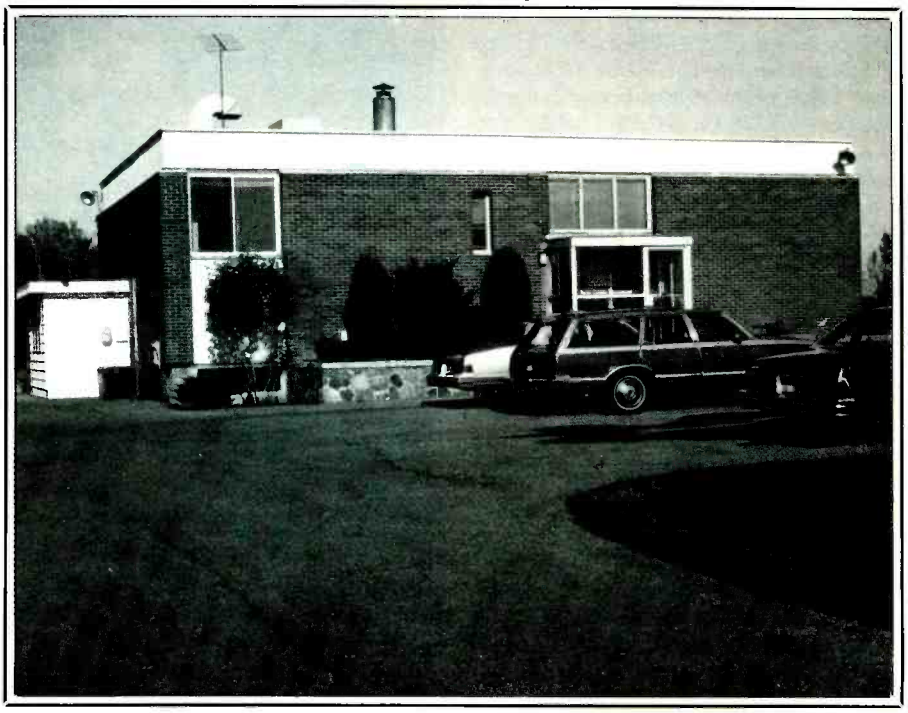
Caversham Park also has a "research department" where monitors with more freedom explore the bands. The main job here, however, is to compile time and frequency schedules of the major international broadcasters. To do this, two receivers are used. One is tuned to a known frequency of the station in question and its output is fed into one side of a pair of headphones. The other receiver is used to explore for parallel channels, with its output going to the other half of the headphones so identical programming can be matched up. These schedules cover times, frequencies, languages, target areas, and occasionally the times of major news programming. The work is done on a continuing basis using high quality receivers. It is not easy work. The USSR schedule, for instance, runs to tens and tens of pages and is revised twice a year. The use of computers has eased the workload somewhat but it is still no mean trick to keep track of so many broadcasters.

Clandestine broadcasting has become a particular problem for BBCMS monitors. They're important enough to require careful monitoring but there has been such a proliferation of them in recent years that it has added significantly to the amount of material the service has to handle.

BBCMS technical facilities also use remotely controlled receivers in Cornwall, Vienna, and at an Asian monitoring post. Sophisticated receivers are used for this purpose. Even though the receivers are thousands of miles away, they can be tuned by remote control from Crowsley. The receivers can thus be located within range of wanted signals that can't be heard in England, their output feed back via phone line and satellite.

Since 1948 the BBCMS has worked in close conjunction with the Foreign Broadcast Information Service and between the two, they cover broadcasts from 120 coun-

Radio Canada International's receiving station at Stittsville.



A monitoring position at the Stittsville receiving station. The Racal receivers have since been replaced by newer models.

tries in some 50 languages on a regular basis. One desk at Caversham Park is, in fact, assigned to an FBIS representative, although rumor has it that he is conspicuously absent whenever there are visitors at BBCMS.

What happens to all of this information? Some of it used to go into *World Broadcasting Information*, the publication that contained news of broadcasting and broadcast schedules often quoted and labeled "BBCMS" in club bulletins. The publication recently ceased its service due to the increasingly high cost of keeping it in operation.

The material gathered by BBCMS is sent out on a teleprinter to various subscribing agencies including the BBC itself, the Foreign and Commonwealth Office, the Ministry of Defense, other government offices, news bureaus, newspapers, etc.

Also published is a weekly "Summary of World Broadcasts" that condenses, in four geographical editions, what has been said over the air during the previous week. Weekly summaries of economic and space news are also compiled and issued to subscribers and all the information gathered since the beginning of 1982 is now in a database. Further, the entire daily output is put on floppy disc and fed in an overseas call each day to a company in Ohio that operates a computer-based information library.

Recordings of broadcasts are kept for about three weeks and are made available to parties having a need for them. Only those recordings that have historical significance are kept on permanent file.

The BBCMS has, as might be expected, heard all manner of important stories over the years. And when you hear or read a news report that refers to the information as having been "monitored in London," they really mean that stately manor at Caversham Park.

Like Britain, Canada's monitoring service dates back to just before the start of World War II. Only three people manned the facility when it opened. Today, by comparison to the BBCMS and FBIS, the Ottawa Monitoring Station is thinly staffed, with but six technicians and a supervisor. Its work, however, is not nearly as all-encompassing as that of the other two.

The receiving station, which is actually located at Stittsville (near Ottawa), is charged with monitoring shortwave broadcasts directed to North America, compiling band surveys, program pickup for RCI and the domestic networks in Canada and program pickup for simultaneous rebroadcast via the Sackville RCI transmitters.

Foreign shortwave broadcasts are monitored regularly from 19 different stations with logs kept on the reception quality of each. These reports are then mailed to the stations covered each week. The amount of time spent on each station is approximately the same as those stations spend monitoring RCI. Some 515 transmitter hours are observed each week and logged on a regular basis. The facility is manned 24 hours a day during the week, 16 hours a day on Saturdays and Sundays.

Canada's monitoring facility also monitors all RCI transmissions for problems and notifies Sackville should any irregularities be spotted.

Band surveys cover the 13, 16, 19, 25, 31, and 49 meter bands on a regular, alternating basis so that each band is covered every five weeks (13 and 49 meters are done in one week). Each channel is checked for station identification, signal strength, and broadcast duration. The practice is an im-

portant part of frequency management, facilitating the selection of future or alternative frequencies for RCI if and when they are needed. These band surveys are also sent to other stations—those that reciprocate by sending their surveys to Stittsville.

Programming from foreign stations is also fed on request to the foreign service department newsroom at RCI in Montreal, and 15 hours of BBC programming is fed to the British High Commission's office in Ottawa daily.

The Ottawa station also engages in studies of propagation, prepares weekly reception cables for London, recommends channels for use by foreign broadcasters, records shortwave programming for use by RCI, and provides technical assistance. Foreign stations may also request the monitoring installation to make field strength readings on their transmissions.

A job with the Ottawa Monitoring Station requires one to have a good technical background and the ability to perform equipment maintenance. Five years of shortwave experience is required, as is the ability to at least recognize a number of foreign languages.

Technicians make between $16,000 and $30,000 a year (Canadian), and they don't change jobs very often. There hasn't been an opening at Canada's monitoring facility in over 16 years! Applicants also have to be Canadian citizens or have landed immigrant status.

The monitoring station recently sold off its collection of famous Racal RA17 receivers to a few SWLs who got them at bargain prices. These have been replaced with the newer Racal 6790 GM receivers, which can be completely computer controlled and, not surprisingly, cost several thousand dollars each just for the basic receiver.

The Voice of Germany operates a monitoring station near the village of Bockhacken, some 40 kilometers from Cologne. Here an Adcock antenna system featuring an outer circle of 12 and an inner circle of six vertically polarized antennas covering the 1.5 to 28 MegaHertz range feeds an underground receiving center. At the center of the two antenna circles is a vertically polarized multi-band antenna.

Double rhombics are used for communication, mostly via radioteletype, with Deutsche Welle relay station at Kagili, Rwanda. Also at the receiving station's antenna farm is a 230 meter long L-type antenna for medium wave reception, a rotatable FM directional antenna, and a three band shortwave rotatable.

Distribution amplifiers connect all the antennas with the below-surface receiving station and multiple use of each antenna is possible. Each measuring and receiving installation is equipped with two receivers, an outboard single sideband reception unit, a telegraphy/radioteletype demodulator, and a unit that can reject unwanted signals on a directional basis (known as a goniometer). There are also central frequency measuring systems, remote control tape machines, spectrum recorders, and analyzers and various other measuring devices.

Among the jobs of the Deutsche Welle monitoring station is the reception of news broadcasts from foreign stations and news agencies, the latter via teletype. These are fed via high quality phone lines to the Voice of Germany in Cologne for its use. The monitoring station also measures reception quality of other stations as part of its cooperative agreement with other broadcasters.

Foreign broadcasts are received and their contents and style evaluated and analyzed on a round-the-clock basis. Broadcasts from East Germany and 19 other nations are regularly monitored. Deutsche Welle's monitoring service also works in close cooperation with BBCMS and FBIS.

Reports of information gathered from monitoring are sent to a list of some 500 subscribers, from the president of the Federal Republic on down to other West German broadcasters, newspapers, and research institutes. Each monitor's position features a portable shortwave receiver, a cassette machine, typewriter, and reference works.

Overall, the facility is divided into three departments: program evaluation, the editorial office, and program analysis.

There are, of course, any number of other stations and governments that maintain monitoring facilities, as well as other umbrella broadcasting organizations. These four, however, probably represent the spectrum from the relatively simple tasks of Canada and its monitoring of a few select broadcasters to the much larger operations of the Foreign Broadcast Information Service and BBC Monitoring Service, which employ hundreds of people and, between them, attempt to keep their electronic ears on most of the world's broadcasting output.

But, large installation or small, none of them are happy hunting grounds for the die-hard DX'er. Monitoring means different things to different people and in this league, it's serious business. PC

Sale! Save $100 on Radio Shack's 200-Channel Base/Mobile* Scanner

No Crystals to Buy! Over 23,600 Frequencies at Your Fingertips!

- **Zeromatic® Tuning for Top Sensitivity**
- **30-54 MHz VHF-Lo ■ 108-136 MHz Air (AM)**
- **138-174 MHz VHF-Hi ■ 380-512 MHz UHF**

199.95 Reg. 299.95

Low As $20 Per Month★

Exciting Listening at Big Savings. Our feature-packed Realistic® PRO-2021 lets you monitor the pulse of your community. You'll hear police and fire departments at work, ambulances, aircraft and control towers, railroads, Ham radio operators, service trucks, taxis, 24-hour weather broadcasts and more. Built-in UL listed AC and 12 VDC power supplies let you listen at home or in a vehicle.

Scan Up to 200 Channels. The scanner's memory will store up to 200 frequencies for instant selection or automatic scanning. You can scan all 200 channels, or select one or more "banks" of twenty channels each. Individual channel lockouts let you temporarily bypass unwanted frequencies and a "search" mode automatically locates new and unpublicized services. Frequencies you find by searching are easily transferred to memory.

Versatile and Easy to Use. The backlighted liquid crystal display simplifies operation by indicating frequency, channel, bank and modes. A battery backup system maintains the memory.

Try it Today at Our Store Near You. PRO-2021 is backed by Radio Shack's one-year limited warranty and a five-year extended service plan is available. Hurry in for 1/3-off savings! Sale ends February 23.

Radio Shack®
The Technology Store™
A DIVISION OF TANDY CORPORATION

Send for FREE Radio Shack Catalog

Mail to: Radio Shack, Department 87-A-221,
300 One Tandy Center, Fort Worth, TX 76102

NAME _____

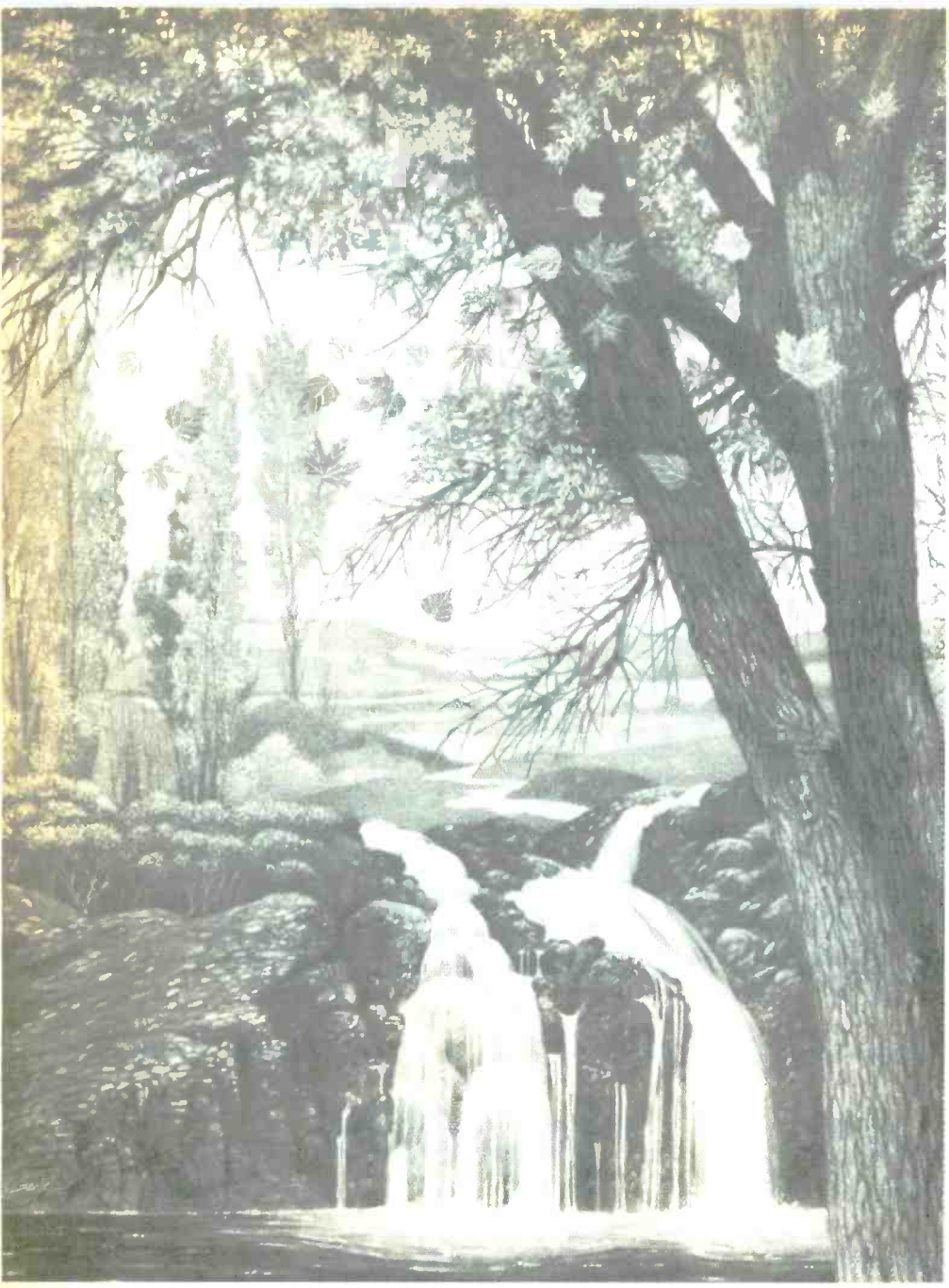
ADDRESS _____

CITY _____

STATE _____ ZIP _____

*Mobile use of scanners in some areas may be unlawful or require a permit. Check with local authorities.
★CitiLine revolving credit from Citibank. Actual payment may vary depending on balance. Prices apply at participating Radio Shack stores and dealers.

CIRCLE 21 ON READER SERVICE CARD



Let's Scan:

The National Park Service

Winter or Summer, America's Magnificent Federal Parklands Offer Unique Opportunities for Scanner Owners

BY TOM KNEITEL, K2AES, EDITOR

A few years ago, on the verge of a trip to Yosemite National Park in California, I wrote to the National Park Service in Washington and asked about obtaining a listing of the agency's communications facilites. They didn't have one but suggested that I might try asking their office in Denver. After a while, Denver finally wrote to offer a number of reasons why they didn't have the information I wanted.

That's when I began collecting and compiling information on the frequencies used by the 66% of the NPS facilities that have communications systems. It turned out that my quest for this information was probably some sort of a first. The only other attempt at offering frequency data for NPS facilities shows relatively few of them, and for those it does show it is riddled with partial information containing gross errors.

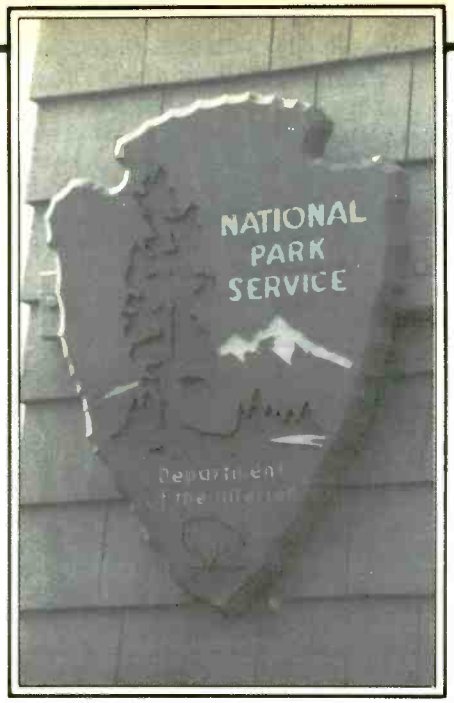
While about 200 NPS facilities are radio-equipped, each of them is regarded by the NPS, insofar as frequency usage, as an "autonomous entity" without any attempt to standardize frequencies on a national level. Somewhere deep in an IRAC (an FCC-like agency governing federal agency communications) computer there is an overall record of assignments, but even the NPS doesn't have the data (nor do they seem to care about such matters).

Most people don't realize that on the 79-million acres under NPS control, there are nine different electronic surveillance methods in use to quietly keep track of what's going on when park visitors think nobody's watching. These technologies include hidden sensors, scanners, satellites, miniature transmitters, vehicle trackers, and night-vision devices.

What Is The NPS?

The Department of the Interior's NPS administers an extensive system of parks, monuments, historic sites and recreation areas. By means of its 12,000 Rangers and other personnel, it is charged with protecting the natural environment and historic properties within those areas. The NPS administers almost 50 national parks; 78 national monuments; 12 national preserves; 4 national lakeshores; 11 national rivers and riverways; 10 national seashores; 63 national historic sites; 24 national memorials; 10 national military parks; 3 national battlefield parks; 10 national battlefields; 1 national battlefield site; 26 national historic parks; 17 national recreation areas; 4 national parkways; 1 national trail; 10 parks; 1 national capital park; the National Mall, and the White House.

The U.S. Park Police are part of the Department of the Interior and are primarily assigned in and around the area of Washington, DC. This agency has the same police powers as the DC metro police and acts as host to park visitors.



NPS Rangers plan and carry out conservation efforts to protect animal and plant life from fire, disease, and visitor abuse. Rangers conduct safety, law enforcement and rescue operations within NPS areas. They also establish educational programs and demonstrations in order to acquaint visitors with the NPS facilities and the environments within those areas.

NPS staff members also oversee many campgrounds, provide maintenance and construction work, and may even operate public transportation systems within NPS areas. Inasmuch as those areas combine into an entity larger than the entire state of New Mexico (except spread out across the entire nation), a highly-structured organization is required in order to keep everything running as smoothly as possible under the crush of millions of annual visitors who arrive throughout the year. As might be imagined, communications play an important role within the NPS.

On the most basic level, many NPS facilities have one or more low-powered informational broadcast transmitters operating on 530 and/or 1610 kHz. These are used to provide the visiting public with information on facilities, sights, and the all-important safety considerations.

Scanner Stuff

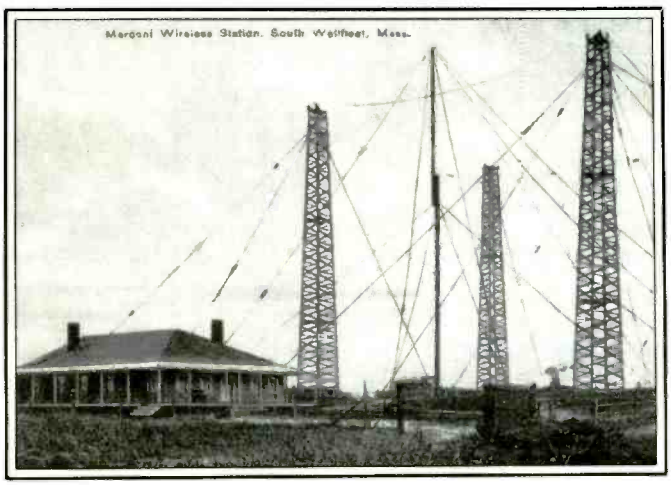
On frequencies above 30 MHz there are base stations, handheld units, repeaters, relays, point-to-point stations, and other types of transmitters. These are utilized for NPS' internal activities as well as for coordination with (as appropriate in specific facilites) other federal agencies such as the Bureau of Indian Affairs, the Department of Agriculture's Forestry Service, etc.

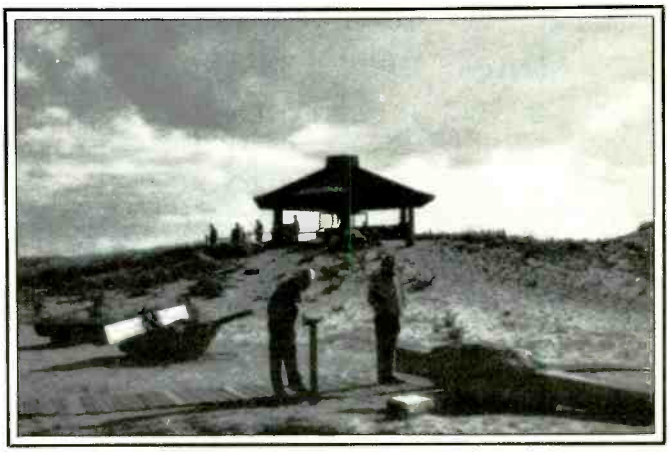
At some NPS facilities, communications are conducted over basic simplex systems, at others there are repeaters and car-to-car channels along with other more complex systems required to be effective over wide areas and/or mountainous terrain.

The listing here presents the information the author has been able to assemble thusfar. A few NPS facilities are missing from the list, not because of any reason other than frequency data has not yet been obtained.

It may not be necessary to monitor each and every frequency listed at a given facility in order to hear what's taking place. This is especially true with systems employing repeaters and relay stations. For instance, at the Fire Island National Seashore, you'd really only need to monitor the repeater output frequency of 166.90 MHz. In striving to provide readers with as comprehensive a directory as possible, all frequencies known to be in use have been listed. No other direc-

At the Cape Cod National Seashore in Wellfleet, MA, you can visit the site of the first wireless station in the U.S. The postcard on the left shows what Marconi used in 1903, while the one on the right shows what can be seen today.





tory yet compiled has covered so many NPS facilities or frequencies.

Keep in mind that at many NPS facilities there are communications activities to monitor other than those of the NPS. Within many NPS facilities there are privately owned/operated hotels, lodges, marinas, tour services, stores, etc., that are equipped for two-way communications. A sample listing of a few such activities is included here to give the reader some idea of what's there to monitor. If you've got your handheld with you, put it into search/scan mode and see if you can discover the non-NPS frequencies in use at NPS parks, monuments, and other similar facilities.

NPS facilities exist throughout the United States. Chances are, many readers live within receiving range of a national park, monument, or other site and can punch-up some of these frequencies without delay. On the other hand, you may be one of the millions of visitors who flock to areas that are under NPS jurisdiction during winter, spring, summer, or autumn. A scanner in hand during a visit can tune you in on the behind-the-scenes operations that the general public doesn't normally know about.

"OK, Joe, the visitors are here—let the deer out and turn on the waterfall!"

National Parks

Acadia	ME	164.175 164.725
Arches	UT	166.325 166.925
Badlands	SD	169.40 170.05 170.10
Big Bend	TX	162.975 163.725 166.375 166.975
Biscayne	FL	171.675 172.675
Bryce Canyon	UT	168.575 169.55
Canyonlands	UT	166.325 166.925
Capitol Reef	UT	168.575 169.55
Carlsbad Caverns	NM	164.425 164.9875
Channel Islands	CA	171.675 171.70
Crater Lake	OR	169.55 170.10
Denali	AK	166.30 166.35 166.90 411.825 417.825
Everglades	FL	171.725 172.45 172.525
Glacier	MT	39.82 163.075 166.375 166.975 167.025 170.025 170.10 408.525
Glacier Bay	AK	166.95
Grand Canyon	AZ	171.75 172.425 172.45
Grand Teton	WY	171.675 172.425
Great Smokey Mtns.	NC/TN	166.35 167.15 408.725
Guadalupe Mountains	TX	164.425
Haleakla	HI	169.55 170.10 411.625
Hawaii Volcanoes	HI	168.55 169.40
Hot Springs	AR	166.325 166.925
Isle Royale	MI	168.525 169.675 170.35
Katmai	AK	164.425 164.9875
Kings Canyon	CA	164.25 164.75 165.1625 166.875 171.75 172.45 172.50 173.7875 417.975
Lassen Volcanic	CA	170.075
Mammoth Cave	KY	169.55 170.10
Mesa Verde	CO	169.40 170.05
Mount Rainier	WA	163.075 164.475 164.9875 166.875 167.125 167.15 171.775 172.45 172.625 406.25
North Cascades	WA	164.9875 166.75 408.725
Olympic	WA	164.9875 168.525 169.55 406.25 411.625 419.625
Petrified Forest	AZ	169.40 170.05
Redwood	CA	164.425 165.1625 165.3125
Rocky Mountain	CO	166.35 166.95 408.625 411.825 417.825
Sequoia	CA	164.25 164.75 165.1625 166.875 171.75 172.45 172.50 173.7875 417.975
Shenandoah	VA	166.30 166.60 166.90 411.85
Theodore Roosevelt	ND	164.575 166.375 166.975 170.025
Virgin Islands	VI	171.725 172.625
Voyageurs	MN	166.30 166.90 411.625 417.725
Wind Cave	SD	170.05
Yellowstone	ID/MT/WY	166.375 166.975 411.675 411.775 417.375 417.475
Yosemite	CA	171.65 171.775 171.80 172.025 172.65 172.675 172.775
Zion	UT	166.325 166.925

National Historical Parks

Appomattox Ct. Hse.	VA	166.35
Boston	MA	166.95
Chalmette	LA	163.15 168.375 169.675
C. & O. Canal	DC/MD/WV	166.35 166.95 417.975
Colonial	VA	168.425 169.125
Cumberland Gap	KY/TN/VA	166.30 166.7875
Harpers Ferry	MD/WV	168.425
Independence	PA	164.725
Jean Lafitte	LA	163.15 168.375 169.675
Klondike Gold Rush	AK	166.95
Lowell	MA	166.95
Lyndon B. Johnson	TX	170.075 411.625
Minute Man	MA	164.425
Morristown	NJ	164.475 165.4375
San Antonio Missions	TX	172.40
Saratoga	NY	173.7625
Valley Forge	PA	164.425

National Battlefields

Antietam	MD	166.35 166.95
Cowpens	SC	171.775 172.475
Fort Necessity	PA	171.65 172.40
Monocacy	MD	166.35 166.95 417.975
Petersburg	VA	163.125
Stones River	TN	172.775
Tupelo	MS	171.675 172.675
Wilson's Creek	MO	173.7625

National Battlefield Parks

Kennesaw Mountain	GA	166.30 166.90 171.775 172.475
Manassas	VA	163.125
Richmond	VA	166.95 168.325

National Military Parks

Chickamuga/Chattanooga	GA/TN	167.075 168.325
Fort Donelson	TN	167.15
Fredericksburg/Spotsylvania Co.	VA	166.35 166.95
Gettysburg	PA	164.725 166.275
Guilford Courthouse	NC	164.425
Horseshoe Bend	AL	172.45
Kings Mountain	SC	171.775 172.475
Pea Ridge	AR	168.325
Shiloh	TN	164.425
Vicksburg	MS	166.30 166.90

National Memorials

Arkansas Post	AR	166.325
Arlington House	VA	171.675 172.75 408.425
Chamizal	TX	164.425
Coronado	AZ	171.725
Fort Caroline	FL	170.05
John F. Kennedy Center for the Performing Arts	DC	409.05 411.825
Johnstown Flood	PA	171.675 172.40
Lincoln Boyhood	IN	168.35
Mount Rushmore	SD	170.05
Theodore Roosevelt I.	DC	171.675 172.75 408.425
Wright Brothers	NC	164.20 164.725 169.65

National Historic Sites

Allegheny Portage RR	PA	171.675 172.40

National Historic Sites

Allegheny Portage RR	PA	171.65 172.40
Andersonville	GA	408.475

Bent's Old Fort	CO	166.35
Carl Sandburg Home	NC	171.775
Chimney Rock	NE	32.73
Christiansted	VI	171.725 172.675
Edison	NJ	164.475 165.4375
Eisenhower	PA	164.725 166.275
Eleanor Roosevelt	NY	166.35 166.95
Fort Davis	TX	164.425
Fort Laramie	WY	173.7625
Fort Raleigh	NC	164.20 164.725 169.65
Fort Smith	AR	164.75
Fort Union TP	ND	166.375
Fort Vancouver	WA	41.13
Friendship Hill	PA	172.40
Golden Spike	UT	171.675
Grant-Kohrs Ranch	MT	168.35
Herbert Hoover	IA	169.65
Home of FDR	NY	166.35 166.95
Hopewell Village	PA	171.675 172.40
Jefferson Nat'l. EM	MO	171.625 172.475
Knife River Indian Vlgs.	ND	166.375
Martin Van Buren	NY	166.95
Saint-Gaudens	NH	173.7625
San Jose Mission	TX	172.40
San Juan	PR	163.075
Vanderbilt Mansion	NY	166.35 166.95

National Monuments

Agate Fossil Beds	NE	32.73
Alibates Flint Quar.	NM/TX	166.30 166.90 411.825
Bandelier	NM	164.425 165.4125
Black Canyon of the Gunnison	CO	419.625
Booker T. Washington	VA	166.35
Buck Island Reef	VI	171.725 172.625
Cabrillo	CA	171.75
Canyon de Chelly	AZ	166.35 166.95
Capulin Mountain	NM	164.425 165.4125
Castillo de San Marcos	FL	170.05
Cedar Breaks	UT	166.325 166.925
Chiricahua	AZ	171.725 172.525
Colorado	CO	166.30
Craters of the Moon	ID	171.675
Custer Battlefield	MT	36.18 167.15
Death Valley	CA/NV	169.55 170.10
Devils Tower	WY	169.40 170.05
Dinosaur	CO/UT	166.375 166.975 167.075
Effify Mounds	IA	169.65
El Morro	NM	166.35 166.95 168.525
Florissant Fossil Beds	CO	167.025
Fort Jefferson	FL	171.625 171.725
Fort Matanzas	FL	170.05
Fort McHenry	MD	166.35 166.95
Fort Pulaski	GA	164.80
Fort Sumter	SC	170.05
Fossil Butte	WY	171.675
G. Washington Birthplace	VA	163.125
G. Washington Carver	MO	168.35
Gran Quivira	NM	164.425
Grand Portage	MN	166.325 166.925
Great San Dunes	CO	173.7625
Homestead	NE	169.65
Hovenweep	CO/UT	169.40 170.05
Jewel Cave	SD	170.05
John Day Fossil Beds	OR	164.475 164.9875
Joshua Tree	CA	171.675 172.675
Lava Beds	CA	171.675 171.75 172.45 172.675
Lehman Caves	NV	163.15
Montezuma Castle	AZ	168.35
Muir Woods	CA	164.10 164.80
Natural Bridges	UT	166.325 166.925
Navajo	AZ	166.35 166.95 171.675 172.575
Ocmulgee	GA	171.775
Oregon Caves	OR	164.425
Organ Pipe Cactus	AZ	164.425
Pinnacles	CA	169.40 170.05
Pipe Spring	AZ	166.325 166.925
Rainbow Bridge	UT	171.625 172.40 172.475
Saguaro	AZ	166.35 166.95 167.15

POPULAR COMMUNICATIONS

76 N. Broadway, Hicksville, New York 11801

FREE INFORMATION SERVICE

For further information on products, dealers, or literature in this issue, circle the appropriate numbers below. Be sure to include your name and address before mailing.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180

Issue Date (month, year): _____

Did you purchase this copy of Popular Communications from either a newsstand or magazine store?

☐ Yes ☐ No

Name _____

Address _____

City _____

State _____ **Zip** _____

CIRCLE 26 ON READER SERVICE CARD

Saint Croix Island	ME	164.175 164.725
Scotts Bluff	NE	32.73
Statue of Liberty	NY/NJ	34.79 417.85 417.925
Ellis Island	NY/NJ	34.79 414.825 414.925 417.85
Sunset Crater	AZ	166.35 166.95
Timpanogos Cave	UT	166.15
Walnut Canyon	AZ	166.30
White Sands	NM	166.6375
Wupatki	AZ	166.35 166.95
Yucca House	CO	169.40 170.05

National Preserves

Big Cypress	FL	171.625 172.425 172.745
Big Thicket	TX	166.30 166.90 417.225 417.725
Denali	AK	166.30 166.35 166.90 411.825 417.825

National Seashores

Assateague Island	MD/VA	169.40 170.05
Canaveral	FL	164.25 164.75
Cape Cod	MA	33.70 171.725 172.525
Cape Hatteras	NC	162.40 164.725 169.65
Cape Lookout	NC	169.65
Cumberland Island	GA	171.725 172.525 411.825
Fire Island	NY	166.30 166.90
Gulf Islands	FL/MS	171.725 172.525
Padre Island	TX	164.80 166.90
Point Reyes	CA	169.40 170.05

National Parkways

Blue Ridge	NC/VA	166.35 166.375 166.90 167.15 167.15 411.70
J. D. Rockefeller	WY	166.375 167.025 171.675 172.425
Natchez Trace	AL/MS/TN	171.675 171.775 172.675 411.85

National Lakeshores

Apostle Islands	WI	164.175 164.80
Indiana Dunes	IN	166.325
Pictured Rocks	MI	166.30 166.90
Sleeping Bear Dunes	MI	166.375 166.975

National Rivers

Big South Fork	KY/TN	163.075 166.75
Buffalo	AR	164.25 164.475 164.75

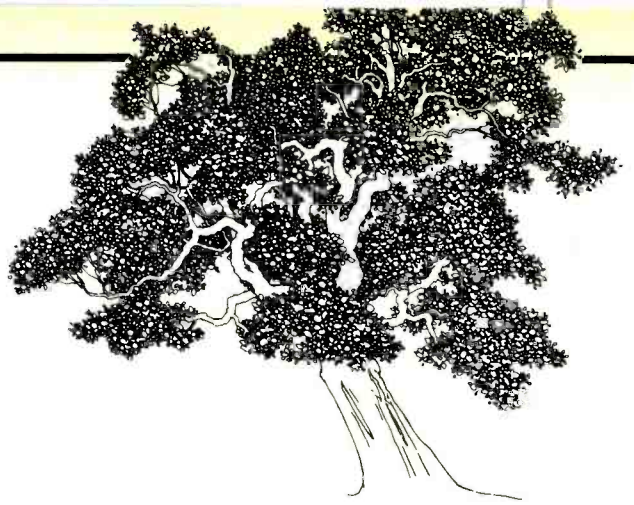
National Scenic Rivers & Riverways

Delaware	NY/NJ/PA	164.575 166.95 166.775 166.95 167.95 168.55 412.125 417.725 417.975
Lower Saint Croix	MN/WI	164.25 164.75 411.725 411.825
Ozark	MO	171.625 172.475 408.525 411.625 411.65 411.70 411.775 411.825
Saint Croix	MN/WI	164.25 164.75 411.725 411.825

Parks

Catoctin Mountain	MD	171.725 172.525
Fort Benton	MT	166.35 166.95 173.7625
Greenbelt	MD	165.925
Perry's Victory	OH	170.10
Prince William Forest	VA	168.425 168.475 169.175
Rock Creek	DC	171.675 172.475
Washington area*	DC/MD/VA	165.925 165.975 166.725 166.85 166.925 166.975 167.075 167.175 172.475 406.475 409.55 409.65 409.75 409.85 411.625 411.725 411.875
National Visitors' Center	DC	411.925
White House	DC	164.60 164.625 164.80
Wolf Trap Farm	VA	417.975

* Includes area memorials, parks, parkways, etc.



National Recreation Areas

Arapaho	CO	166.35
Bighorn Canyon	MT/WY	166.30 166.90 166.925
Chickasaw	OK	168.425 169.40
Coulee Dam	WA	166.375 166.975 408.725 414.825
Curecanti	CO	166.30 166.90 419.625
Cuyahoga Valley	OH	39.84 39.86 166.375 166.975
Delaware Water Gap	NJ/PA	164.575 166.35 166.775 166.95 167.95 168.55 412.125 417.725 417.975
Gateway	NJ/NY	34.79 166.325 166.775 166.925 167.075 167.95 168.55 417.25 417.825 417.975
Glen Canyon	AZ/UT	171.65 172.40 172.475
Golden Gate	CA	162.6125 163.15 164.10 164.80 416.025
Lake Chelan	WA	165.975 166.75 414.825
Lake Mead	AZ/NV	166.30 166.90 168.35 411.70 412.025 417.375 417.625
Lake Meredith	TX	166.30 166.90 411.825
Mount Rogers	VA	166.375 167.175
Ross Lake	WA	164.9875 408.725
Whiskeytown	CA	170.075

Miscellaneous

Public transportation	All sites	40.07 40.21
Portable base	All areas	408.675

NPS Area	Company	MHz
Apostle I. NL	Apostle I. Outfitters	156.50
Canyon de Chelly	Thunderbird Lodge	42.96 463.225
Death Valley	Furnace Creek Lodge	151.835
Death Valley	Las Vegas-Tonopah-Rego Stage Line	43.78 452.175 461.775 464.00
Grand Canyon	Babbit Bros. Store	151.755
Grand Canyon	Gr. Can. Airlines	154.54
Grand Canyon	Gr. Can. Helicopters	123.00 123.05 157.68
Grand Teton	Gr. Teton Lodge	154.60 463.00
Gr. Smoky Mtns.	LeConte Lodge	464.625
Isle Royale	Nat'l. Park Concessions	156.45
Olympic NP	Nat'l. Park Concessions	152.36
Rainbow Bridge	Bullfrog Resort	122.8 151.865 156.425 156.50
Rainbow Bridge	Canyon Tours	151.925 151.955 151.965 156.425 156.50
Rainbow Bridge	Hall's Crossing Marina	122.8 156.425 156.50
Rainbow Bridge	Hite Marina	122.8 151.865
Yellowstone NP	Yellowstone Air Svc.	152.99
Yellowstone NP	Yellowstone Exhib. Co.	464.125
Yellowstone NP	Yellowstone Park Co.	463.45 PC

Rescue From Fiery Car Crash

David Small was sitting in his home in Stockton, California when he heard a loud explosion. Looking outside, he saw smoke and flames coming from a Mazda sports car that had been struck by another car.

Small, 24, ran out of his house in his bare feet. Seeing two men trapped in the burning car, both unconscious, Small first tried to pull the driver out. Marvin Hudson's legs were pinned under the steering wheel, but Small managed to get him out through the window.

Aftermath of the accident. Stockton Record *(CA) photo by David Finch.*

SCAN PUBLIC SERVICE AWARD

Dodging the flames and smoke, Small then assisted 29-year-old John Kluve, Jr. in pulling Jeffrey Allen Archer from the passenger side of the burning car. By this time, some of Small's neighbors were rushing toward the car with garden hoses while others called for emergency assistance.

Small said that Hudson's mouth was filled with blood, and he did not appear to be breathing. Small cleared the blood away and Hudson began breathing, but did not regain consciousness.

Archer had also stopped breathing, but regained consciousness after Kluve cleared his throat and opened his jaws.

According to an account of the incident in *The Stockton Record*, Kluve had been driving the other way on the street when he heard the crash and stopped to offer his assistance.

"I was thinking I wished I had a fire extinguisher in my truck," Kluve told the *Record*. "I wasn't really thinking about myself. We had to get those guys out of there."

Stockton police officers on the scene said that three other passersby, John Miller, David Coyle and Mike Marsh, helped to rescue the accident victims.

The accident occurred when a man suspected of drunken driving rammed into the Mazda while it was waiting at a Stockton stoplight. The impact of the crash caused the Mazda to burst into flames and start a chain reaction that damaged two other vehicles waiting at the same stoplight.

The driver of the car that struck the Mazda was arrested after the accident, the *Record* reported. He was being booked at San Joaquin County Jail on charges of drunken driving, speeding, driving without a license and being under the influence of a controlled substance. He was being held without bail on an outstanding warrant charging him with another drunk driving incident and public drunkenness offenses.

Small said that when the two men were out of the car, he looked back and saw the interior in flames. The fire burned both seats to their frames, melted the dashboard and steering wheel and turned the blue car roof black.

"The way I had to pull him, I didn't know if I was hurting him more or not," Small said of his rescue of Hudson. "I didn't know if he was injured."

Police and hospital officials said that both Hudson and Archer would have died in the burning car if they had not been rescued by Small and Kluve. Joan Loche, emergency head room nurse, said that the bystanders' quick action and the paramedics saved the two men.

"Poor bystanders always have that feeling, 'Should I have or shouldn't I have.' In this case they should have," Loche told the *Record*. "Those kids would have been dead without their help. They ought to be given a citation."

Bud T. Hudson, Marvin's father, was grateful for the efforts of the passersby. "We're going to give them a real big thanks," he said. "Most people probably wouldn't even have stopped."

For their efforts, Small and Kluve will receive the SCAN Public Service Award, including a special commendation plaque and a cash award. For making the nomination, LaVerne Visser will receive a plaque. Congratulations to all of you.

Send all SCAN Public Service Award nominations to SCAN/PSA, P.O. Box 414, Western Springs, IL 60558. Please send a letter along with background information, such as a newspaper clipping.

SCAN PHOTO CONTEST WINNERS

Best Equipped

Proving that scanner listening can also be enjoyed in rural locations is Tom Aldrich of Sioux Center, Iowa. Tom uses a Bearcat 100XL handheld scanner, two Bearcat 210XLs, Realistic Pro-2020, President 40-channel CB with power supply, Sonar Monitor receiver and Uniden CR-2021.

Tom uses the Sonar to monitor the weather and snowplows, and the Uniden for monitoring broadcasts on shortwave. Two tube radios are also in this set-up and Tom mentions that he is an avid collector of this type of equipment. He says the only type of equipment he needs now is a BMI Nitelogger!

Tom also mentions that he enjoys POP'COMM, *especially since the addition of the SCAN features.*

Best Appearing

Our best looking shack this month comes from another rural location, Missoula, Montana. Mark George uses a Bearcat 100XL, Realistic Pro-52, Yaesu FRG-7 with a Heathkit active antenna, and Panasonic RF-2200 shortwave receiver.

Mark also uses a Commodore VIC-20 computer with AEA MP-20 interface for RTTY, press frequencies, etc. The television monitor shown here is made by Midland. All this proves that you don't have to be in Manhattan or Los Angeles to fully enjoy the scanning hobby, but we never doubted that.

Just one question, Mark. What's the significance of the January 1928 calendar that is hung prominently over your shack?

Winners of the SCAN Photo Contest receive the popular BMI Nitelogger voice-activated tape recorder controller. To enter the contest, send a sharp black and white photo and a complete description of your equipment to: SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558.

Heavenly Contacts on 39.17 MHz?

Faith Healing Via High Technology! The Inside Story by the Investigator Who Uncovered the Neat Little Trick!

Editor's Note: James Randi has been a stage magician, author, radio and TV program host, and investigator of unusual claims for thirty years. Those who like to listen to the radio in the wee hours will recall the popular and controversial nightly talk show he conducted for many years over clear-channel WOR-AM (New York City, 710 kHz); the program had a nationwide audience. Recently, on the Tonight Show with Johnny Carson, *James Randi briefly mentioned that he had discovered an apparent "faith healer" who was employing a concealed miniature VHF communications system to seem to produce telepathic phenomena. The national news media picked up on Randi's discovery and many (generally inaccurate and very fragmented) news items appeared in the press. We thought that the full story, as told by James Randi himself, would be of more interest to our readers than the mangled and partial versions that appeared in print elsewhere.*

BY JAMES RANDI

Sooner or later, it had to come. The flim-flam artists were bound to discover the advantages of high technology and step up into the Computer Age. In my investigation of the faith-healing business, I almost immediately came upon some modern twists that rather startled me.

Evangelist/healer Peter Popoff is headquartered in Upland, California, whence he sends out highly fanciful fund-raising literature that is computer-generated to appear as if it were personally typed and signed. Some of the slickly designed mailings are quite clever, but others are extremely juvenile, appealing only to the least sophisticated of those on Popoff's vast mailing list.

Little is known about Popoff except from what he publishes—in great quantity—in a series of booklets about his life According to Peter. It all began when he went to Heaven on a visit and received Nine Gifts of the Spirit along with a command to preach to the multitudes. And, apparently, he was told at the same time that a little cheating couldn't hurt.

Being on the mailing lists of more than a dozen evangelists—under several different names on each list—I receive an enormous amount of mail from these highly organized businesses. From Popoff, I've received Russian currency, handkerchiefs, and red felt hearts—to be carried or worn, then each to be sent back with a check attached. Special envelopes and endless appeals for the emergency needs of his ministry arrive every week. Each is personalized at the computer, dropping my first name into the text occasionally and using "Brother Randi" as the salutation. Most of us are familiar with these gimmicks, but the effectiveness of such methods can only be judged by those in the field.

A man preparing to enter the Popoff crusade in San Francisco in February was approached by a TV interviewer. "Why are you coming to see Reverend Popoff?" the interviewer asked. "Peter wrote to me," replied the man, "and wanted me to come here today for a special message God has for me." He was blissfully unaware that *thousands* of persons in the Bay area received identical letters—identical, that is, except for the personalized effect generated by Popoff's computers.

Seeing the elegant laser-printed mailings and the expensive props used by Popoff, I knew that he was using computer technology prosperously. But I was unprepared for witnessing his spectacular show-biz technique when I attended his crusade in Houston, Texas. Members of H-STOP, the Houston Society To Oppose Pseudoscience, were also in attendance.

With me was Steve Shaw, a young man who was half of the team in the Alpha Proj-

ect. Steve is very active as a "psychic" entertainer, and he proved invaluable in this investigation.

We arrived two hours before the show began in order to observe any "pumping" of the victims—such as that done by the Reverend and Mrs. W. V. Grant. Each H-STOP member was instructed to fill out any "healing cards" that might be given to them and to put down only false information, except for the address. This was so that they could get on the mailing list but might be "called out" by Popoff under the false name and ailment.

Indeed, that is just what happened. Steve Schafersman, chairman of H-STOP, was approached by Mrs. Elizabeth Popoff and interviewed extensively. Curiously enough, as he gave her each detail, she repeated it *out loud,* slowly and clearly. Others reported the same procedure. Steve Shaw had volunteered as an usher and was observing everything from a different and more auspicious vantage point, but he came back with the same report.

At exactly 2:30 p.m., the time set for the beginning of the service, Mrs. Popoff left the floor of the Coliseum and retired behind the curtain.

Finally, following a spirited address and pep-talk by his front man, the Reverend Reeford Shirrell, Popoff himself came screeching onstage amid Hallelujahs aplenty. He stormed about and screamed warning of Hell and Damnation for thirty minutes. Then he began a remarkable demonstration that made W. V. Grant's show look pretty thin. He "called out" people from the audience fast and accurately. He named them, gave their ailments, named relatives, and even threw in an occasional street address for good measure.

But, after Popoff had dealt with twenty or so people, it became obvious that he was not using W. V. Grant's mnemonic methods, unless he was *very* good at that art. Steve and I looked at each other as the same idea came to both of us.

"He's got something else going for him," said Steve, "and I think I know what I have to do."

"You're going to get up close to Reverend Popoff and get a look—"

"In his ear," Steve finished for me. And off he went to "usher" next to the Man of God.

Moments later, having practically knocked Popoff down to get close to him, Steve Shaw was back, grinning like a Cheshire cat. "He's wearing a *hearing aid!*" chortled Steve. "You can see the shiny plastic in there, clear as can be!"

Now what, you may ask, might Peter Popoff be doing with a hearing aid? We concluded that he *had* to be getting this wealth of information via some such device. Though we were unprepared to investigate that angle during the Houston meeting, in San Francisco we enlisted Bob Steiner, a magician and former chairman of the Bay Area Skeptics, who supplied us with technician and security consultant Alec Jason. This enthusiastic chap was equipped with highly sophisticated electronic "scanners" that would prove the undoing of Popoff.

As with the Houston group, the Bay Area Skeptics were instructed to attend the San Francisco meeting prepared to give false data to any interviewer and/or write in the same fictitious data on the healing cards. True to form, supremely confident that her gimmick was impossible to detect, Elizabeth Popoff waltzed around the audience asking questions—and carefully *repeating* all the details given to her by the unsupecting victims. Hanging from her arm was a huge handbag—*from which every word was being transmitted upstairs to Peter Popoff!* Then, as in Houston, at 2:30 sharp, Mrs. Popoff left the floor to join her husband in the announcer's booth overlooking the arena. There they discussed details about the members of the congregation below—*leaving the transmitter switched on!*

High in the back area of the Coliseum, using an electronic scanner receiver, Bob Steiner and Alec Jason had quickly located the frequency used by the Popoffs—39.17 MegaHertz. A tape recorder was attached to the receiver, and every word was heard. When Popoff made his entrance, we heard Mrs. Popoff testing the communications channel: "Hello, Petey. I love you! I'm talking to you. Can you hear me? If you can't, you're in trouble . . . . I'm looking up names, right now."

Transcribing the tape later on, we heard such commentary as: "I have a hot one for you. Robert Kaywood. He's got a chest condition that needs surgery. Robert Kaywood. Kaywood. Kaywood. He needs surgery. His veins aren't formed. He prays that God will heal him today."

Later on, we heard: "Dean. She . . . no, she should be there on your right side. *Right* side. No, that's not her! No, that's *not* her! In the blue . . . . Oh! That—that might be her. Okay. She lives at 4267 Masterson, and she's praying for her daughter Joy, who's allergic to food." This was followed by laughter from Elizabeth and Pam, the wife of Reeford Shirrell.

But the one that really pleased us was: "Tom Hendry. He's praying for restoration of his family, but he's got a drinking problem that's gotten out of control."

"Tom Hendry" was one of the Bay Area Skeptics, Don Henvick, *who was also called out by Peter Popoff two weeks later in Anaheim, under a different name and with a different disease, and later on in Detroit, dressed as a woman named Bernice Manicoff!* Both Steve Schafersman and Don Henvick were used in the next Popoff TV broadcast.

How could God, speaking directly to Peter Popoff through one of the Nine Gifts of the Spirit—the Gift of Knowledge—have made such errors?

Popoff, at one point in the Houston meeting, asked his audience to "break free of the Devil" by throwing their medications up onto the stage. What followed surprised even him. Dozens of people came forward and tossed bottles onto the platform. Popoff was ecstatic. But when Steve and I examined the debris after the audience had departed, we were shocked. Prescriptions for digitalis, nitroglycerine tablets, oral diabetes medication, and many unidentified pills had been discarded by people who might well have needed such substances to stay alive! Steve Shaw, who has had experience working in hospitals, was familiar with these emergency medications.

It was even more amazing that Popoff actually included the pill-throwing episode in Houston in his television broadcast! One would think that he would have recognized the seriousness of this stunt and that he would de-emphasize it, but he broadcast it for all to see.

The old days of the tent-show healers are gone, but their replacements are among us, filling coliseums with many times the people the tents used to hold. They are louder, slicker, and richer by far, assisted as they are by technology that their predecessors would not have imagined. Now, reaching millions via television and radio, they flourish under the protection of the Constitution.

It would be well for you to know about one more aspect of the Popoff ministry. The callous atmosphere that exists backstage at this pathological Mystery Play is amply demonstrated by the following transmission to Peter Popoff as he ministered to his adoring flock. It was recorded in Anaheim, following an obvious interruption of the radio broadcast from the trailer:

(Elizabeth Popoff speaks.) "Reeford's got a *hot* one!" (Laughter.) "Reeford's so excited! He came running in back here and scared us half to death! You ready for a *hot* one? Okay! Want a hot one? *Hot* one! Hot off the press! Ruby Lee Harris. Ruby Lee. She is standing in the far back where there's no chairs." (Long pause.) "Reeford got a hot one. Hot one! Reeford's got a hot one, Ruby Lee Harris. She's against the back wall. Ruby Lee Harris. She's against the back wall. She's got lumps in her breast. You might want to whisper it—Have her walk down—Have her *run* up there. *Run.* Oh! *Look* at her *run!*" (Loud laughter.) "She's got knots in her breast." (Laughter and giggles.) "A home run! A home run!"

(Then, later on, giggles are heard, and Pam speaks.) "At any rate, she should kick him in the face!" (Laughter.)

(Elizabeth speaks.) "Pam says to make her—Pam thinks that you should have *her* kick *him* in the face!" (Giggles.)

I suggest that the heartless exploitations of the elderly, the ailing, and the emotionally unstable citizens of this country will continue until someone in government decides that these "faith-healers" have abused, deceived, and milked enough people. Perhaps a St. George, rather than a Don Quixote, is waiting in the wings. Let us hope so.

PC

"Don't Touch That Dial . . ."

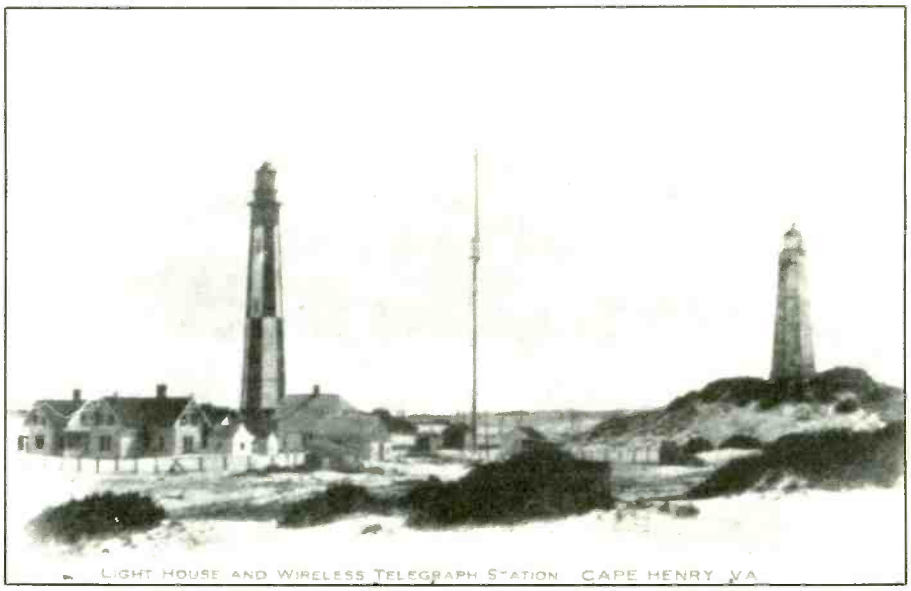
It's Time for a Look Into Broadcast and Communications History!

BY ALICE BRANNIGAN

Never let it be said that we aren't responsive to requests from our readers. In the October issue we ran a QSL card from a Ham operator of long ago who was stationed aboard a lightship. That brought in a letter from Miss Kim Strickland from Brea, CA who is a member of the United States Light House Society (a historical/preservation organization).

Kim liked our coverage of this topic and asks if we could do an encore showing another radio-equipped historic light beacon installation. Digging through the dusty files, what should I behold but the old lighthouse and telegraph station at Cape Henry, VA. In the earliest of days, this station was calling itself NCZ, its signal going out on 375 kHz. This was, in fact, a so-called radio-compass station. The purpose of these stations was to take directional bearings on the signals transmitted by ships at sea in order to advise the vessels of their exact location. This was done with several shore stations taking simultaneous bearings and then each providing the ship with an azimuth reading. In the case of NCZ, the other two stations were the USN facilities at Hog Island, VA and at Poyners Hill, NC.

By 1930, the lighthouse facilities were listed in official government records with the Coast Guard communications station at Cape Henry under the callsign NMM, also as a 375 kHz radio-compass station and a 285 kHz radiobeacon under the old NCZ callsign. I believe that the official government records for 1930 were incorrect in regard to the NMM callsign; this should have read NMN (corrected in the 1931 records).



The Cape Henry Lighthouse, near Virginia Beach, VA has been the source of radio signals since the early 1900's.

We have a 1905 view of the Cape Henry facility that depicts the telegraph station mast at the center of the photo. The original sender of the postcard scrawled across the bottom, "The wireless is all right. I just listened to a message from the str. Columbia." In this view, the old (built 1791), original Cape Henry Light is on the right while its more recent replacement is at the left. Just for the record, the callsign of the *SS Columbia* was WHC.

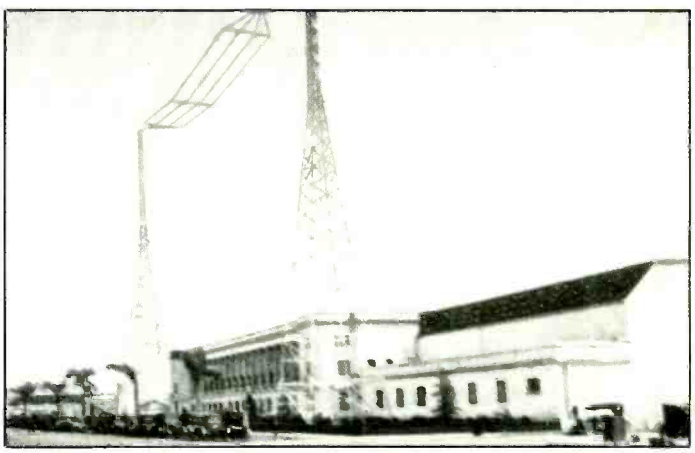
Warner Brothers

When station KFWB took to the air on March 4th, 1925 it was on 1190 kHz with 500 watts. The "WB" in the callsign stood for Warner Brothers Motion Picture Studios, which operated KFWB from its offices at 5842 Sunset Boulevard, in Hollywood, CA. The station's appropriate slogan was, "Movieland—Lights! Camera! Action!"

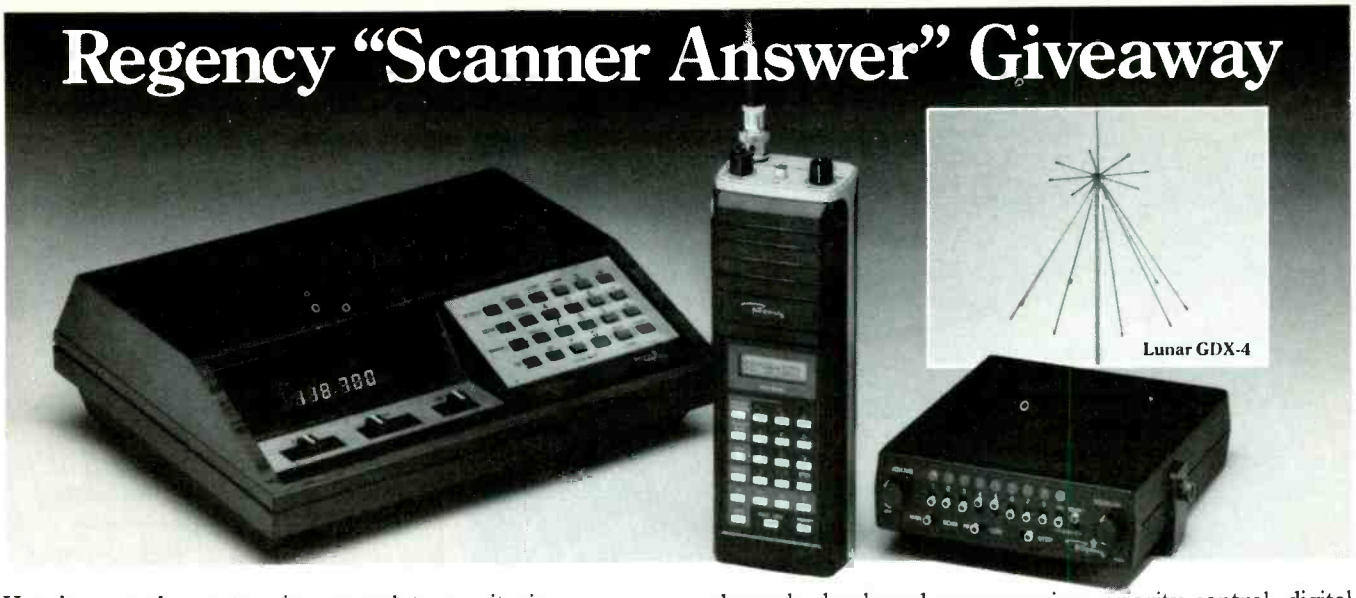
By five years later, Warner Brothers had moved KFWB to 6425 Hollywood Boulevard; the station was on 950 kHz with 1 kW, although when the pre-WWII frequency shuffle took place, KFWB ended up on 980 kHz with 5 kW. By the time WWII ended, KFWB's studios were at 5833 Fernwood Avenue in Los Angeles; the transmitter was at Baldwin HIlls, Culver City. KFWB still operates on 980 kHz with 5 kW.

KFWB at night, as it looked after it relocated to Hollywood Boulevard.

This daylight view of KFWB shows it at its first location, with towers outside the Warner Brothers' Studios in Hollywood.



Regency "Scanner Answer" Giveaway



Here's your chance to win a complete monitoring package from Regency Electronics and Lunar Antennas. 18 scanners in all will be awarded, including a grand prize of the set-up you see above: the Regency HX1500 handheld, the Z60 base station scanner, the R806 mobile unit, and a Lunar GDX-4 Broadband monitoring/ reference antenna.

55 Channels to go!

When you're on the go, and you need to stay tuned into the action, take along the Regency HX1500. It's got 55 channels, 4 independent scan banks, a top mounted auxilliary scan control, liquid crystal display, rugged die-cast aluminum chassis, covers ten public service bands including aircraft, and, it's keyboard programmable.

Compact Mobile

With today's smaller cars and limited installation space in mind, Regency has developed a new compact mobile scanner, the R806. It's the world's first microprocessor controlled crystal scanner. In addition, the R806 features 8 channels, programmable priority, dual scan speed, and bright LED channel indicators.

Base Station Plus!

Besides covering all the standard public service bands, the Regency Z60 scanner receives FM broadcast, aircraft transmissions, and has a built-in digital quartz clock with an alarm. Other Z60 features include 60 channels, keyboard programming, priority control, digital display and permanent memory.

Send in a photo (like this one of Mike Nikolich and his Regency monitoring station) and receive a free gift from Regency. Be sure to include your name, address and phone number.

Lunar Antenna

Also included in the grand prize is a broadband monitoring/reference antenna from Lunar Electronics. The GDX-4 covers 25 to 1300 MHz, and includes a 6 foot tower.

Regency® **ELECTRONICS INC.**
7707 Records Street
Indianapolis, IN 46226

Grand Prize (1 awarded)
1—Regency Z60 Base station scanner
1—Regency HX1500 Handheld scanner
1—Regency R806 Mobile scanner
1—Lunar GDX-4 Antenna

First Prize (5 awarded)
1—Regency Z60 Base station scanner
1—Regency R806 Mobile scanner

Second Prize (5 awarded)
1—Regency HX1500 scanner

Contest rules: Just answer the questions on the coupon, (all answers are in the ad copy) fill in your name and address and send the coupon to Regency Electronics, Inc., 7707 Records Street, Indianapolis, IN 46226. Winners will be selected from all correct entries. One entry per person. No purchase necessary. Void where prohibited by law. Contest ends June 30, 1987.

1. The Regency Z60 is
   ☐ a digital alarm clock ☐ an FM radio
   ☐ a scanner ☐ all of the above
2. The Regency R806 is the world's first _____ controlled crystal scanner.
3. The Regency HX1500 features
   ☐ 55 channels ☐ Bank scanning
   ☐ Liquid crystal display ☐ all of the above
4. The Lunar GDX-4 antenna covers ___ to ___ MHz.

Name: _____

Address: _____

City: _____ State: _____ Zipcode: _____

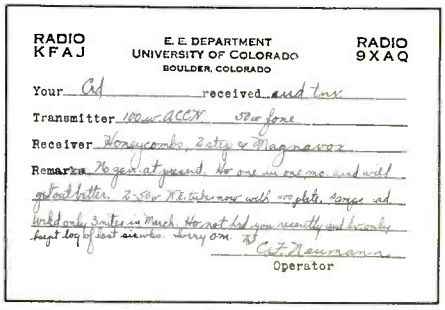
I currently own _____ scanners.

Brands owned: _____

CIRCLE 4 ON FREE INFORMATION CARD

Pretty as a picture, this snapshot of NHK stations JOFC/JOFG at Fukui, Japan had to have been made after WWII.

If you took time out to adjust your headphones you could have missed the entire broadcast career of Experimental/Broadcast combo station KFAJ/9XAQ at Boulder, CO.



RADIO KFAJ — E. E. DEPARTMENT, UNIVERSITY OF COLORADO, BOULDER, COLORADO — RADIO 9XAQ

Your Cd received and fone

Transmitter 100 w. ACCN 50 w fone

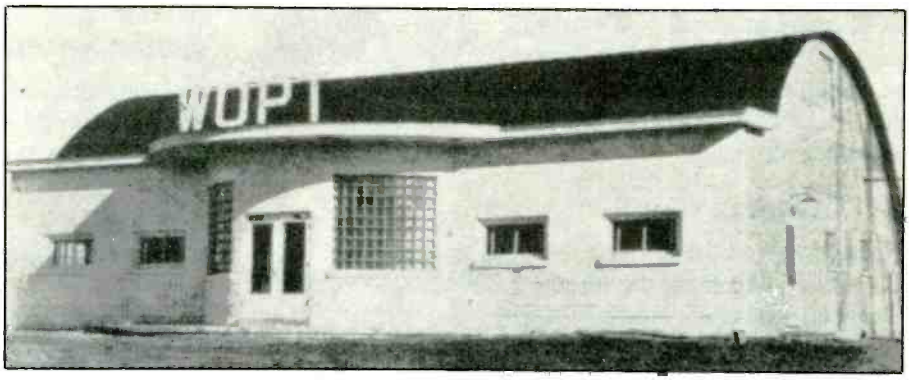
Receiver Honeycombs, 2 step & Magnavox

Remarks No gen. at present. Hv one in one mo. and will get out better. 2-50 w. W.E. tubes now with 1100 plate 4 amps rad. Wrked only 3 nites in March. Hv. not hrd you recently and hv only kept log of last six wks. Sorry O.M.

Operator

We have two views of KFWB to share. The daylight scene shows the earliest days of KFWB when it was located on the 15-acre Warner Brothers' studio on Sunset Boulevard. Two large towers supporting a 4-wire antenna are conspicuously placed out in front where they can be easily seen. Undoubtedly, this showy display of radio ("the new technology" of 1925) was for publicity purposes, although the towers probably also served as a comfort station for Rin Tin Tin.

The second view of KFWB is at night, revealing the two masts looming over Hollywood Boulevard and the Warner Theatre (left side of the photo). Inasmuch as the photo indicates that the movie *The Invisible Man Returns* was playing at the Warner Theatre, the photo had to have been taken in 1940. For no apparent reason, four eerie spotlights shine across the Hollywood night sky; those kinds of things are commonplace in Tinseltown.



WOPT was an early FM broadcaster that found safe-haven in a Quonset hut that provided room for everything but success.

1930's Japanese Broadcaster

E. Wakamishi, of Hawaii, passed along a picture postcard of a Japanese radio station and asks for any information that might be available. The photo on the card shows two large lattice towers flanking a western-style two-story building. The building facade displays the callsigns JOFC and JOFG. The only inscription on the card reads "Radio Broadcasting Station, Fukui City." Checking these callsigns in *Radio Station Treasury*, I found JOFG listed in Fukui. In 1936 the station was on 990 kHz with 300 watts; by 1938 it had hopped over to 1020 kHz. No record of the callsign JOFC, however, could be found for those years.

At the present time, JOFG in Fukui is part of NHK and operates on 927 with 5 kW. Station JOFC is JOFG's sister station on 1521 kHz with 1 kW running different programs than JOFG. My guess, therefore, is that this photo was taken after WWII when JOFC came into being. For what it's worth, in 1955 JOFG was running 500 watts on 1020 kHz while JOFC was pushing out 500 watts on 1510 kHz.

Short Term

We came across a QSL from a short-lived combination Experimental and Broadcast station from the early days. That would be KFAJ/9XAQ, which was operated by the Electrical Engineering Department of the University of Colorado at Boulder, CO. Station KFAJ came on the air in 1923 on 834 kHz. The following year it was running 100 watts on 1150 kHz. The station came on Friday nights at 11 p.m. with a live program from the studio. It was also on between 3 and 5 p.m. on Sundays with organ selections.

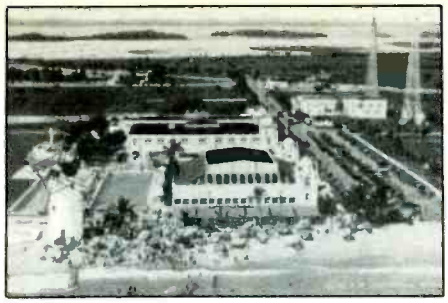
This program format was obviously not capable of providing a substantial Arbitron rating, even though KFAJ was the only broadcaster in Boulder. Along about 1926, KFAJ was only a memory; a memory so painful, apparently, that it was a number of years before broadcasting again visited Boulder! Nothing personal against the U. of Colorado's E.E. Department, but KFAJ was probably a better lab experiment than a source of entertainment.

As a lab experiment, and under the callsign 9XAQ, the station ran 50 watts 'fone and 100 watts "A.C.C.N." The receiver was described as "Honeycombs, 2 step and Magnavox." The 1923 QSL card we have was sent to a station they contacted in New York State. The 9XAQ op's comments were: "No gen. at present. Hv. one in one mo. and will get out better. 2-50 w. W.E. tubes now with 1100 plate 4 amps rad. Wrked only 3 nites in March. Hv. not hrd you recently and hv only kept log of last six wks. Sorry O.M."

Early FM 'Caster

To those who have asked for more coverage of FM stations, we can take a look at WOPT-FM of Oswego, New York as it looked just after it went on the air. The 1948 photo shows the WOPT (104.7 MHz) studios and offices located in a 40 by 60 foot Quonset hut. Within the structure were a foyer and lounge, three studios, engineer's room, music library, control room, information office, news and teletype room, manager's office, utility room, service area, the program director's office and rest rooms!

Quonset huts, which were a by-product of WWII military operations, were low-cost and were very popular with radio stations in the 1940's. Not only were they inexpensive, they could be put up quickly and easily.



This mystery photo of a Miami-area station of 1922 (originally run in our September '86 issue) has finally been confirmed as showing coastal telegraph station WAX, which was later relocated to nearby Ojus, FL.

WOPT was not a lengthy fixture on the Oswego scene.

Mystery Station Solution

There have been a few guesses relating to the station photo we ran in the September issue showing the 1923 station located near the windmill and bathing pavillion in Miami. In the midst of several incorrect guesses, a letter from Clifton A. Scott, Jr., KA4GUI, of Lake Mary, FL ended the problem by confirming our original speculation that the photo was of coastal telegraph station WAX. Clifton grew up in the area and even sent along an original snapshot showing the windmill and bathing pavillion taken in 1923.

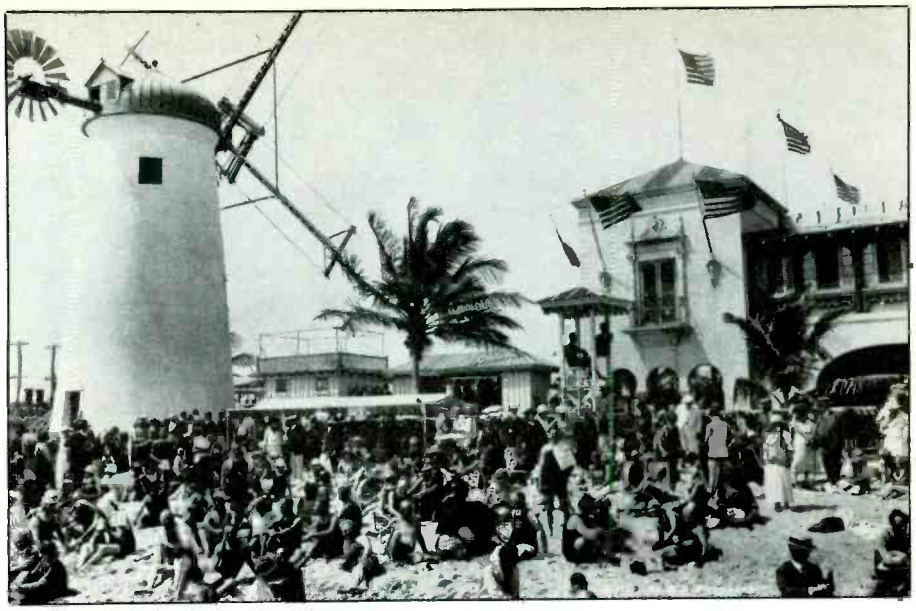
Although it can't be seen in our repro of the photo here, between the left and center flags atop the building, the top of one of the lattice towers can be seen.

Clifton reports that the exact location in the photo is the former Sunny Isles Casino located in Sunny Isles, FL, on Route A1A in the area of North Miami Beach. The WAX radio towers shown in the photo blew down in the hurricane of 1926 and WAX was moved by its owners (Tropical Radio Telegraph) to a new location two miles away at Ojus (on the west side of the Intracoastal Waterway). The windmill and Sunny Isles Casino were at the eastern end of what is presently the Sunny Isles Causeway (or 163rd Street). There's a HoJo restaurant there now along with the Surfside Motel. The famous Castaways Motel is now in this general area. The original windmill and casino were in partial use as late as the 1940's. During WWII the beaches here were used by the military services for practice landings. And so ends that little mystery, thanks to KA4GUI!

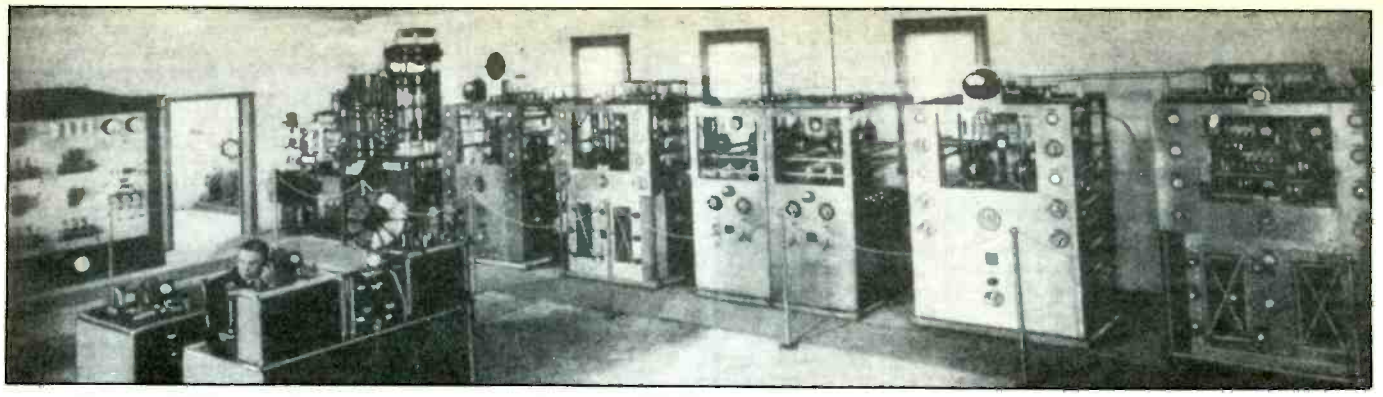
Popular Shortwaver

The laugh of the Kookaburra bird has been a most unique interval signal, widely known and loved. To most devotees of the shortwave broadcast bands, it immediately identifies the stations of Radio Australia.

Digging back into history, we can see the roots of this interval signal as it was used throughout the 1930's by the shortwave stations of Amalgamated Wireless, Ltd. These



Reader Clifton Scott sent us this 1923 photo depicting another view of the windmill in our September mystery photo. He was very familiar with the spot that was once the Sunny Isles Casino.



This is a 1933 view of the transmitter room of station VK3ME, famous shortwave broadcaster at Melbourne, Australia.

DX'ing into the wee hours caused the SWL in this 1920's comic postcard to become a real crackpot—at least his head put a crack in the chamber pot!

stations included VK2ME/VLK at Sydney on 9585, 9590, 9750, 9940, 10520, 16320, and 19400 kHz; VK3ME at Melbourne on 9090, 9548 and 9590 kHz; and VK6ME at Perth on 9590 kHz.

These stations, which ran 5 kW (miniscule by today's power standards), achieved considerable fame during the 1930's and ranked among the most popularly heard and reported by the world's DX'ers. These days, the sound of the Kookaburra is helped along by transmitters pumping out between 100 and 300 kW! No problem hearing it, no problem at all.

This all came to mind when we ran across a great panoramic view of VK3ME's transmitters as they appeared in 1933. Quite a nifty looking rig, even for those days.

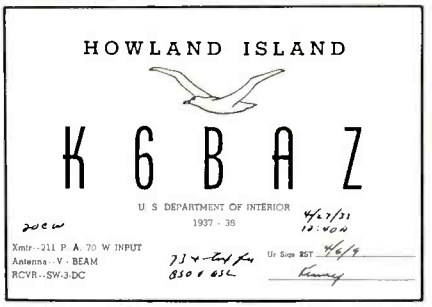
Getting China

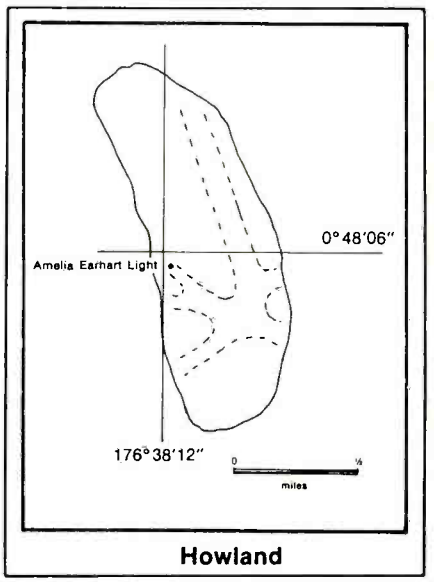
This being the height of the DX season, here's a reminder that sometimes you can get carried away with all of the incoming signals. Getting in trouble with other members of the household for burning the midnight DX oil isn't anything new at all. This month we have a mid-1920's comic radio postcard showing a poor soul "waiting for Europe and getting China instead!"

The guy that got the chamber pot bounced off his noggin probably thought it was Big Ben's chimes! A QSL card even from Tibet isn't worth this hostile invitation to go QRT for the evening. Or is it?

Plenty more to say, but no more room this go-round. Drat! See you in March? Hope so! PC

Historic Ham QSL's





Howland

Rare? You'd better believe that any time a QSL shows up from a remote and uninhabited tiny island, it's a major event. That's the way it goes with a desolate and forgotten patch of Pacific Ocean real estate called Howland Island. Your Uncle Sammy owns Howland, which is located about 1,600 miles southwest of Hawaii.

Howland was discovered around 1822 by an American whaling ship, and for the last half of the 19th Century, British and American guano companies worked the island until its abundant supply was depleted to the point where the effort was no longer commercially practical. Howland is, after all, only a half-mile wide by one and a half miles long. In the central area there's a cluster of medium-sized trees, but the rest of the sandy island is covered with a dense growth of low vegetation. The island's sole inhabitants are birds, lizards, crabs, and their relatives.

The United States claimed ownership of Howland (and nearby Baker Island) in 1934. The following year, four Hawaiian-Americans were placed on Howland to act as settlers in order to support American ownership claims.

When aviator Amelia Earhart was planning her world-spanning flight attempt in 1937, she said that she would need to land on Howland for refueling. Our government quickly constructed an airstrip for the purpose. It was while enroute to Howland, on July 1, 1937 that Earhart and navigator Fred Noonan vanished, thus giving rise to a mystery that has been investigated (without complete success) for fifty years.

In 1942, soon after the U.S. entered WWII, the four American settlers had to be evacuated because of air and sea attacks on the island by Japanese forces. The United States regained possession of Howland in 1944 and placed the speck of land under the auspices of the Department of the Interior as a wildlife refuge. Howland has been abandoned for the past 45 years; the airstrip lies in ruins.

In 1937 and 1938 there was a Ham there, Kenny, who worked for the U.S. Department of the Interior and used the callsign K6BAZ. Probably, he was connected with the construction/operation of the airstrip. He ran 70 watts on 20 meter CW, using a V-beam antenna. In April of 1938, Kenny sent one of his QSL cards to a Ham who was undoubtedly very happy to receive same. His operation with a K6-prefix predated, by only a few months, the assignment of KF6 as the official Howland (as well as Baker and American Phoenix Islands) prefix.

After WWII, Howand's Ham prefix was designated as KB and KH1, although it isn't often you hear Howland anymore. DXpedition, anyone?

User Report:

The Regency Model HX1500 Handheld Scanner

The Regency HX1500 handheld, programmable scanner offers 55 channel capacity, 11 of the most popular bands, plus selectable channel banks.

Lots of features in Regency's new HX1500 handheld scanner, a fistful of excitement right from the die-cast aluminum chassis to its innermost technology. In many ways, the new Regency HX1500 is like a base station. In fact, its 55 channel scanning capacity puts it ahead of most base stations.

You don't need any crystals to get the HX1500 to do its thing on more than 18,000 frequencies lying in the bands 29 to 54 MHz, 118 to 174 MHz, and 406 to 512 MHz. That's a lot of spectrum, taking in Ham, VHF aero, satellite, plus public safety and business/industrial. Also, please note that the HX1500 covers all of the super-exciting 406 to 420 MHz federal agency band that is usually skipped over or only partially included in so many scanners.

There's an LCD panel that shows the channel numbers and frequencies when the HX1500 isn't actively scanning. When it does scan, it displays the usual "rolling" zeroes in order to advise you that it's in action. There are also status-indicator messages that pop up on this panel to help out in programming.

The unit comes factory-preloaded with all 55 channels set to "the most popular frequencies," although your reviewer didn't find many of them to be particularly exciting. Makes no difference, loading the HX1500 with your own favorite frequencies is quite simple and is accomplished in jiffy-quick time. The HX1500 has been designed with lockouts to permit the user to bypass temporarily unwanted frequencies. A nifty feature of the HX1500 is the ability to arrange programmed frequencies so that they can be selected for scanning in three "banks" of ten channels and one "bank" of fifteen channels. This appears to be the first time this type of scanning convenience has turned up in a handheld unit. Channels can be grouped into any of four "banks" for faster access, and the user might wish to group police channels in one bank, federal in another, fire in yet another, etc.

The programming is done by means of a self-explanatory keyboard that produces the familiar *beep* every time one of the programming buttons is pressed. The user can custom-program the unit for priority channels, delay channels, dual scanning speeds (8 or 13 channels per second), etc. The HX1500 can also be placed in search/scan mode to sample segments of the spectrum, and newly discovered active frequencies may be added to the regular scanning menu with very little fuss. On the VHF frequencies, the unit searches at about 1 MHz every 17 seconds; it takes only 7 seconds to search through 1 MHz of UHF spectrum.

A belt clip permits the HX1500 to be carried around easily, and a special push-button on top of the unit is intended to permit the unit to resume scanning while being worn on the belt. This eliminates the need for searching out the scan button while groping blindly around on the keyboard. A good idea! The on/off switch and volume control, along with the BNC type antenna connector and an earphone jack are also located on the top of the unit.

The HX1500 is supplied with a *rubber ducky* type antenna, but the user can use it with a base station antenna having a BNC connector on its feedline. Power is supplied by eight AA penlight batteries or optional rechargeable batteries. A drop-in or wall-mount charger and a carrying case are available as optional accessories. The batteries are *not* necessary for retaining the HX1500's memory. The unit remains programmed even without batteries.

The sensitivity of the HX1500 is .5 μv below 50 MHz, 1 μv on the VHF aero band, and .7 μv above 144 MHz. Selectivity is $\pm$ 7.5 kHz at 6 db,, $\pm$ 18 kHz at 50 db. The HX1500 is 2¾" wide, 1⅞" high, 7¾" deep. It weighs only 1¼ lbs (with antenna and eight alkaline batteries).

Regency has done an excellent job with the HX1500; it's easy to program and does a good job. Using no more than the HX1500's *rubber ducky* antenna, the set performed well and could easily bring in a NOAA weather station from approximately 50 miles distance with full quieting. The VHF low band is especially hot and does a great job on the 46 MHz cordless telephone channels, with the ability to monitor some cordless telephones from more than a mile away (they are supposed to have a range of 700 to 1200 feet).

It is possible to step through the channels stored in the scan memory, but it isn't possible to step through unprogrammed frequencies one at a time. In order to explore unprogrammed frequencies, it's necessary to put the unit into its search/scan mode.

The 14-page owner's manual is well written and adequate to explain the proper use of the HX1500. No schematic is supplied.

The suggested retail price of the Regency HX1500 is $369.95. It's available from Regency's large network of dealers. PC

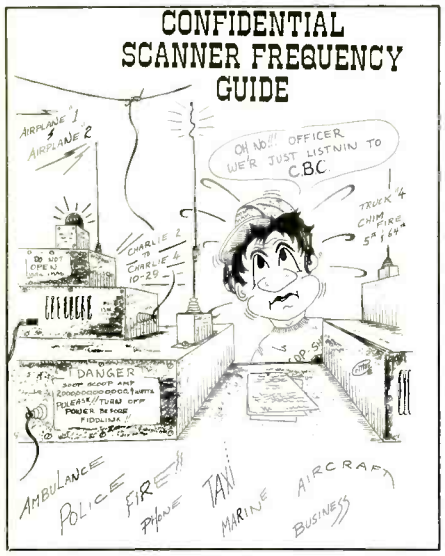
Reviewed by F.X.F., North Dakota

BOOKS YOU'LL LIKE!

BY R.L. SLATTERY

British Columbia Scanner Data

Information on public safety communications and other VHF frequencies for parts of Canada isn't available in copious amounts; in fact it's a bit scarce. Scanner user (and *POP'COMM* reader) Jim Pook decided to do his share to change that situation. Towards that end, Jim devoted almost three years in assembling what he calls the *British Columbia Confidential Scanner Frequency Guide*.



Pook's directory contains 1,400 listings covering RCMP, Vancouver Police, CLEU, fire departments, ambulances, mobile phones, paging services, maritime, business, highway services, Ham repeaters, cordless telephones, AM/FM broadcasters, Vancouver Skytrains, logging trucks, and more. Actually, there are listings in the publication starting at 15 MHz and going through to 507 MHz. Included is a guide covering the police and fire departments of the lower mainland and the interior.

This 38-page directory is the Second Edition. It is larger and contains more listings than the earlier edition, plus much updated information. Pook has done a good job with this publication and it serves a definite need for scanner owners located in and near British Columbia.

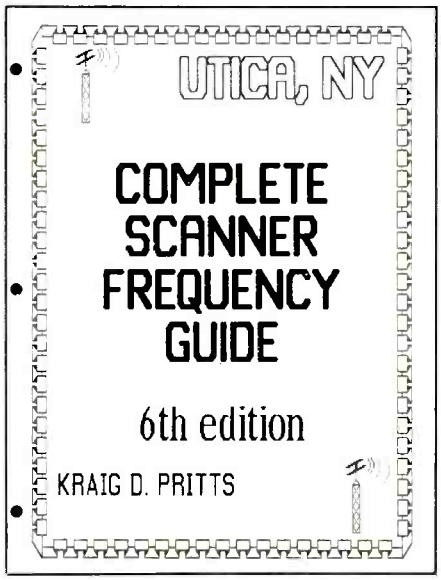
The British Columbia Confidential Scanner Frequency Guide may be obtained by sending a postal money order for $9.95 (plus $1 for postage) to Outpost Enterprises, Box 367, Sorrento, BC, Canada V0E-2W0. By the way, there is also a similar book covering 300 listings in Alberta that you can order for $6.00 postpaid.

Calling Utica, NY Scanner Owners

The previous five editions got past our notice, but we did get a copy of the latest edition (the Sixth Edition) of the *Utica Area Complete Scanner Frequency Guide*, compiled by Kraig D. Pritts. This listing concentrates on the results of direct monitoring from Utica, NY.

There are more than 630 listings contained in the publication, which also offers some listings for areas immediately adjacent to Utica. Pritts tells us that he decided to compile this directory when he noticed that although neighboring cities such as Albany and Syracuse had been well covered in other directories, his hometown had been (for the most part) ignored. The result has been this series of editions.

The new edition consists of thirty seven unbound 8½" by 11" sheets, punched for your three-ring binder. Listings are by service type, cross-indexed by frequency. Included are services such as: answering services, ambulances, Ham repeaters, conservation, emergency units, fire, highway departments, hospitals, local government, mobile telephone, police, weather, and several others.

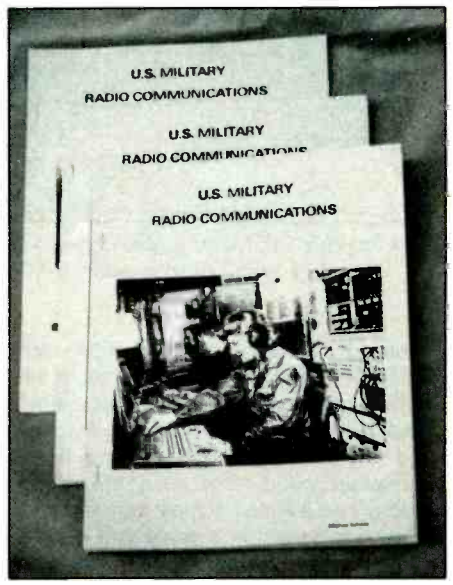


Pritts, being personally active in scanner usage in the Utica area, seems to have known what to include in his publication for maximum use and interest. We think that he's done quite a fine job of assembling this data into directory form.

The Sixth Edition of the *Utica Complete Scanner Frequency Guide* is available for $5.00 per copy (plus $2.00 shipping/handling) from Kraig D. Pritts, Box 338, Chadwicks, NY 13319.

H.F. Federal Communications Directories

An interesting three-part series of publications has become available containing an enormous amount of frequency and other information on U.S. military and other federal communications between 14 kHz and 28 MHz. Transmissions include SSB/RTTY/CW/FAX. This series is called *U.S. Military Communications*, by M. Schaay. More than straight frequency data, the author offers maps, reproductions of QSL cards, plus in-depth analyses of many of the systems and networks included. The information covered is worldwide in its scope. Each of the three volumes in the series covers something different. Each may be obtained separately or as a complete three-volume set.



Volume 1 covers the U.S. Army, Navy, Air Force, MARS, NORAD, National Guard, Reserves, in the continental USA (CONUS), Europe, Philippines, Japan, Korea, Indian and Pacific Oceans, and Latin America. It lists frequencies, callsigns, tactical identifiers, military unit designators and more.

Volume 2 covers the U.S. Coast Guard, NASA, CAP, FAA, FCC, FEMA, Department of Energy, Department of Justice, Border Patrol, and the Department of Commerce. This volume also includes a listing,

arranged according to frequency, of all stations in Volumes 1 and 2 operating between 14 kHz and 9073 kHz (use requires Volume 1).

Volume 3 completes the overall frequency listing started in Volume 2 and covers military/federal services between 8993 kHz and 27994 kHz (use requires Volume 2).

These are very useful sourcebooks for all communications monitors, filling a long-time need, being so detailed as to even offer many transmission schedules! The information presented is accurate, hard-to-find, and worthy of being relied upon by those interested in monitoring the communications services covered in these volumes.

Individual volumes are available separately at $12.95 each, plus $1.00 postage/handling (to addresses in USA/Canada/APO/FPO). Specify the volume you want. The complete three-volume set is available at the special price of $35.85, plus $2.00 postage/handling (to addresses in USA/Canada/APO/FPO). This is a $4 saving off the price if purchased separately.

U.S. Military Communications, by M. Schaay, may be ordered from CRB Research, P.O. Box 56, Commack, NY 11725.

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Turner CB Mike

An improved version of the Turner +3B desk microphone for CB base stations will be made exclusively for Commtron, a major electronics distributor. The manufacturer, Telex Communications, Inc., announced that the +3B microphone will still be cased in the rugged die cast metal housing which earned this mike a reputation of virtual indestructibility. The amplified microphone features temperature-stable electronics and a humidity-resistant ceramic microphone element. The output level of the +3B is easily adjusted by a volume control. A push-to-talk bar can be locked on for extended transmissions. The +3B is universally adaptable for electronic or relay switching radios.

The microphone carries a suggested list price of $139.95 and is available through CB dealers of Commtron, 625 Academy Drive, Northbrook, IL 60062. Toll free information is available by calling 800-323-4228. Illinois residents may call 800-942-2565 or circle number 101 on the reader service card.

Programmable Scanner Features Dual Scan Speeds

Automatic search, scan delay and a priority channel are features that are normally reserved for expensive, top-of-the-line scanners.

One modestly-priced programmable scanner that is packed with all of these features, and more, is the Regency R1075. Fully programmable, the 15-channel scanner can receive more than 15,000 frequencies from six of the most popular public service bands.

Other important features include channel lockout, for skipping channels not of current interest, plus sliding volume and squelch controls. In the event of a power failure, a built-in capacitor will save frequencies in memory for several hours, without requiring batteries. All electronics are housed in an attractive woodgrain case that features a top-mounted, built-in speaker.

The Regency R1075 has a suggested retail price of $179.95 and is backed by a full one-year warranty. The basic package includes an AC power supply cord, telescoping antenna and an easy-to-follow instruction manual.

Designed for the beginning scanning enthusiast, as well as the veteran who is looking for a reliable back-up unit, the scanner can be programmed to search a frequency range for active new frequencies.

With its priority channel and scan delay functions, the scanner keeps listeners from missing important transmissions. When it is activated, the priority channel automatically overrides all other calls so that broadcasts from a favorite channel are never missed. Scan delay puts a two-second pause at the end of a transmission so that "calls" and "answers" can be heard before the scanner resumes its scanning cycle.

The scanner covers six full bands, including VHF-Low (30-50 MHz), VHF-Amateur (144-148 MHz), VHF-High (148-174 MHz), UHF-Amateur (440-450 MHz), UHF (450-470 MHz) and UHF-T (470-512 MHz). A dual scan speed control allows the scanning cycle to be set to "fast" or "slow" speeds.

The scanner is simple to program, with a numbered keyboard and a dual-level vacuum fluorescent display that flashes visual messages to aid in programming.

Complete details are available from Regency scanner suppliers, by writing directly to Regency Electronics Inc., 7707 Records Street, Indianapolis, IN 46226 or you can circle number 102 on the reader service card.

Coast Stations RTTY Transmission Schedule

BY ROBERT MARGOLIS

Suffering the DX blahs and want a quick cure? Maybe you have in mind a trip to some foreign land far from or near your home but you're hard pressed for the time right now?

Settle back in your easy chairs, folks, and join us as we tour the world in our imaginary yachts, visiting ports of call, many of which can be monitored in a single day over your RTTY decoders.

Here are all the coastal stations known to use RTTY to communicate with vessels. The list provides the stations' locations, callsigns, frequencies and the times of day they operate.

To find the paired frequencies ships use to correspond with these coastal stations, please refer to the RTTY column in the Oct. '86 *POP'COMM* which gives a shortcut method of finding the second frequency. Enjoy your trip!

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
Australia			
Perth Radio	VIP31	4352.5	1000-1600
	VIP32	6497	1000-1600
	VIP33	8707.5	1000-1600
	VIP34	13074	2200-1600
	VIP40	13076	2200-1600
	VIP35	17200	2200-1000
	VIP36	22564	2200-1000
Sydney Radio	VIS61	4356.5	24 hours
	VIS63	6501	24 hours
	VIS84	8710.5	2200-1300
	VIS65	8711.5	24 hours
	VIS67	13078	24 hours
	VIS69	17204	24 hours
	VIS71	22568	24 hours
Brazil			
Belem Radio	PWB	4307	Intermittent
	"	6453	"
	"	8670	"
	"	12804	"
	"	17060	"
	"	22330.5	"
	"	22461	"
Natal Radio	PPN	4307	Intermittent
	"	6453	"
	"	8670	"
	"	12804	"
	"	17060	"
	"	22330.5	"
Rio de Janeiro R.	PWZ	4307	Intermittent
	"	6420	"
	"	8530	"
	"	12900	"
	"	17122.4	"
	"	22445	"
Rio Grande Radio	PWR	4307	Intermittent
	"	6453	"
	"	8670	"
	"	12804	"
	"	17060	"
	"	22461	"
Salvador Radio	PWF	4307	Intermittent
	"	6453	"
	"	8670	"
	"	12804	"
	"	17060	"
	"	22330.5	"
	"	22461	"
Belgium			
Oostende Radio	...	2815.5	24 hours
	OST26	4351	"
	OST27	4355.5	"
	OST36	6495.5	"
	OST37	6502.5	"
	OST46	8706	"
	OST47	8710.5	"
	OST56	13072.5	"
	OST57	13079	"
	OST66	17198.5	"
	OST67	17203	"
	OST76	22562.5	"
	OST77	22567	"
Bermuda			
Bermuda Radio	VRT	6503.5	0400-1000
	"	8714.5	1000-1200, 2200-0400
	"	13073	1200-2200
	"	17201.5	Intermittent
Bahrain			
Bahrain Radio	A9M	4350	Intermittent
	"	8716	24 hours
	"	13086.5	24 hours
	"	17202	24 hours
	"	22584	Intermittent
Canada			
Halifax CG Radio	VCS	4353	24 hours
	"	6497.5	"
	"	8716.5	"
	"	13090.5	"
	"	17212.5	"
	"	22590	"
Vancouver CG Radio	VAI	4354	24 hours
	"	13091.5	"
Chile			
Valparaiso Playa Ancha Radio-maritima Radio	CBV	4354	Intermittent
	"	4355	"
	"	6498.5	"
	"	6499.5	"
	"	8709	"
	"	8710	"
	"	13075.5	"
	"	13076.5	"
	"	17201.5	"
	"	17202.5	"
	"	22565.5	"
	"	22566.5	"
China			
Guangzhou Radio	XSQ	4355	Intermittent
	"	6499.5	"
	"	8710	"
	"	13076.5	"
	"	17202.5	"
	"	22566.5	"
Shanghai Radio	XSG	4353	Intermittent
	"	6497.5	"
	"	8708	"
	"	13074.5	"
	"	17200.5	"
	"	22564.5	"
Tianjin Radio	XSV	4351	Intermittent
	"	6495.5	"
	"	8706	"
	"	13072.5	"
	"	17198.5	"
	"	22562.5	"
Cuba			
Flota Cubana Radio	COB36	6502	24 hours
	"	8712.5	"
	"	13079	"
	"	17205	"
	"	22569	"
Habana Radio	CLA	8717.5	24 hours
	"	13084	"
	"	13089	"
	"	17210	"
	"	17215	"
	"	22574	"
	"	22579	"
Denmark			
Lyngby Radio	OXZ21	4319	24 hours
	...	4350.5	"
	...	4355.5	"
" "	OXZ31	6439	24 hours
	...	6498.5	"
	...	6501.5	"

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
" "	OXZ41	8626	24 hours
	...	8709.5	"
	...	8715.5	"
" "	OXZ61	13038	24 hours
	...	13076	"
	...	13084	"
	...	13093.5	"
" "	OXZ82	16897.5	24 hours
	...	17206	"
	...	17212.5	"
" "	OXZ93	22459	24 hours
	...	22570	"
	...	22579	"
	...	22590.5	"
" "	OXZ95	25262	24 hours
	...	25437	"
Djibouti			
Djibouti Radio	J2A	8707	0400-0700, 1400-1500
	"	13091.5	0700-0900, 1200-1400
	"	17216	Intermittent
	"	22566	"
Finland			
Helsinki Radio	OFA	4352.5	24 hours
	"	4354.5	"
	"	6497	"
	"	6503	"
	"	8707.5	"
	"	8713.5	"
	"	13075.5	"
	"	13087.5	"
	"	17201.5	"
	"	17216	"
	"	22565.5	"
	"	22580	"
France			
St. Lys Radio	FFT21	4352	24 hours
	FFT22	4353.5	"
	FFT31	6501	"
	FFT41	8708.5	"
	FFT42	8712.5	"
	FFT43	8713.5	"
	FFT61	13074.5	"
	FFT62	13078	"
	FFT63	13081.5	"
	FFT64	13097.5	"
	FFT81	17201	"
	FFT82	17212	"
	FFT83	17222.5	"
	FFT91	22563	"
	FFT93	22573.5	"
	FFT92	22575.5	"
Germany, East			
Ruegen Radio	Y5M	4233.5	Intermittent
	"	4240	"
	"	4242.5	"
	"	4260	"
	"	4265	"
	"	4313	"
" "	Y5M	6343	Intermittent
	"	6358.5	"
	"	6428.5	"
	"	6449.5	"
	"	6466	"
" "	Y5M	8443	Intermittent
	"	8463	"
	"	8584	"
	"	8660	"
	"	8696	"
" "	Y5M	12681.5	Intermittent
	"	12702	"
	"	12745	"
	"	12860.5	"
	"	13062.5	"
" "	Y5M	16892.9	Intermittent
	"	16907.3	"
	"	16965	"
	"	17000	"
	"	17100	"
" "	Y5M	22334.5	Intermittent
	"	22393	"
	"	22401	"
	"	22422	"
	"	22437	"
	"	22481	"
	"	22545	"
	"	22550	"
" "	Y5M	25069	Intermittent
	"	25308	"
	"	26455	"

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
Germany, West			
Norddeich Radio	DAN	2727	24 hours
	DAF	4220.5	24 hours
	DAL	4244	"
	DAM	4265	"
	DAN	4308.5	"
" "	DCN	4350	"
	DCM	4352	"
	DCL	4353	"
	DCF	4356	"
" "	DAF	6363.5	24 hours
	DAN	6435.5	"
	DAL	6456.5	"
	DAM	6475.5	"
" "	DCN	6496	"
	DCM	6497.5	"
	DCL	6500.5	"
	DCF	6505.5	"
" "	DAB	8439	24 hours
	DAN	8483.5	"
	DAL	8511.9	"
	DAM	8638.5	"
	DAF	8672.5	"
" "	DCN	8705	"
	DCM	8706.5	"
	DCL	8712	"
	DCF	8716	"
" "	DAM	12763.5	24 hours
	DAF	12832.5	"
	DAN	12898.5	"
	DAL	13027.5	"
" "	DCN	13071.5	"
	DCM	13073	"
	DCL	13078.5	"
	DCF	13086	"
" "	DAM	16980.4	24 hours
	DAF	17048	"
	DAB	17082	"
	DAN	17143.6	"
	DAL	17177.6	"
" "	DCN	17197.5	"
	DCM	17202	"
	DCL	17219.5	"
	DCF	17227	"
" "	DAL	22340.3	24 hours
	DAF	22415	"
	DAM	22476	"
	DAN	22515	"
" "	DCN	22561.5	"
	DCM	22568.5	"
	DCL	22576	"
	DCF	22589.5	"
" "	DAM	25196	24 hours
	DAN	26108	"
	DAF	26227.5	"
	DAL	26340	"
Greece			
Athinai Radio	SVS2	4352.5	Intermittent
	SVU2	4356	"
	SVS3	6499.5	Intermittent
	SVU3	6502	"
	SVS4	8710	Intermittent
	SVT4	8711.5	2200-0430 in summer; 2200-0530 in winter
	SVU4	8712.5	2200-0430 in summer; 2200-0530 in winter
	SVS5	13079.5	24 hours
	SVT5	13082.5	Intermittent
	SVT6	17208.5	1700-2200
	SVU6	17221.5	Intermittent
	SVT7	22572.5	Intermittent
	SVU7	22585.5	0430-1700 in summer; 0530-1700 in winter
Hong Kong			
Cape D'Aguilar Radio	VPS28	6503	24 hours
	VPS38	8710	"
	VPS39	8713	"
	VPS63	13077.5	"
	VPS64	13083	"
	VPS82	17212	"
	VPS83	17222	"
	VPS97	22564	"
Italy			
Roma Telex Radio	4	4350	0600-2100 (advance one hour in summer)
	24	4351.5	By prior arrangement
	34	4354.5	" " "
	44	4356.5	" " "
" " "	6	6496	" " "
	26	6499	" " "
	36	6501.5	" " "

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
	46	6503	" " "
" " "	8	8706.5	0600-2100 (advance one hour in summer)
	28	8707.5	By prior arrangement
	38	8710.5	" " "
	48	8711.5	" " "
	58	8714.5	" " "
" " "	3	13089.5	0600-2100 (advance one hour in summer)
	23	13091.5	By prior arrangement
	33	13094.5	" " "
	43	13096.5	" " "
	53	13098	" " "
" " "	7	17207	" " "
	27	17211	0600-2100 (advance one hour in summer)
	37	17214	By prior arrangement
	47	17224.5	" " "
	57	17230.5	" " "
" " "	2	22571.5	" " "
	22	22574.5	" " "
	32	22583	0800-1600 (advance one hour in summer)
	42	22592	By prior arrangement
Japan			
Chuo Gyogyo Radio	JFA	4350	Intermittent
	"	4353	"
	"	6494.5	"
	"	6503	"
	"	8705	"
	"	8716.5	"
	"	13071.5	"
	"	13074.5	"
	"	17197.5	"
	"	17209	"
	"	22561.5	"
	"	22573	"
	"	25040	"
Muroto Gyogyo Radio	JFM	4350	Intermittent
	"	4353	"
	"	6494.5	"
	"	6503	"
	"	8705	"
	"	8716.5	"
	"	13071.5	"
	"	13074.5	"
	"	17197.5	"
	"	17209	"
	"	22561.5	"
	"	22573	
Shiogama Radio	JNN	4224	24 hours
	"	6433.5	"
	"	8534	"
	"	13015.5	"
Yokohama Radio	JGC	4244	24 hours
	"	6433.5	"
	"	8534	"
	"	13015.5	"
Kuwait			
Kuwait Radio	9KK2	4299	1500-2100
	9KK4	6381	0300-1500
	9KK6	8525	0300-2100
	9KK8	12895	0300-1500
	9KK20	12925	"
	9KK22	16995	"
	9KK23	22504	"
Madagascar			
Tamatave Radio	5RS	4352	24 hours
	"	6496.5	"
	"	8707	"
	"	13073.5	"
	"	17199.5	"
	"	22563.5	"
Malaysia			
Penang Radio	9MG13	4356	24 hours
	9MG14	6494.5	"
	"	6498.5	"
	9MG15	8705	"
	9MG16	13075.5	"
	"	13080	"
	9MG17	17201.5	"
	"	17206	"
	9MG18	22561.5	"
Mariana Islands			
Guam Radio	NRV	8710.5	Night Service
(operated	"	13077	24 hours
by the U.S. Coast	"	17203	24 hours
Guard)	"	22567	Day Service
Monaco			
Monaco Radio	3AC14	4351.5	0600-2000 (local time)
	3AC24	4356	"
	3AC28	8712	"
	3AC38	8715	"
	3AC23	13076.5	"
	3AC33	13088	"
	3AC27	17202.5	"
	3AC37	17208	"
	3AC42	22578.5	"
	3AC52	22591	"
Netherlands			
Nes Radio	...	1919.5	24 hours (remotely controlled from Scheveningen Radio)
Scheveningen Radio	PCH85	1919.5	24 hours
	PCH25	4351.5	"
	PCH26	4355	"
	PCH35	6496.5	"
	PCH36	6504.8	"
	PCH45	8713	"
	PCH46	8717	"
	PCH55	13077	"
	PCH56	13088.5	"
	PCH65	17217.5	"
	PCH66	17230	"
	PCH75	22565	"
New Zealand			
Wellington Radio	ZLW	4350.5	Intermittent
	"	6495	"
	"	8705.5	0600-2000
	"	13072	Intermittent
	"	17198	2000-0600
	"	22562	Intermittent
Norway			
Rogaland Radio	LGW2	4351	24 hours
	LGW3	4352.5	"
	LGW4	4354	"
	LGW5	4354.5	"
	LGU2	6498	24 hours
	LGU3	6504.5	"
	LGB2	8707	24 hours
	LGB3	8715	"
	LGJ2	13075	24 hours
	LGJ3	13081	"
	LGJ4	13097	"
	LGX2	17199.5	24 hours
	LGX3	17223	"
	LGG2	22563.5	24 hours
	LGG3	22587	"
Pakistan			
Karachi Naval Station Radio	ARL	8720	Night service
	"	9042	1430-0400
	"	10335	Intermittent
	"	11055	Night Service
	ARL22	4292	Intermittent
	ARL80	11445	Intermittent
	ARL81	11960	"
	ARL46	12220	"
	ARL82	12312	"
	ARL86	13420	24 hours
	ARL48	13580	Intermittent
	ARL50	13840	"
	ARL52	14020	"
	ARL54	14580	"
	ARL89	14845	"
	ARL91	15405	0230-1800
	ARL92	15695	24 hours
	ARL93	15712	Intermittent
	ARL94	15720	"
	ARL97	16959.2	24 hours
	AQQ7	16962	0200-1400
	ARL99	16992	Intermittent
	ARL59	17490	0400-1800
	ARL85	18665	Intermittent
	ARL86	18782	"
	ARL89	19200	"
	ARL60	19300	0400-1800
	ARL94	19660	Intermittent
	ARL98	20260	0200-1800
	ARL99	20372	Intermittent
	ARL200	20490	0200-1800
	ARL202	20620	0200-1800
	ARL203	20773	"
	ARL204	20976.5	"
Panama			
Panama Intelmar R.	HPP	4353.5	Night service
	"	4355.5	"
	"	6495	"
	"	8709	24 hours
	"	8713	"
	"	13075	1200-2300
	"	13080	"

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
	"	17200.5	"
	"	17213.5	"
	"	22576.5	1500-2100
	"	22582.5	"
Philippines			
Las Pinas Radio	DZG	4294	1000-2200
	"	6441	24 hours
	"	8588	"
	"	12882	"
	"	17176	"
	"	22502	"
Qatar			
Doha Radio	A7D	4356	On request
	"	8715.5	24 hours
	"	13083	On request
	"	17207	"
Sao Tome and Principe			
Sao Tome Radio	S9M	4350	24 hours
	"	6504	"
	"	8709	"
	"	13071.5	"
	"	17197.5	"
	"	22566	"
Saudi Arabia			
Dammam Radio	HZG	518	24 hours
	"	2616.3	24 hours
	"	4352	0500-0700, 1400-1600. 1800-1900
	"	6498.5	0500-0700, 1400-1600, 1800-1900
	"	8707	0700-0900, 1600-1800
	"	13076	0700-0900, 1200-1400, 1700-1800
	"	17201.5	0900-1400
	"	22571	0900-1200
Jeddah Radio	HZH	2608.3	24 hours
Singapore			
Singapore Radio	9VG74	4350	24 hours
	9VG77	6504	"
	9VG78	8709	"
	9VG80	13071.5	"
	9VG82	17197.5	"
	9VG84	22566	"
South Africa, Republic of			
Cape Town Radio	ZSC61	4353.5	Intermittent
	ZSC62	8718	Intermittent
	ZSC63	13098	Intermittent
	ZSC64	17206.5	0500-1500
	ZSC65	22593	0600-1500
Durban Radio	ZSD58	4351	1500-0600
	ZSD60	8714	24 hours
	ZSD61	13073	24 hours
	ZSD62	17208	0600-1800
	ZSD63	22592	0600-1500
Spain			
Aranjuez Radio	EDK5	13082	24 hours
	EDJ6	17200	24 hours
Sweden			
Goteborg Radio	SAB	2423.5	24 hours
	SAB23	4268.6	24 hours
	SAB209	4354	"
	SAB214	4356.5	"
	SAB33	6460	24 hours
	SAB301	6494.5	"
	SAB319	6503.5	"
	SAB44	8556	24 hours
	SAB407	8708	"
	SAB424	8716.5	"
	SAB63	12818	24 hours
	SAB606	13074	"
	SAB624	13083	"
	SAB84	17009	24 hours
	SAB83	17024	"
	SAB814	17204	"
	SAB864	17229	"
	SAB93	22356.8	24 hours
	SAB94	22469.5	"
	SAB907	22564.5	"
	SAB932	22577	"
Switzerland			
Bern Radio	HEC14	4352.5	0000-0130,0530-2200 (Saturdays: 0530-1600; Sundays and public holidays: closed)
	HEC24	4355.5	"
	HEC18	8709	"
	HEC28	8714	"
	HEC38	8717.5	"
	HEC13	13080	"
	HEC23	13092.5	"
	HEC33	13095.5	"
	HEC17	17205	"
	HEC37	17218.5	"
	HEC27	17221	"
	HEC52	22197.5	"
	HEC62	22566.5	"
	HEC72	22588.5	"
Union of Soviet Socialist Republics			
Arkhangelsk Radio	UXN	4351.5	Intermittent
	"	6497	"
	"	8708.5	"
	"	13090	"
	"	17204.5	"
	"	22568.5	"
Batumi Radio	UHK	4350	Intermittent
	"	6498.5	"
	"	8705	"
	"	13074.5	"
	"	17229	"
	"	22322.5	"
Ialta, Krymskoi R.	UCO	4351.5	Intermittent
	"	6498	"
	"	8710	"
	"	13091	"
	"	17205.5	"
	"	22569.5	"
Jdanov, Donetskoi R.	UBN	4351	Intermittent
	"	6498	"
	"	8711	"
	"	13076.5	"
	"	17219.5	"
	"	22580	"
Juzno Sakhalinsk R.	UGH2	4355.5	24 hours
	"	6502.5	"
	"	8717.5	"
	"	13094.5	"
	"	17221	"
	"	22575	"
Kholmsk Radio	UQB	4351.5	Intermittent
	"	6499.5	"
	"	8709.5	"
	"	13084.5	"
	"	17216.5	"
	"	22578	"
Kiev Radio	UJQ	4354	24 hours
	"	6501	"
	"	8716.5	"
	"	13079	"
	"	17224	"
	"	22574	"
Klaipeda Radio/UNM2	UNM2	4350.5	Intermittent
	"	6497.5	"
	"	8705	"
	"	13074	"
	"	17228.5	"
	"	22591.5	"
Klaipeda Radio/URB2	URB2	4354.5	24 hours
	"	6501.5	"
	"	8717.5	"
	"	13095	"
Leningrad Radio	URD	4351	Intermittent
	"	6499.5	"
	"	8710	"
	"	13072	"
	"	17231	"
	"	22589.5	"
Moskva Radio	UAT	8707.5	Intermittent
	"	13075	"
	"	17229.5	"
	"	22570	"
Murmansk Radio/UDK	UDK2	4356	24 hours
	"	6503	"
	"	8712.5	"
	"	13078	"
	"	17213.5	"
	"	22577.5	"
Murmansk Radio/UMV	UMV	4350	Intermittent
	"	6495	"
	"	8705.5	"
	"	13092	24 hours
	"	17218	Intermittent
	"	22581.5	"
Nakhodka Radio	UKX	4356	24 hours
	"	6503	"
	"	8716	"
	"	13088	"
	"	17211.5	"
	"	22575.5	"
Nevelsk Radio	UFM3	4353	24 hours
	"	6503.5	"

STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
	"	8717	"
	"	13078	"
	"	17198.5	"
	"	22584.5	"
Novorossiisk,	UFN	4351	Intermittent
Krasnodarskogo R.	"	6496	"
	"	8706.5	"
	"	13076	"
	"	17219	"
	"	22571	"
Odessa Radio	UFB	4352	Intermittent
	"	6497	"
	"	8709	"
	"	13073	"
	"	17227.5	"
	"	22578.5	"
Petropavlovsk	UFH	4355	24 hours
Kamtchatskii R./	"	6501	"
UFH	"	8717	"
	"	13080.5	"
	"	17221.5	"
	"	22562.5	"
Petropavlovsk	UBE2	4352	Intermittent
Kamtchatskii R./	"	6496	"
UBE2	"	8708.5	"
	"	13089	"
	"	17208	"
	"	22583	"
Providenia Bukhta R.	UPB	4352.5	Intermittent
	"	6497.5	"
	"	8710.5	"
	"	13090.5	"
	"	17205	"
	"	22569	"
Riga Radio/UDH	UDH	4356.5	Intermittent
	"	6496	"
	"	8709.5	"
	"	13092	"
	"	17197.5	"
	"	22580	"
Riga Radio/UQK	UQK	4356	24 hours
	"	6504.5	"
	"	8716.5	"
	"	13079.5	"
	"	17200	"
	"	22586	"
Tallin Radio	UAH	4350	Intermittent
	"	6498	"
	"	8710.5	"
	"	13092.5	"
	"	17217	"
	"	22580.5	"
Vladivostok Radio	UFL	4351	Intermittent
	"	6495.5	"
	"	8709	"
	"	13083.5	"
	"	17215.5	"
	"	22590	"
United Kingdom			
Cullercoats Radio	GCC	3606.6	24 hours
Hebrides Radio	GHD	3606.1	24 hours
Land's End Radio	GLD	2695	24 hours
North Foreland Radio	GNF	3605.6	24 hours
Norwick Radio	...	2831	24 hours
Portishead Radio	GKD2	4256	24 hours
	GKG2	4267.9	"
	GKB2	4274	"
	GKN2	4314.9	"
	GKO2	4316.9	"
	GKS2	4344.5	"
	GKE2	4350.5	"
	GKF2	4353.5	"
	GKQ2	4356.5	"
	GKN3	6395.9	24 hours
	GKO3	6397.9	"
	GKS3	6402	"
	GKE3	6495	"
	GKP3	6500	"
	GKQ3	6505	"
	GKS4	8496.5	24 hours
	GKN4	8580.5	"
	GKM4	8581.6	"
	GKO4	8582.5	"
	GKE4	8705.5	"
	GKP4	8711	"
	GKQ4	8718	"
	GKN5	12712.9	24 hours
	GKO5	12714.9	"
	GKS5	12770	"
	GKG5	12790	"
	GKA5	12822	"
	GKE5	13072	"
	GKP5	13085	"
	GKQ5	13099	"
	GKS6	16882.5	24 hours
	GKJ6	16918.8	"
	GKA6	17098.4	"
	GKB6	17113	"
	GKN6	17135.7	"
	GKM6	17136.8	"
	GKO6	17137.7	"
	GKI6	17151.2	"
	GKK6	17167.5	"
	GKE6	17198	"
	GKP6	17215	"
	GKQ6	17231	"
	GKS7	22387.5	24 hours
	GKD7	22432	"
	GKB7	22448.7	"
	GKA7	22467	"
	GKN7	22525.9	"
	GKO7	22527.9	"
	GKE7	22562	"
	GKP7	22578	"
	GKQ7	22594	"
Stonehaven Radio	GND	3614	24 hours
Wick Radio	GKR	1669.45	24 hours
	"	1670.3	"
United States			
Boston, Massachusetts	NMF	8710.5	24 hours
Radio (operated by	"	13083	"
the U.S. Coast	"	17203	1000-2000
Guard)			
Chatham,	WCC	4356	24 hours
Massachusetts Radio	"	4356.5	"
	"	6500.5	"
	"	6501	"
	"	6504.5	"
	"	8711	"
	"	8711.5	"
	"	8715	"
	"	13077.5	"
	"	13078	"
	"	13081.5	"
	"	13090	"
	"	17203.5	"
	"	17204	"
	"	17207.5	"
	"	17216	"
	"	22567.5	"
	"	22568	"
	"	22571.5	"
	"	22580	"
Galveston, Texas R.	KLC	4354	24 hours
	"	4357	"
	"	6498.5	"
	"	6502.5	"
	"	6505	"
	"	6506	"
	"	8709	"
	"	8713	"
	"	8715.5	"
	"	8718.5	"
	"	13075.5	"
	"	13079.5	"
	"	13082	"
	"	13095	"
	"	13100	"
	"	13100.5	"
	"	17201.5	"
	"	17205.5	"
	"	17208	"
	"	17221	"
	"	17232	"
	"	17232.5	"
	"	22565.5	"
	"	22569.5	"
	"	22572	"
	"	22585	"
	"	22595	"
	"	22595.5	"
Honolulu, Hawaii R.	NMO	8718	24 hours
(operated by the	"	13084.5	"
U.S. Coast Guard)	"	22574.5	Day service
Jeffersonville,	WFN	4355	24 hours
Indiana Radio	"	6499.5	"
	"	8710	"
Mobile, Alabama R.	WLO	4352	1130-0330
	"	4354.5	"
	"	4357	"
	"	6499	"
	"	6501.5	"

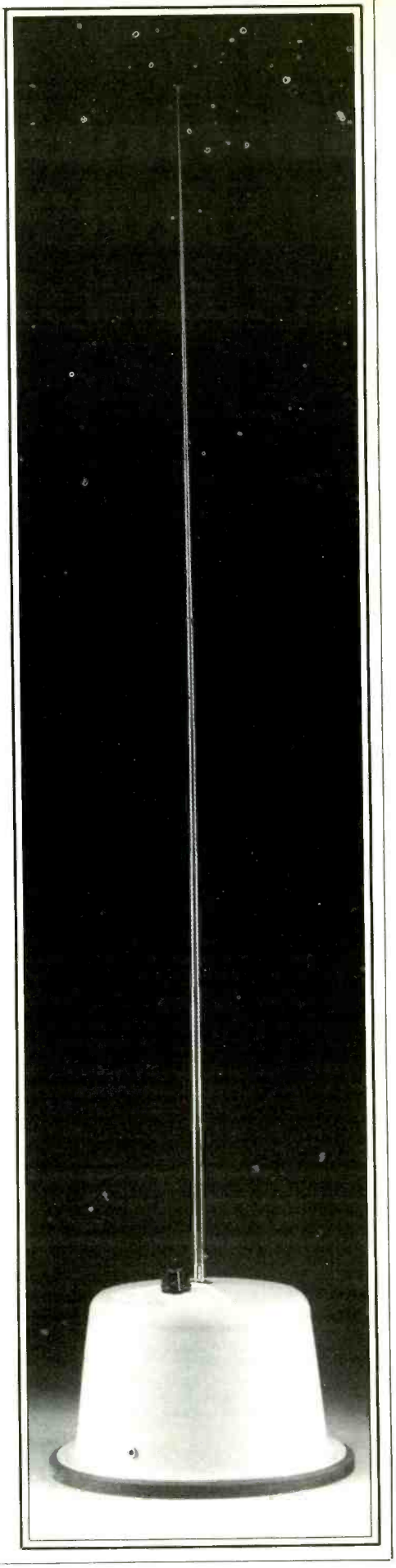
STATION NAME	STA ID	FREQ	HOURS OF SERVICE (UTC)
	"	6506	"
	"	8707	"
	"	8712	"
	"	8717	"
	"	8718.5	"
	"	13073.5	"
	"	13078.5	"
	"	13083.5	"
	"	13098	"
	"	13100	"
	"	13100.5	"
	"	17199.5	"
	"	17204.5	"
	"	17209.5	"
	"	17224	"
	"	17232	"
	"	17232.5	"
	"	22563.5	"
	"	22568.5	"
	"	22573.5	"
	"	22588	"
	"	22595	"
	"	22595.5	"
Palo Alto, California Radio	KFS	4350	24 hours
	"	4351	"
	"	4357	"
	"	6494.5	"
	"	6495.5	"
	"	6506	"
	"	8705	"
	"	8706	"
	"	8718.5	"
	"	13071.5	"
	"	13072.5	"
	"	13085	"
	"	13094.5	"
	"	13100	"
	"	13100.5	"
	"	17197.5	"
	"	17198.5	"
	"	17211	"
	"	17220.5	"
	"	17232	"
	"	17232.5	"
	"	22561.5	"
	"	22562.5	"
	"	22575	"
	"	22584.5	"
	"	22595	"
	"	22595.5	"
Portsmouth, Virginia Radio (operated by the U.S. Coast Guard)	NMN	8718	Night service
	"	13084.5	24 hours
	"	17210.5	Day service
Rogers City R., MI	WLC	4351.5	1200-0400
San Francisco Radio, California/KPH	KPH	4356	24 hours
	"	4356.5	"
	"	6500.5	"
	"	6501	"
	"	6504.5	"
	"	6505	"
	"	8711	"
	"	8711.5	"
	"	8715	"
	"	8715.5	"
	"	13077.5	"
	"	13078	"
	"	13081.5	"
	"	13082	"
	"	13090	"
	"	17203.5	"
	"	17204	"
	"	17207.5	"
	"	17208	"
	"	17216	"
	"	22567.5	"
	"	22568	"
	"	22571.5	"
	"	22572	"
	"	22580	"
San Francisco Radio, California/NMC (operated by the U.S. Coast Guard)	NMC	6504	Night service
	"	8714.5	24 hours
	"	17207	Day service
Slidell, Louisiana R.	WNU	4350.5	24 hours
	"	6495	"
	"	6503.5	"
	"	8705.5	"
	"	8714	"
	"	13072	"
	"	13080.5	"
	"	13097	"
	"	13099.5	"
	"	17198	"
	"	17206.5	"
	"	17223	"
	"	17225.5	"
	"	22562	"
	"	22570.5	"
	"	22587	"
	"	22589.5	"
Tampa, Florida Radio	WPD	4353.5	1300-0100, winter; 1200-0000 summer
	"	6498	"
	"	8708.5	"
	"	13080	"
	"	17206	"
	"	17215	"
	"	22570	"
	"	22579	"
Yugoslavia			
Bar Radio	YUW	4355	Intermittent
	"	6502	"
	"	8716	"
	"	13089.5	"
	"	17220	"
	"	22585	"
Rijeka Radio	YUR	4353.5	Intermittent
	"	4354	"
	"	6501.5	"
	"	6505.5	"
	"	8710	"
	"	8710.5	"
	"	13093.5	"
	"	13099.5	"
	"	17205	"
	"	17229.5	"
	"	22571	"
	"	22576	"
Split Radio	YUS	4353	Intermittent
	"	6499	"
	"	8708	"
	"	13096.5	"
	"	17216	"
	"	22582	"
Zaire			
Banana Radio	9PA	8714	Intermittent
	"	13078.5	"

PC

POP'COMM Reviews:

Com-Rad Industries CR-4010R FUNtenna

BY PHIL INGRAHAM, W2OSY



Recently, I acquired a used (like new) Panasonic RF-2900 general-coverage shortwave receiver, something I'd been wanting for a long time. Although I've been a Radio Amateur for over 50 years, and quite active on the Ham bands for most of that time, I'd sadly neglected the general shortwave bands and I really missed the fun of listening to the foreign broadcast stations.

The Panasonic brought it all back, but the one thing I lacked was a suitable antenna for "snooping" around the bands and for weak signal reception. Yes, the Panasonic does have a telescoping "whip" antenna mounted to its case, and it works quite well *but* . . . . The "but" was my desire for superior reception without going to the trouble of putting up a large outside antenna on my small lot. The "but" also included my belief that there ought to be a small, inexpensive and convenient antenna available somewhere, one that would offer BIG performance in a small space, yet fit comfortably on the desk next to my receiver.

That was when an old friend of mine and fellow Ham suggested I take a look at a prototype shortwave antenna designed and produced by Com-Rad Industries of Grand Island, New York. I promised to test this antenna to the best of my ability and report the results. The Com-Rad CR-4010R antenna must be seen to be believed (and I'll do my best to describe it for you) but first, let me ask you, the reader, a question.

While enjoying your hobby as a shortwave listener, hasn't the thought crossed your mind that a good desk or table-top antenna might have several advantages? Hadn't you considered the benefits of small size, neat appearance and good performance that would exceed by far the usual telescoping "whip" built into many shortwave receivers? Maybe you even thought that the antenna you were looking for would not need a built-in preamp, thus reducing cost and complexity. Sound familiar? Well, I felt the same way.

It was about this time that my friend introduced me to the CR-4010R, and it has been my pleasure over the past few weeks to work with exactly the kind of antenna I had been looking for. Imagine a bell-shaped plastic "dome" about 10 inches in diameter at the bottom, 7 inches in diameter at the top, and only about 6 inches high. It might even be mistaken for a cake plate with cover, and its neutral beige color harmonizes well with your living room decor. There is a telescoping whip mounted in the center of the "dome," and next to the antenna you'll find a 12-position rotary switch. The bottom of the dome is sealed, so I can only guess at what may be inside, as it is obviously hollow and not very heavy.

The CR-4010R is tunable from about 6 MHz to 50 MHz, and I am told that the final production version will tune from about 5 MHz. Tuning is accomplished by adjusting the length of the whip or varying the position of the rotary switch. These adjustments are easily made in mere seconds, and you can really "peak-up" the desired signal. It's a lot easier (and quicker) to do than it is for me to describe it. Within a moment or two you can maximize the signal from you chosen shortwave station.

How well does it work? That's the obvious question, and I have some good news for you. Due to the generally poor shortwave signal propagation on frequencies higher than about 20 MHz, I did most of my listening between about 6 and 20 MHz. After a few evenings of listening with the antenna—and as carefully and quickly as possible shifting from the built-in antenna of the Panasonic to the CR-4010R (which takes about 10 seconds)—I found that the CR-4010R significantly out-performed the built-in antenna of my RF-2900. As a comment, the "whip" antenna portions of both the Panasonic and the CR-4010R telescoped and extended to the same length, yet the test antenna was really much better.

I used the Panasonic's built-in signal strength meter to compare received signal strengths of the stations I tuned in. The meter is not calibrated in "S" units or in decibels, but it does have a scale with relative strength markings, and it is these relative indications that I report in Table 1. You may

Table 1

Freq.	CR4010R	RF2900 Whip
7.839 MHz	S-9 to 10 with occasional rapid dips	S-8-9 with continuous rapid fade
10 MHz WWV	S-5-8	S-1-5
15.560 MHz	S-10 with only occasional rapid fade	S-10 with very frequent deep to rapid dips

notice that I chose some frequencies lying in about the middle of the several bands covered by my receiver.

To sum up my results and feelings about the CR-4010 antenna, I'd have to say that it seems to exhibit far better capture-area characteristics than the receiver's built-in antenna, and it really "peaks-up" a signal surprisingly well, which means that it has a higher "Q" factor. Further, I'd say that for a listener who can't have resonant antennas outside and in the clear at 50 or 60 feet in height, the little FUNtenna, as I call it, does a remarkable job.

It would be ridiculous to try to compare it with a high long-wire antenna, yet it performs very well the job it is intended to do, and all I can hope for is that the sun will cooperate one of these days so that I can really check out the FUNtenna between 20 and 30 MHz. I've listened up there enough (mostly on CB signals) to know that it works there too, so all we can do now is wait for the new sunspot cycle to begin.

When you consider that you won't need any batteries or preamps, and that there are no wires to hang or complicated setups to make in your home, motel, or hotel room, you'll probably think, as I do, that the FUNtenna is a pretty neat package that's a good bet for the shortwave listener. You'll also be happy to know that it comes with a short length of coaxial cable and connector to plug into your receiver . . . nothing to do except plug it in!

The CR-4010 FUNtenna is available from Com-Rad Industries, 1635 West River Road, P.O. Box 554, Grand Island, NY 14072-0554. PC

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

The shortwave news ticker has been chattering away so let's tear the copy off and find out what's happening.

English services from Khadaffi's Radio Jamaheriya unaccountably disappeared quite a few months back. A letter from the station's Malta office advises that these services had been off the air due to "technical difficulties" but were due to have returned on October 6. The African service was scheduled to operate from 1800-1900 on 15450 and the North American service from 2230-0000 on 11815.

Radio Australia's 10-kilowatt transmitters, formerly positioned at Lyndhurst, were put on trucks and moved to a new site at Branmdon, north of Townsville in Queensland. This new Radio Australia site is expected to be in operation by the middle of the year, providing improved service to listeners in Papua New Guinea and the Solomon Islands.

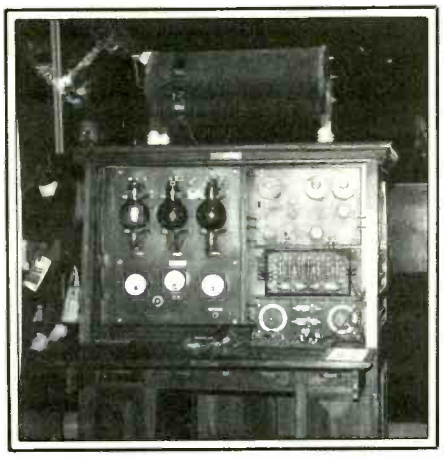
By the time you read this, it is likely that KYOI and its Super Rock format will have disappeared from shortwave. The financially troubled station has been purchased by the *Christian Science Monitor* which will use the facility as one leg in its new shortwave operation. The new Christian Science station plans to kick off its broadcasting service from a transmitter in Maine sometime early in 1987 and the former KYOI will then provide coverage for Asia.

In Belgium, the BRT has added French to its broadcasts. But, in order to accommodate the addition, they've had to cut the English broadcasts to North America by half—from 55 minutes down to just 28.

In the Philippines, Radio Veritas Asia, the station which played such a significant role in the downfall of ex-President Marcos and suffered equipment damage in the process, now has a new 250-kilowatt unit on the air that more than doubles the maximum power they'd used in the past.

Swiss Radio International, which experimented with relays over Africa Number One in Gabon a year or two ago, has begun using the Gabon station as a regular relay. Try for Spanish and Portuguese to South America on 9625 between 2200 and 0100.

There are questions as to whether it's really shortwave broadcast or not, but Tonga has begun using a 200-watt transmitter on 5030 (alternate 6012) to beam programs in sideband to the remote islands in the northern part of the Tonga group, apparently to be picked up and rebroadcast by one or more stations there. It's scheduled to around 1000 sign-off but, to our knowledge, hasn't been heard by anyone in North America.

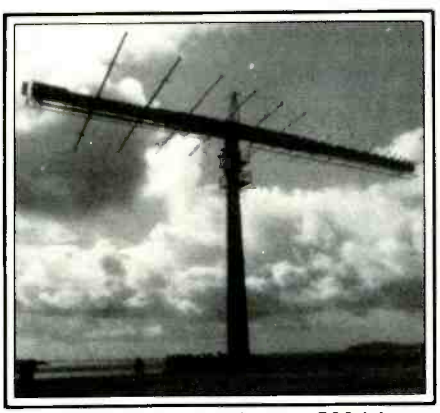


Allen Linville snapped this shot of Marconi's transmitter that was on display at Expo-86.

Radio Norway International has their new 500-kilowatt transmitter at Sveio on the air but we've not been able to determine just which frequencies and times it's using. The RNI schedule does not differentiate between the two 500-kilowatt sites in Norway.

Radio Milne Bay at Alotau in Papua New Gunia has moved from 3360 to new 3365. Radio Simbu, formerly on 2376, has moved to 3355. That leaves Radio Enga as the only Papua New Guinea station still using the 120 meter band (2410 kHz) and it, too, will eventually move to 90 meters.

Domestic shortwave from South Africa has undergone a reshuffling in recent months. The Radio Oranje service now operates from 0400-2200 on 3215, 1930-0400 on 3320 and 3955 and 0540-1545 on 6105. The SABC Afrikaans Service now uses 3320 from 0400-0555 and 1535-1930, and 3955 from 0400-0615 and 1515-1930. Also on 6005 at 0555-1535, 0615-1515 on 7285. Radio Five runs on 4880 from 0400-0520 and 7170 from 0520 to 1550. The 3250 and 4830 frequencies are no longer used.



One of the antennas at the new 500-kilowatt Sveio, Norway transmitting site.

Argentine DX'er Gabriel Ivan Barrera reports via the DX South Florida group that Radio Monte Carlo in Uruguay is now using shortwave. The 1.5 kW transmitter is on 6140 from 1030-1630, 9595 from 1630-2330 and 11735 from 2330-0300. During special sporting events the facility is also used by Radio Oriental.

The long inactive Radio Tarqui in Quito, Ecuador has been showing up again on 4972 during our evenings. And the seemingly endless parade of Peruvians has yet another entry, Radio Marginal in Tocaches, which has been putting in weak signals during the evenings on 4039.

ON TO THE MAIL. Bill Krause alerts us that the ANARC Shortwave Computer Bulletin Board service has moved to 401 East Walnut, Greenfield, IL 62044. The new phone number is (217) 368-3124. The same address applies for the ANARC Computer Information Committee. The bulletin board is active 24 hours a day. Send an SASE to the above address for additional information.

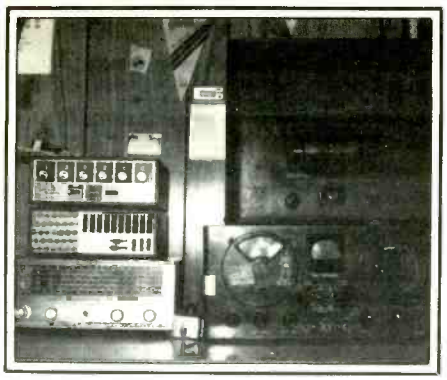
Apologies to Caroline Eaton of Herndon, VA for crediting her loggings to hubby Don a couple of issues back. Caroline reports that she is now KB4UFW and is working towards upgrading both her Ham and monitoring equipment.

Richard Weedon has just retired from the U.S. Army and getting back to listening after a 35-year absence. Rich promises some reports from Korea, where he is living, and we certainly look forward to them.

R.C. Watts in Kentucky has three questions: What happened to XERF-1570, how does one get a QSL from Radio Earth and whatever happened to NDXE? Answers: XERF seems to have been taken over by the Mexican government and now ID's as "Radio Frontera—La Voz de la Amistad." Apparently, some other Mexican broadcasters have been taken over, too. Radio Earth is sometimes slow in replying. Write again, phone or just keep waiting. As for NDXE—we suggest you ask *them*.

John Figliozzi in Clifton Park, Maine says he's returned to the hobby after being active in the 1960's. John's using a Sony 2010.

Walter Witkowski in Port Ewen, New York says he's at last been successful in getting a QSL from Capital Radio in Transkei, but wonders whether IRC's are any good in South Africa, since the country is not a member of the International Postal Union. We, too, had a long wait for a reply from



John Eary DX'es with some vintage receivers.

Capital Radio several years ago so it may not be a matter of postage but simply that the station doesn't get around to reports that fast. Certainly there are many other listeners who've experienced no delays. Anyone know if IRC's are still useable in South Africa?

Roy Brown in Beausejour, Manitoba was also active in the 1960's but his involvement has continued right up to the present. He uses a Radio Shack DX-160 and DX-302 with various preamps, antenna tuners and longwires. Roy promises loggings in the future.

In Kentucky, John Eary has been an SWL since 1958. He uses three receivers, the oldest of which dates back to 1938!

Thanks to Leonard B. Dalton of Melrose, Maine who sent photos of a U.S. Navy antenna array near Cutler, Maine. The photos are much appreciated, Len, and sure to find use in some form or another one day.

J.D. Stephens in Huntsville, Alabama is happy with the QSL card he received from Radio Nacional Angola, a station that's been very stringent with replies up until just recently. The regional Angolan stations seem to be very slow in getting answers out.

Have you checked in lately? We welcome your comments, shack photos, news related to shortwave broadcasting, questions, copies of your better QSL's (or originals if you have extras and don't need them returned) and, of course, your loggings. These should be by country with your last name and state abbreviation after each and some cutting space in between items. Please don't cram several loggings of the same station at different times and frequencies into the same item.

Muchas gracias to: Robert Brossell, Pewaukee, WI; Caroline Eaton, Herndon, VA; Pat McDonough, Pittsburgh, PA; S. Lyster, Keremeos, BC; Jeff Guidry, Raceland, LA; J.D. Stephens, Huntsville, AL; Billy Hunt, Durham, NC; Tom Kneitel, NY; Allen R. Linville, Edmonton, ALB; Warren L. Gilbert, Sherman Oaks, CA; George Neff, Niles, OH; Alexander Durant, Albany, NY; Jimmy Brooks, Bardstown, KY; Joseph Falca, Trenton, NJ; John Figliozzi, Clifton Park, NY; R.C. Watts, Louisville, KY; Tim Magrann, Cerritos, CA; Bob Barberio Jr., Garfield Hts, OH and Ed Needham, CA.

'Til next month, good listening. And, don't forget to send us your SWBC loggings!

Here's What's Being Heard
(All Times Are UTC)

ALBANIA: R. Tirana, 7065 kHz in EE to 0030 s/off (Brooks, NY); 7120 in EE at 0230 (Barberio, NJ & Falco, NJ).

ALGERIA: R. Algiers, 17745 in FF at 1851 (McDonough, PA); 2000 in EE w/nx, US mx, into SS at 2030 (Barberio, OH).

ANTIGUA: DW relay, 9615 at 0312 in EE to NA (Neff, OH).

ANGOLA: Emisor Regional do Lobito (tentative logging), 7172 at 0705 (Needham, CA).

ARGENTINA: RAE on 9690//11710 in SS at 0400 (Guidry, LA).

ASCENSION: BBC relay to No. Africa, world news on 6005 at 0400 (Magrann, CA).

AUSTRALIA: R. Australia, 6150 (nat //5995) at 1131 (Lyster, BC); 9580 at 1300 in EE (Falca, NJ); at 1535 (Lyster, BC); 9655 at 0737 w/"Australia Countrystyle" (Neff, OH); 15160 at 0430 w/"International Report" (Brooks, KY); 15395 at 2200 w/nx (Needham, CA).

VLW9, Perth, 9610 at 1137 w/horse racing (Eaton, VA); 1200 w/pop mx (Hunt, NC); 1318 w/classical mx (Figliozzi, NY).

VNG, time station, 1200 on 4500 (Brossell, WI).

AUSTRIA: R. Austria International, 9770 w/nx & ID at 0136 (Barberio, OH).

BELGIUM: BRT on 9830 at 0030-0125 in EE w/nx, sports info (Barberio, OH).

BENIN: Radiodiffusion du Benin at 2215 on 4870 w/highlife mx (Brossell, WI).

BOTSWANA: R. Botswana w/"barnyard" IS at 0350 on 7255. Also at 0415 on 3356 (Brossell, WI).

BRAZIL: Radiobras on 11745 at 0220 w/mx & agri nx (Northrup, MI).

R. Globo, 11805 at 0130 in PP w/mx & ads (Durant, NY).

BULGARIA: R. Sofia, 7115 at 0310 in EE w/Bulgarian pops (Brooks, KY); 11720 at 2300 w/listeners' letters (Barberio, OH).

CAMEROON: R. Garoua, 5010 at 0530 w/nx & sports in EE (Eaton, VA).

R. Cameroon, Yaounde, 4850 at 2200 in FF w/nx, American blues mx (Durant, NY).

CANADA: CFRX, Toronto, 6070 w/nx & commercials at 1500, relaying CFRB (Barberio, OH).

CHU, time station, 7335 at 0440 in FF/EE (Needhom, CA). They have a nice QSL-- Ed.

R. Canada International, 5960 at 0252 in FF (Lyster, BC).

CBC Northern Quebec service, 6195 at 0257-0300 s/off w/"Morningside this Evening." QRM from VOA (Lyster, BC).

CHINA: R. Beijing, 6995 in Chinese at 0639 (Needham, CA); 9530 in EE w/Chinese mx at 1130 (Falca, NJ); 11560 at 1213 in EE (Neff, OH).

COOK ISLANDS: R. Cook Islands at 0505 on 11760 w/island mx, EE talks about local culture (Stephens, AL).

COSTA RICA: R. Lira, Adventist World Radio, 15460 w/test xmsns at 2110. Rx mx, EE & PP ID's. Address given as Apartado 1177, Alajuela, Costo Rica (Stephens, AL).

R. Reloj, 6006 at 0713 w/mx, ID's (Neff, OH).

CUBA: R. Havana Cuba, 6090 at 0507 w/nx (Needham, CA); nx at 0300 (Brooks, NY); 0428 on 6100 in EE (Needham, CA); 9730 in SS at 0230 (Lyster, BC); 15300 w/world nx at 1930 (Falca, NJ).

CYPRUS: BBC relay, 7160 at 0424 (Needham, CA).

CZECHOSLOVAKIA: R. Prague, 5930 in EE at 0103-0155 (Neff, OH); 0135 w/piano concert (Falca, NJ); 7345 at 0443 (Needham, CA); 11990 at 1738 (Needhom, CA).

EAST GERMANY: R. Berlin International IN EE at 0210 on 6125 (Brooks, KY); 0510 in GG on 6165 (Needham, CA); 9620 at 0310 w/nx in EE (McDonough, PA); on 12555 at 2228 w/EE ID & IS, into FF at 2230, QRM'd by RFE (Kneitel, NY).

ECUADOR: HCJB, 6230 at 0526 w/"Insight" (Needham, CA); 9870 at 0245; 15115 at 1225 (Northruo, MI); 15270 at 1930 in EE (Neff, OH); 17790 in EE at 1935 (Falca, NJ).

HD2IOA time station in Guayaquil at 0329 on 7600 (Lyster, BC).

R. Zaracay, Santo Domingo de los Coloradas, 3394.8 in SS w/folk mx at 0355 (Figliozzi, NY).

ENGLAND: BBC at 2130 w/"Calling the Falklands" on 9915 (Stephens, AL); 11715 at 1646 w/"Letter From America" (Netf, OH).

FINLAND: R. Finland International, 11945 at 1100 w/nx in EE (McDonough, PA); 15400 at 1215 in EE (Northrup, MI); 1400 in EE (Hunt, NC).

FRANCE: RFI on 7135 w/nx at 0422 (Needham, CA); 9795 w/nx at 0415 (Falca, NJ); 2250 in PP on 15200 (Northrup, MI).

FRENCH GUIANA: RFI relay on 6055 at 0417 w/nx in EE (Magrann, CA); 9800 at 0029 in SS (Durant, NY).

GABON: Africa #1 in FF at 1733 on 15475 w/ads, US pop/soul mx (Durant, NY); 2058 in FF (Eaton, VA).

GHANA: GBC on 4915 from 2215 to post 2300 w/mx & nx in EE, ID's as "This is the GBC" (Brossell, WI), 2158 in FF, EE ID/nx at 2200 (Durant, NY).

GREECE: V. of Greece, 15630 at 1225 w/mx (Northrup, MI).

HONDURAS: R. Luz y Vida, 3249.6 w/EE s/off & request for reception reports. Listed 500 watts (Figliozzi, NY). Time?-- Ed.

HUNGARY: R. Budapest in EE at 2225 on 9835. S/on & trumpet IS at 0230 (Gilbert, CA).

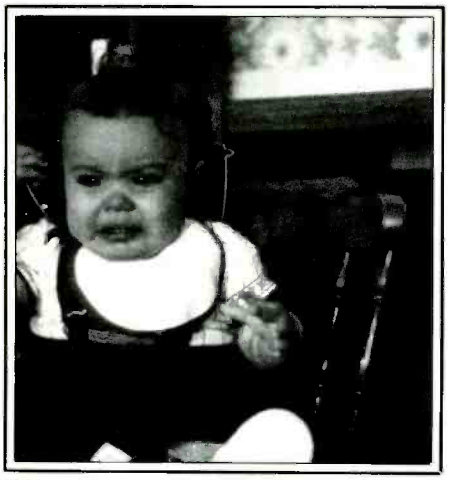
IRAN: VOIRI on 15084 at 1140-1209 in EE w/anti-US harangue (Neff, OH).

IRAQ: R. Baghdad, 11750 in EE at 0000 w/mx & talks (Hunt, NC); 0045 in EE w/discussion (Gilbert, CA).

IRELAND: R. Dublin International, 6910 at 2315 w/rock & disco, EE-speaking DJ (Hunt, NC); at 0515 poor level w/pops & frequent ID's (Stephens, AL).

ISRAEL: Kol Israel, 7410 at 0459 (Needham, CA); 0105 in EE (Brooks, KY); 7465 (replacing 7410-- Ed.) at 0250 w/talk, ID & off at 0255 (McDonough, PA); 0010 w/freq list, free publication offer (Neff, OH); 9435 in EE at 0219 (Lyster, NC); 0000 in EE (Falca, NJ); 11605 at 0310 in RR to Europe (McDonough, PA).

ITALY: RAI, 11800 at 0109 w/sleepy YL



"Yikes! There goes that woodpecker again!" (Thanks to Norman Driskell, Pawtucket, RI.)

Abbreviations Used In Listening Post

AA	Arabic
BC	Broadcast/ing
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America/n
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel frequencies

reading the news (Eaton, VA); 17715 in Italian w/soccer scores (Falco, NJ).

JAPAN: R. Japan, 9645 (via Gabon-- Ed.) at 2300 w/nx, "R. Japan Journal" (Barberio, OH); 2331 w/"Japan Panorama" (Brooks, KY); 2300 w/nx (Hunt, NC); at 2307 w/nx highlights (Eaton, VA); 15195 at 0220 w/"Travel Log" (Hunt, NC).

KUWAIT: R. Kuwait, 11675 at 2030 in EE w/mx pgm (Hunt, NC); 1813-1856 mx, ID, nx (Neff, OH).

LESOTHO: BBC relay, 6190 w/nx at 0516 (Needham, CA).

LUXEMBOURG: R. Luxembourg on 6090 at 2330 w/rock, ads (Hunt, NC); 2250 w/rock & call-in requests (Falco, NJ).

MALI: R. Mali at 2230 on 4783 w/highlife mx (Brossell, WI).

MOROCCO: VOA relay on 5995 at 0435 (Needham, CA).

RTM (tentative), 17815 in AA at 1228 (Northrup, MI).

NETHERLANDS: R. Netherlands, 6020 at 0230 w/nx (Northrup, MI).

NETHERLANDS ANTILLES: R. Netherlands Bonaire relay, 6165 at 0230 in EE (Lyster, BC); 0319 w/"Happy Station" on 9590 (McDonough, PA); 0230 w/classical mx (Falco, NJ); 9715 at 0530 w/"Happy Station" (Neff, OH).

Trans World R., 9535 at 0502 w/nx, ID; 11815 at 1116 in EE (Neff, OH); 1225 w/rx pgm (Northrup, MI).

NEW ZEALAND: R. New Zealand, 11780 at 0405 w/nx, golden oldies (Guidry, LA); 15150 at 0120 w/wx, comedy pgm (Hunt, NC); 0327 w/ID & IS (McDonough, PA).

NICARAGUA: V. of Nicaragua, 6015 at 0100 w/nx & commentary in EE (Brooks, KY); 0251 in SS; 0430-0459 in EE; 1202 in SS (Lyster, BC).

NIGERIA: R. Nigeria, Lagos, 4990 at 2305 to s/off at 2308 (Durant, NY).

FRCN Kaduna, 4770 at 0550 in local language (Linville, ALTA).

NORTH KOREA: R. Pyongyang, 9750 at 1109 w/nx in EE (McDonough, PA).

NORWAY: R. Norway International, 15305 at 1300 in Norwegian (Barberio, OH); 1300 in EE (Sunday-- Ed.) (Hunt, NC).

PAKISTAN: R. Pakistan, 17660 at 1600-1615 w/nx (Barberio, OH).

PAPUA NEW GUINEA: NBC Port Moresby, 4890 at 1000 w/nx in EE (Watts, KY); 1146-1210 in EE w/"Women's Forum," medical symposium & country mx, world nx at 1200, s/off announced for 1400 (Lyster, BC).

PERU: R. Andina, Huayncaya, 4996 at 0412 w/light LA pops (Figliozzi, NY); 4995 at 0327 w/Andean flute mx (Eaton, VA).

R. del Pacifico, Lima, 9675 at 1115 in SS w/mx & talk (Brossell, WI).

R. Atlantida, Iquitos, 4790 at 0215 (Brassell, WI).

PORTUGAL: R. Portugal, in EE at 0035 on 9680 (Brooks, KY); in EE on 9705 at 0307 (Gilbert, CA).

POLAND: R. Polonia, 9525 at 0303 w/nx & mailbag (Eaton, VA).

ROMANIA: R. Bucharest, 9510 at 0200 w/nx & music (Barberio, OH); 9570 at 0400 w/discussion) (Eaton, VA).

SOUTH KOREA: R. Korea, 9570 at 0639 (Needham, CA); 9750 at 1400 (Barberio, OH); 15575 at 1340 in Italian, then nx in EE (Eaton, VA).

SOUTH AFRICA (REP. OF): Radio RSA, 4990 at 0300 in EE (Figliozzi, NY); 6010 at 0212 in EE (Durant, NY); 6015 at 0210 in EE (Hunt, NC); 9615 in EE at 0200 (Barberio, OH); at 0226 (Lyster, BC); at 0245 (Brooks, KY); on 11775 at 2100 in EE (Neff, OH).

SABC, 3955 at 0250 w/mx (Northrup, MI); on 4880 at 0458 (Needham, CA).

R. Five, 4880 s/on at 0400 in Afrikaans, then EE w/US pops (Figliozzi, NY); 0400 w/rock, EE commercials, nx headlines at 0430 (Watts, KY).

R. Oranje, 0410 on 3215 w/pops & Afrikaans (Brossell, WI).

Capital R., Transkei, 3939 at 0400 in EE (Watts, KY).

SPAIN: Spanish Foreign R., 9630 at 0110 w/nx in EE (Guidry, LA); 0140 nx, "Spanish by Radio," off at 0200 (Brooks, KY).

SURINAM: R. Surinam International (via Radiobras, Brazil-- Ed.); 17755 at 1730 in EE (Barberio, OH); 1815 in EE w/nx, off 1830 (Durant, NY).

SYRIA: R. Damascus, 9950 at 2110 in EE; 12085 at 2022 in EE (Neff, OH); 2015 w/nx (Barberio, OH).

TAHITI: R. Tahiti, 11825 at 0315 w/Polynesian mx, YL in Tahitian; 0205 on 15170 in FF playing country/western mx (Hunt, NC).

TAIWAN: V. of Free China, on 11890 at 2210 in EE (Hunt, NC).

THAILAND: R. Thailand, 2300 on 11905 w/classical mx, weak (Stephens, AL).

TOGO: R. Togo, in FF on 5047 at 2230 (Brossell, WI); 0558 in FF w/pop mx, country/western (Eaton, VA).

TUNISIA: RTV Tunisienne, 7225 at 0508 in AA (Eaton, VA); 0530 in AA (Brossell, WI).

TURKEY: V. of Turkey on 7215 at 2226 w/"Letterbag" (Eaton, VA); 9560 at 2200 w/nx in EE (Barberio); 0310 in EE, "Review of Turkish Press" (Gilbert, CA).

UKRANIAN SSR: R. Kiev, 7165 at 2310 w/"Ukraine Today" (Brooks, KY); 7175 at 0220 w/"Ukraine Today" (Eaton, VA); 0200 w/nx, DX pgm (Barberio, OH).

UNIDENTIFIED: 7105 at 0649 w/FF-EE lessons (Needham, CA); 15290 at 0256 w/country mx (McDonough, PA); 3240 from 2200-0039 w/1940's US pops/jazz recordings, continuous w/o any ID's or announcements, abrupt s/off, good level (Kneitel, NY).

UNITED ARAB EMIRATES: UAE Radio, Dubai, 15230 at 1609 in EE, mailbag pgm (Neff, OH); 15300 at 1945 w/mideast mx (McDonough, PA); 17775 at 1335 in EE w/nx (Hunt, NC).

UNITED STATES: R. Marti, 11930 at 1830 in SS, seemed jammed (Linville, ALTA).

KCBI on 11735 at 1920-2000 off w/"In Touch," ID (Neff, OH).

WRNO, 6185 at 0351 w/local ads, ID, mx; 15420 at 1803 w/KDPI Iran-Iraq," "Perspectives" (Neff, OH).

La Voz de la OEA, 11830 at 2345-0030, in SS (Watts, KY); 0012 in SS, EE-ID at 0030 s/off (Eaton, VA).

VOA, 9455 in EE at 0259 (Falco, NJ).

V. of Free China (via WYFR), 5985 at 0318 (Neff, OH); at 0330 (Falco, NJ); on 9680 at 0245 (Northrup, MI).

WYFR on 9550 at 0010 w/ID (Brooks, KY).

USSR: R. Moscow World Service on 7115 at 0304 in EE (Lyster, BC); 9530 at 1943 (Neff, OH); 9600 (via Havana-- Ed.) at 1150 (Falco, NJ).

R. Ufa, 4485 fair level in RR at 1200 (Brossell, WI); Ufa or Petropavlovsk-Kamchatsky 1154-1205, in RR, anthem at 1200 (Lyster, BC). Think the latter site is more likely-- Ed.

VATICAN: Vatican R., 9645 at 2004 in EE (Neff, OH); 11740 at 1345 in EE (Hunt, NC); 15120 at 1345-1600 in EE (Barberio, OH).

VENEZUELA: R. Nacional, 11695 at 0000 s/on, good sigs w/cultural & mx pgms, many ID's, all SS (Stephens, AL).

VIETNAM: V. of Vietnam, 10040 at 2030 in EE (Hunt, NC).

Cao Bang regional outlet (tentative) in Vietnamese at 1250 on 6510 (Needham, CA).

WEST GERMANY: Deutsche Welle, 6100 at 0049 in GG, QRM from YVTO in Venezuela (Lyster, BC); 6125 at 0509 (Needham, CA); 9545 at 0127 in EE (Falco, NJ).

YEMEN, PEOPLES' DEM. REP.: Aden on 11770 at 1945 to past 2000 w/AA talks (Brossell, WI).

YOUGOSLAVIA: R. Yugoslavia, 7240 at 2115 in EE w/European nx, local wx (Hunt, NC).

PC

COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

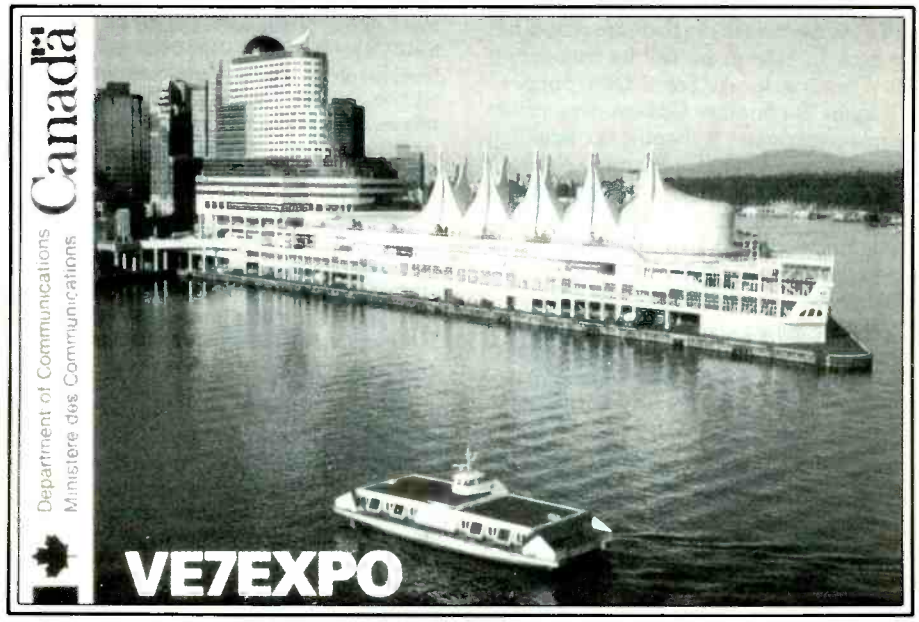
The mailbag always brings interesting correspondence from readers. Since it is only fair to print the bad as well as the good, here is a card from an unidentified Jacksonville, FL reader:

> Sometimes the ignorance of editors defies comprehension. I refer to your 'mystery RR' beacons in the BCB. Another editor reported this 'mystery' a while back and someone (not I) set him straight. Ask your BCB DX'ing friends about a Cuban network called Radio Reloj, which probably appears on a dozen or more clear freqs every night. No great mystery, and no great logging.
>
> I shouldn't be so hard on you. After all, you *are* a ute expert and not a BCB DX'er, so you might not have been aware of what that reporter was describing. That other previous editor had no excuse, though . . . he claims to be an avid BCB DX'er!! Ah, well . . . I've never found the average mentality of those BCB types to be very high.

In trying to identify the "RR" transmission, I did check all of my beacon (as it had been described to me) reference sources and found nothing. I must admit that I didn't think of Radio Reloj, although I have heard those signals at times in the past. I guess I must turn in my genuine 24-karat gold-plated "expert" badge, along with the sword, the hat, and the secret handshake. Too bad the Jacksonville guy didn't sign his name or address because there are probably some BCB DX'ers who would like to drop him—I mean drop him a line! I may not be an expert, but when I say dumb, at least my name is signed to my thoughts, which is more than this correspondent was willing (or possibly able) to do. If all of us were as smart and smug as this guy, our hobby would be a pretty sorry thing, wouldn't it?

On the positive side, the "RR" matter brought in an extremely informative letter from Mark Cooper, WN3CDW, in Pennsylvania. Mark's comments about Radio Reloj were:

> I am writing in regard to an inquiry that appeared in your column in the October 1986 issue from reader Clarke Durham of Kentucky. Mr. Durham mentioned hearing a strange signal on 790 kHz which consisted of clock-like pulses with one second intervals and a tone every sixty seconds followed by "RR" in CW within two to eight seconds of the tone. I am writing to inform you, as well as Mr. Durham, that I, too, have monitored this format, however on 570 kHz as did reader Mr. Gary Vendetti of New Jersey. The mystery signal is "Radio Reloj," the official time standard of Cuba, operated by "Instituto Cubano de Radio y Television" or "Cuban Institute of Radio and Television." Translated from Spanish, "Reloj" means "Clock" or "Radio Clock" hence the ticking sounds or "pips" marking the seconds of the sixty-second clock sweep and the tone on the minute followed by the identifier "RR" for "Radio Reloj."
>
> To the best of my knowledge this station which operates on 570 kHz has an output power of 60 kW. As to Mr. Durham's logging on 790 kHz of the "RR" beacon it may well be that this time standard of Cuba also has other mediumwave outlets, one of which was logged by Mr. Durham. I have also monitored several other Cuban broadcasters in the same time frame (always after 0000 hours UTC) as "Radio Reloj" but all below 700 kHz. One interesting Cuban station that stands out above the others is "Radio Rebelde" on 670 kHz, located in Arroyo Arenas, Cuba and operates with a power of 50 kW and follows a format similar to a United States AM commercial radio station with news/info/music in Spanish.
>
> I am an avid fan of *POP'COMM* and an active Amateur Radio operator as well as SWL and have been active in some form of SWL'ing or Ham radio for the past 25 years; I am now 31. Thank you very much for your time and very interesting column. I hope this information will be of help to you and your readers.



Attractive QSL card from the Vancouver BC EXPO. Sent in by Glen Tate, New Westminster, Canada.

The country of Spain was heard from with Irvin K. Hohenstein asking several questions. Irvin heard two low frequency beacons and wondered where they were located. One was RMA on 330 kHz and the other was GM on 350 kHz. Both of these beacons are shown as being located in Malaga, Spain. Next, he couldn't identify a station operating on 17240 kHz and I am sorry but I can't either, based on the information provided. However, the station on 8770 kHz on USB might be EHY Pozuelo del Rey, Spain with an assigned frequency of 8771.6 kHz. EHY may possibly have been working GKU49 Portishead, England on 8774.7 kHz.

Hugh Hawkins, TX had a problem with the readout of station NMN USCG Portsmouth, VA on 12719 kHz. It appears that in both cases the station had a defective tape and this was causing the faulty printout. Hugh advised that he reported ZLZ, Wellington Meteo, NZ which he monitored on 7600 kHz but the QSL card and letter he received indicated the station was ZLX-22. Klingenfuss (Edition 4) shows ZLZ-22 for that frequency. Lastly, Hugh wanted QSL addresses for two stations. HKB is Barranquilla Radio, Empresa Nacional de Telecommunicaciones, Barranquilla, Colombia. I am sorry but I do not hold the address for HPP Panama.

Patrick O'Connor has furnished a "generic" address for any British Royal Navy ship:

The Captain
HMS_____
BFPO Ships
London, England

Pat speculates that the U.S. Navy alphanumeric tactical identifiers are assigned with number/letter/letter being the shore units

and letter/number/letter designators being ships. Does anyone else have any thoughts? Let's hear from our readers on this.

A nice note was received from Tom Borawski, PA who said, in part, "In the September issue of *POP'COMM* you printed the very professional-looking logging formats of Deanna Kratzner and Vernon Jackson. I felt that while my hand written 3″ × 5″ scraps don't measure-up to the above, at least you gained some knowledge of Sanskrit." He went on to say that with school being back in session he will be monitoring less. Tom is an ex-Air Force 'Ditty Bopper.'

It looks like another Government versus People controversy is shaping up regarding the Ground Wave Emergency Network (GWEN) with its planned installation of 126 towers at locations throughout the U.S. David E. Doughty, NY supplied some comments plus two newspaper clippings on this subject. Here is what David had to say:

> I have enclosed a copy of a newspaper clipping containing some interesting information about the Government's new 'Ground Wave Emergency Network.' This is the first information we in this area have found out about 'What is really going on in Remsen.' A second article, also published in the 28 August 1986 edition of the *Utica Daily Press* speaks of more far reaching ramifications of this project.
>
> I am the Chief Engineer of radio station WADR, Remsen, NY whose AM/FM transmitter site is directly across the street from the 'quiet Remsen horse farm' which is being transformed by a massive tower building project for the GWEN system. I have watched this installation being constructed from the beginning.
>
> Several months ago, someone representing himself as a contractor for the telephone company contacted WADR to tell us that a new longwave telephone communications link was being planned. He asked if we thought a 300-foot tower located about 1000 feet from our facility would cause any 'problems.' He indicated that their frequency would be about 300 kHz and would operate at relatively high power. We said that we *did* anticipate some interaction between the two installations. When we started questioning him further, he said he had another call and said he'd get back to us. He never did and construction began. We then started hearing rumors that this was to be a government installation. They are trying to keep it all very secret. Work is being done by people dressed in ordinary clothes, driving unmarked vehicles. None of the workers will say anything.

The last item from the mailbag for this month was from David in Bush, OH. David supplied the rundown on 23 loggings of numbers broadcasts of various types, indicating that in one 24-hour period he intercepted a total of 8 numbers transmissions. His results are consolidated and shown in Table 1.

Table 1

Freq	Lang/Opr	Traffic	Time
4045	SS/OM	5F	0207
4670	SS/YL	4F	0205,0308
4783	SS/YL	5F	0309
4787	SS/OM	5F	1106
5015	GG/YL	5F	0007
5083	SS/YL	4F	1004
5812	SS/YL	4F	0319
6270	SS/OM	5F	0900
*6723	SS/YL	5F	0300
6801	SS/YL	4F	0009
6802	SS/YL	4F	0130
6840	SS/YL	4F	0230,0330
6875	EE/YL	3/2F	0235
%6998	EE/OM	5F	0302
7376	EE/OM	5F	0206
7527	SS/OM	5F	0204
#8111	SS/YL	5F	0336
8872	SS/OM	5F	1002
10345	SS/OM	5F	1031
12236	SS/YL	5F	1333

* Two frequencies used. 6723 & 6710. At 0311 moved to 6728 & 6708.
% This OM sounds same as one who does German numbers broadcast.
\# At 0340,8111 moved to 8103 & second frequency was 8095.
All broadcasts were AM.

Many thanks David for his interesting report. Now let's take a look at the intercepted frequencies for this month.

EMPRESA PÚBLICA DE TELECOMUNICAÇÕES

Patrick O'Connor — Luanda, 25.06.86

UNITED STATES OF AMERICA

Dear Sir,

we have great pleasure to reply your report-letter dated 14 August 1986, concerned at Morse broadcasting from Luandaradio/D3E Coast Station, on a frequency of 12780 KHZ CW at 2224 UTC.

This is (QSL) confirmation of your very correct reception.

Thanks very much for your information. Please anote our correct address:

ESTAÇAO COSTEIRA LUANDARADIO/D3E
EMPRESA PUBLICA DE TELECOMUNICAÇOES
CAIXA POSTAL, 625 - LUANDA
REPUBLICA POPULAR DE ANGOLA (R.P.A.)

Best regards (73's) and many thanks from

EPTEL

QSL received by Patrick O'Connor, NH.

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/ied/ication
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	with
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

Intercepts
(All Times Are UTC)

244: HDS beacon, Brainard Field, Hartford, CT at 1952 (Pat O'Connor, NH).
257: LKA beacon, Mira Loma/Swan Lake, Chino, CA at 1318 (Szalony, CA).
276: YHR beacan, Cheverey, PQ, Canada at 0335 (O'Connar, NH).
278: BST beacon, Belfast, ME at 0338 (O'Connor, NH).
292: TG beacon, Pointe des Monts, PQ, Canada at 0157 (O'Connor, NH).
332: IGD beacon, LA International Airport, Inglewood, CA at 1315 (Szalony, CA).
340: BQG beacon, Woodbridge, VA at 0332 (O'Connor, NH).
341: YYU beacon, Kapuskasing, Ont., Canada at 0330 (O'Connor, NH).
359: EMT beacon, El Monte, CA at 1405 (Szalony, CA).
360: KIN beacan, Kingston, Jamaica at 0356 (O'Connor, NH).
436: WCC, Chatham, MA coastal station in CW at 0256 w/tfc list (O'Connor, NH).
438: CFH, Canadian Military, Halifax, NS, Canada w/CW VVV-marker at 0339 (O'Connar, NH).
500: CLA, Havana, Cuba in CW calling CQ at 0225 (O'Connor, NH).
2385: 5BPGX, passible Spanish Navy unit, in CW at 0300 calling 57UOP (Tom Kneitel, NY).

2390: HOOG, cruise ship DOLPHIN IV in USB at 0235 to WOM w/phone patch (Symington, OH).

2716: CCS, Santiago, Chile w/CW call marker at 0000 (Kneitel, NY).

2812.2: GYA, Royal Navy, London, England at 0008 w/CW call marker (Kneitel, NY).

2899: Cubana 477 (airliner) in USB at 2251 to Gander (Kneitel, NY).

3205: R4E (net control) in USB from 0000 to 0017 with stations A5W, V6G, D7E, N7A, S4F, A4G, P4G, W0Q, X9G, Z8Y-- mixed OM & YL ops. Exchanging authentications, weather data, signal reports. Sounded like a bunch of civilians engaged in a drill trying to learn mil communications procedures-- having a difficult time of it all. At 0017 they switched to unknown alternate freq (Kneitel, NY).

3963: WD0ELL (net cantral), Missouri Operations & Emergency Net, in LSB at 1800 (Anonymous, MO).

4030: Central Area Army MARS Training Officers Net (every Sunday 8 PM local time) in USB. MARS Command Net follows an same freq an hour later (Anonymous, MO).

4030.3: P beacon, presumed Soviet, in CW at 0200 (Anonymous, MO).

4125: SS/YL w/5F groups in AM mode at 0235 (Bob Margolis, IL).

4285: XFU, Vera Cruz, Mexico calling CQ in CW at 0203 (Ross, Ontario).

4310: MTI, Royal Navy, Plymouth, England w/CW VVV-marker at 2257 (Kneitel, NY).

4369.8: WLC, Rogers City, MI in USB at 0145 w/Great Lakes wx bc (Homer, PA).

4394.6: LPL33, General Pacheco, Argentina in USB at 1000 w/SS/YL voice marker (Margolis, IL).

4525: Y3S, Nauen, GDR, w/time pips (CW) at 2316 (Kneitel, NY).

4541: 5L groups in CW at 1110 (Kneitel, NY).

4367.5: KNCN829, oil rig Triton 3 (Gulf of Mexico) calling rig Triton 4 (Rass, Ontaria). My records shaw callsign authorized on 4438, 6763 & 7300 kHz so this may be a new freq-- Ed.

4722: MVU, West Drayton, England in USB w/aero wx at 0130 (Ross, Ontario).

5343: "Foxtrot Tango" (net control) to 6CU & 0GT, in USB at 0105. Talk of "alligators" & "bluebirds," lots of coded terminology, very official sounding. Noted at 0105 (Kneitel, NY).

5390: CGD206, Alma, PQ, Canada, FF/YL in USB at 0332 to other stations in net (Ross, Ontario). This net noted at 2146 running phone patches (Kneitel, NY).

5437 +1 kHz: Several different SS nets in USB around 0120, ID's only w/operator names (i.e. "Sebastian"), very lively & informal. Similar noted on 5745 kHz (Kneitel, NY).

5649: German Air Force 292 at 0133 in USB to Gander (Kneitel, NY).

5680: M5P(?) calling X0S(?) in USB at 0039. This is an international search/rescue freq (Anonymous, MO).

5692: GG/YL with 3/2F groups, AM mode at 2128 (Kneitel, NY).

5718: Rescue 801 working Edmonton & Vancouver mil commstas, in flight pattern above light plane crash in northern Alberta w/casualty data & airlift plans. Also part of this operation was rescue helo Chaker 140. Edmonton RCC was coordinating the rescue (Hall, WA). Time not given-- Ed.

5922: X beacon, in CW at 0140 (Ross, Ontaria).

5960: Interesting warbling bc-jammer w/o any ID here around 2253. Presumed to be jamming V. of Islamic Republic in Iran (Kneitel, NY).

6218.6: KLO(?) in USB at 1300 working tugs CITATION & DR. BROWN w/fuel & position reports (Goubeaud, TN). Since KLO is a bc station in Oregon, the presumption is that the station listed here didn't bother to use the 3 digits in its callsign-- Ed.

6411: SVF, Athens, Greece, w/CW callsign marker at 2311 (Kneitel, NY).

6469.5: JCY (Japan allocation) in CW at 1245 w/"QSY 6 MHZ" (Szalany, CA).

6506: Port Smith commsta in USB at 0532 w/high seas WX (Needham, CA).

6509: KVJ, NOAA Pacific Marine Center, Seattle, WA to WTEA, NOAA ship DISCOVERER w/routine tfc in USB at 1610 (Hall, WA).

6640: Aircraft "NC203" to New York Flight Control for phone patch, USB at 0232 (D. Symington, OH).

6723: Gold Eagle to Raspberry Miramar (Miramar NAS, CA) in USB at 0157. Stated a flight of four F-3's should have landed & may have changed callsigns (Homer, PA). This is an active USN aero freq in the evenings-- Ed.

6753.5: Trenton Military, Canada, w/wx bc in USB at 0624 (Needham, CA).

6761: Un-ID SAC aircraft w/patch via ground station at 0433 in USB asking for info about what to do about an engine that had flamed out & couldn't be restarted (Anonymous, MO).

6772: SS/YL w/5F groups in AM-mode at 0615 (Hall, WA).

6780: Hotel 75 & Bravo 88 in "Charlie Charlie" net, USB at 0618. Active USN intership net of a personal sort. Hotel 75 advises he is on a ship w/7000 guys (carrier?) & can't locate Charlie Oscar 526 (Hall, WA).

6800: SS/YL in AM-mode w/4F groups, //6837 at 0240 in USB (Hall, WA). Kneitel, NY, reports this at 0211 but gives freq as 6802 kHz.

6840: Un-ID station in CW at 0339 sending cut #'s TT4T DDDV DTAA UNE6. May have been MCW (A2) made; funny sounding . Machine sent (Hall, WA). Cut number system probably has the #'s 1 to 0 as: A U V 4 E 6 B D N T-- Ed.

6915: "555 52T" (the final T is a cut 0), CW repeating tape w/each group sent X3 at 0214 (Kneitel, NY).

6975: DFF97, Frankfurt, FRG, Deutsche Welle bc feeder in USB at 2157 (Kneitel, NY).

7302: IDR3, Italian Navy, Rome, Italy in CW w/VVV-marker, buried deep beneath Radio Moscaw's signal as well as another SWBC station (passibly Tirana). Noted at 0222 (Kneitel, NY).

7478: VOA Africa Service bc feeder, LSB at 2025. Anybady know from where? (Kneitel, NY).

7525: Un-ID station sending VVV & OM OM Z D5DP AUHGA UHG BT. Mare repeats then inta short crypto text & frantic SFSFSF then off the air (Hall, WA). Time not given-- Ed.

7570: RJS sending lengthy crypta msg followed by ROD DE RJS w/long series of V's in CW at 1611, faded by 1620. Probably Soviet naval tfc (Hall, WA).

7625: ZLX, NavRad, Wellington, New Zealand in CW at 0700 w/ZLX ZOR ZEN followed by 5F groups (Hall, WA). ZOR= "Transmit only reversals," ZEN= "This message is classified"-- Ed.

7894: One side of a Russian language telephone conversation, USB at 2215 (Kneitel, NY).

8101: Doarbell to Smuggler w/sig check in USB at 1714. Also noted on 11118 kHz (their primary freq) a few minutes later (Homer, PA). These are US mil-- Ed.

8159: 5L groups in CW at 1137 (Kneitel, NY).

8188.7: TBO/2 (Turkey allocation) in CW at 2215 repeating TBO/2 IZ (each graup X3) (Kneitel, NY).

8207.4: 3ESQ2, tanker OHIO in USB at 1440 to WOM w/phone patch. Also heard here to WOM were: WRA8106, the CECIL H. GREEN at 2358; WPGL, the Barge Penrod 71 at 2300; & KEHJ, tanker WESTERN SUN at 0115. KEHJ reported it had just been accidentally hit with a missile from a USN F-14 fighter. QSL received in only 10 days + a letter from the Radio Officer (Symington, OH). He probably written sooner but he was saying his prayers-- Ed.

8250.8: HMS YORK heard in USB at 2018 to GKU49, Portishead (O'Connor, NH).

8254.4: SVG, Athens, Greece in CW at 0113 w/call marker (Jackson, OK).

8465: NMN, USCG commsta Portsmouth, VA in CW at 1355 w/wx bc (Jackson, OK).

8469: CUL, Lisban, Portugal, in CW at 0207 w/CQ tape (Jackson, OK).

8470: ZRH, So. African Navy, Capetown, RSA in CW at 0212 w/marker asking for replies in 4, 6, 8, 12 MHz bands (Jackson, OK).

8475.4: FUX, French Navy, LePort, Reunion in CW at 2355 w/VVV tape (Jackson, OK).

8478.2: TIM, Limon, Costa Rica in CW at 2200 calling CQ (Jackson, OK).

8625: NOJ, USCG commsta in Kodiak, AK calling CQ in CW at 0400, weak sigs (Hall, WA).

8695: FJP8, Noumea, New Caledonia, in CW at 0542 w/CQ call tape (Hall, WA).

8722: WOM, Miami, FL with wx bc in USB at 1230-1233; s/off w/"Off, clear & partying!!" (Kneitel, NY).

8740: EE/YL in AM-mode sending 3/2F groups at 2218 (Kneitel, NY).

8992: FUV, Djibouti Naval R. in CW w/VVV at 0203 (Ross, Ontario).

9014: Whales 59 calling Scott AFB in USB at 1557 asking for patch to Little Rock Command Post (Anonymous, MO).

9023: Brewmaster heard calling other stations in USB at 1532 (Anonymous, MO).

9996: RWM, Moscow, USSR w/CW time pips at 1743 (Kneitel, NY).

10000: MSF, Teddington, Middlesex, England w/time sigs, CW ID's, at 2319 (O'Connor, NH).

10425: EE/OM in duplex LSB at 0132 w/talk re "picking up temale hitchers" & the poor condition of "Wally's radio." Seemed mobile. ID's were 599 & 465. Outbanders? (Hall, WA).

10682: RAT DE UNCQ (USSR allocations) in CW at 0345 (Hall, WA).

11182: Navy Sierra Gulf 04 calling Mainsail in USB at 1837. Enroute Moffett NAS, CA but wanted a patch to Scott AFB (Homer, PA).

11233: Focus Alfa in USB at 2000 working Duty Office via Edmonton (Canadian) Military for 12-character crypto msg. (Hall, WA).

11246: Camp LeJeune USMC Base asking MaDill AFB for a phone patch in USB at 1723 (Homer, PA). More than likely, a USMC aircraft asking for that 'phone patch-- Ed.

11601: Extensive & un-ID alphanumeric text sent at machine speed by (possibly) 2 to 3 stations, each with a different cipher system, but all in groups of 5. No callsigns (Hall, WA). No time stated-- Ed.

11604.2: Un-ID CW station at 0340 sending cut #'s TETT EVT4 DEVD NANB UTD6. Heard these graups repeated (no ID) for 10 minutes (Anonymous, MO). Nate similarity to 6840 kHz logging; looks like same cut # system-- Ed.

12300: Very loud/strong massive twittering sweep jammer at 2344 blacking out 12295 to 12305 kHz. Really a powerhouse! (Hall, WA).

12330: KGWT, Research Vessel THOMAS THOMPSON, off Guadalajara (Mexico), to KMI in USB at 2347 (Hall, WA).

12392: IBKL, Italian-flag vehicle carrier ITALICA to Rome in USB at 1658 (Margolis, IL). Here comes another shipment of Ferraris, Lamborghinis, Alfa Romeos, Lancias-- Ed.

12429.2: Heard in USB: WHW248 in Houston to BULLFIGHTER at 1826; KHRH, SEALAND DEVELOPER (a freighter) to WRF at 1830; WGWF, freighter SEA LAND INNOVATOR to KSW at 1834; WZJG, freighter AMERICAN ASTRONAUT to KSW at 1856; WB3871, passenger ship TONGA to WKC at 1908; KXC713 of Woods Hole Oceanographic Institution in MA to NOAA ship OCEANUS at 2030 (Margolis, IL).

12553: H9MC, Panamanian dry-carga ship OCEAN PINE in CW at 1945 to VCS (Margolis, IL).

12654.2: A8WX, Liberian vehicle carrier SOUTHERN CROSS w/Telexes to un-ID station at 1848 (Margolis, IL).

12670: Un-ID station sending DE G918 GLOS918 GLOS918 repeated often in CW at 1700 followed by calls to faint unknown station (Hall, WA).

12716.9: ZLO, Royal New Zealand Navy, Irirangi, New Zealand in CW at 0338 w/call marker (Jackson, OK).

12862: NRV1, Guam, in CW at 0100 w/lengthy taped callup (Hall, WA).

13037.3: KLC, Galveston, TX in CW w/marker at 1330 (Szalony, CA).

13089: UAT, Moscow, USSR in CW at 1217 w/callsign marker. Also noted here simultaneously with UAT was another marker giving the callsign SPB (Kneitel, NY).

13201: Elmendorf AFB, AK w/coded tfc in USB at 2333 (Homer, PA).

13244: CUW2, Lajes Field, Azores in USB at 1900 w/wx bc, EE/YL (Kneitel, NY).

13373: CLP5, Cuban Embassy, Algiers to CLP1, the MFA in Havana. Also heard CLP1 on 13940 to CLP4, Guinea Bissau (Hall, WA). No times given-- Ed.

13965: Ham-type net in Italian language, USB at 1233. ID's were operator names such as Gian Carlo, Aldo, etc. (Kneitel, NY).

14410: SS/OM calling "Rambo Rambo Rambo" in USB at 1251 (Margolis, IL). This is smuggler territory-- Ed.

14416: Un-ID CW station w/5F groups at 1518 w/the zero cut as letter T. Each group sent twice & different groups separated with an "R" (Margolis, IL).

14470: NNN0CVI, U6N MARS station aboard USS HARLAN COUNTY (LST-1196) in USB at 2345 to stateside MARS for phone patches (Symington, OH).

15015: MAC 60149 asking Scott AFB in USB at 1530 for phone patch to Altus Command Post. Calling from the ground at Eglin AFB, FL (Homer, PA).

15705: U beacon, in CW at 1322 (Kneitel, NY).

15737: Un-ID CW station at 1447 w/EE police bulletins. INTERPOL freq but specific station not determined (Margolis, IL).

15858: DMK (unknown location) in CW at 2250 w/VVVV marker (Kneitel, NY).

16450: WSBR, USS(?) SAN DIEGO in USB at 1637 to WHD576, Medical Advisory Service, Owings, MD (Margolis, MD).

16916.4: WSC, Global Marine Communications, West Creek, NJ in CW at 1855 w/CQ marker (Jackson, OK).

16984: PPR, Rio de Janiero, Brazil in CW at 2007 w/VVV marker (Jackson, OK).

17083.9: IQX, Trieste, Italy, in CW at 2024 w/VVV marker (Ross, Ontario).

17176: VAI, Canadian CG, Vancouver, BC w/wx in EE, CW at 0220 (Margolis, IL).

17190.5: LSA, Boca, Argentina in CW at 2047 w/call marker followed by SS press at 2048, tfc list at 2105 (Jackson, OK).

17940.1: Flying Tiger 051 to Houston, USB at 1529 (Anonymous, MO).

26985: Un-ID aircraft in AM-mode at 0142 to CB ground stations (Channel 3) (Anonymous, MO).

PC

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

Steven Jones of New York State, who began contributing this month, wrote recently asking for information a beginner could use to tune RTTY stations more easily. He stated in his letter that he was "just getting the ear for (RTTY) shifts."

I have been thinking of addressing this issue for a long time because it was not too long ago that I suffered the same plight and had no one to teach me how to tune in a RTTY station, let alone know what to listen for. I became proficient at RTTY tuning by intensely training myself, day and night. I chose not to use the "two flickering lights" system, nor even buy an oscilloscope as an aid, opting to learn RTTY tuning the hard way—by training my ears.

Once you become proficient at RTTY monitoring through ear training, you'll know at an instant not only the shift of the RTTY signal, but how fast its speed. Furthermore, your ear will soon differentiate between signals that are encrypted and those that give you clear text. There are also audible differences between the various encryption systems being used. Some seem to be endless with no pauses in the signal like "normal" RTTY stations have; others have a "hiccup" type of sound with rather jagged starts and stops. And there are other variations. It takes my ear only a few seconds to recognize an encrypted signal, which relieves me of the burden of trying to tune in the station. I can immediately go on to seek the "normal" output stations without frustrating myself in trying to tune in what I know I can't get.

I don't claim that this method works best for everyone but, for me, I find none better. Maybe you readers will write to me to relate your "easy" method of tuning in a RTTY station and we'll share your letters here.

Time to settle back and view the goings-on in the exciting world of RTTY monitoring.

RTTY Loggings
(All Times Are UTC)

2070.5: Tfc from Great Lakes ships in ARQ at 0915 at 0915 (Fred Hetherington, FL).

2716: Un-ID ARQ idling at 0000 (Tom Kneitel, NY)

2788//4279: 58JDQ, Spanish Naval R., Madrid, Spain (ex-72KJL?), calling 56UAZ at 0110, 850/100R Also noted on 12932.5 at 1438 (Kneitel, NY)

2805: CCS, Chilean Navy, Santiago, Chile w/5L tfc at 0438. 850/100 (Jim Hartung, MD).

2808: RETJ, Spanish Naval R., Mudrid, Spain at 0330 w/foxes, RYRY & counting tape, 850/100R (Kneitel, NY).

4005.2: LRO2, TELAM Buenos Aires, Argentina, w/nx in SS at 0935, 795/66R (Hetherington, FL); same at 0035 (Kneitel, NY).

4150:, GYA, Royal Navy, London, England, at 0343 w/encrypted tfc, 170/100R (Kneitel, NY).

4271: CFH, Canadian Forces, Halifax, NS w/coded & plaintext wx, 0126-0217, 850/100N (Jerry Brumm, IL). Happy to have Jerry back after 3-month absence while his rig was being repaired. Jerry's now using a 'scope for tuning in RTTY & reports excellent results-- Ed.

4497: Warsaw Meteo, Poland, wx at 0025, 425/66R (Hetherington, FL).

Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Correction mode
FF	French
foxes	"Quick brown fox..." test tape
GG	German
ID	Identification/ied
MFA	Ministry of Foreign Affairs
nx	news
PP	Portuguese
RYRY	"RYRY..." test tape
SS	Spanish
tfc	traffic
w/	with
wx	weather

4549.5: LRO9, DyN Buenos Aires, Argentina, nx in SS at 2309, 850/100R (Kneitel, NY).

4582: DDK2, Hamburg Meteo, FRG, w/coded wx at 0031, 425/66R (Kneitel, NY).

4607: "51DEL 2/4 WW RS 22 RS" +RYRY/SGSG repeating tape at 0146, 850/100R Possibly Spanish Navy unit (Kneitel, NY).

4813: 5L groups, 0158, 425/66N (Kneitel, NY).

4818: FIT37, Tours Prefecture (police), France, w/tfc in ARQ at 0125 (Hetherington, FL).

4863.5: KRH51, US Embassy, London, England w/faxes at 0342, 850/100R (Kneitel, NY).

4980: Un-ID ARQ idling at 2156 (Kneitel, NY).

5104: FSB, INTERPOL, Paris, France, ARQ idling at 2158 (Kneitel, NY).

5117: TYE, Benin allocation, testing w/RYRY at 0348, 425/66N (Kneitel, NY).

5140: RWW73, Moscow Meteo, USSR, coded wx bc at 2200, 1000/66N (Kneitel, NY).

5145: Paris Police, France, idling ARQ signal at 2225; also logged w/same on 4515 kHz at 0335 (Kneitel, NY).

5195: ADN nx in EE from a GDR station, 2203, 425/66N (Kneitel, NY).

5332: GC-11 tactical identifier with mil format 5L tfc at 0115, 850/100N (Kneitel, NY).

5442.5: 7OC, Khormaksar Aero, PDR of Yemen w/RYRY at 0320, 425/66R (Tom Brailey, MI).

5455: Sofia Metea, Bulgaria w/RYRY at 0002, 425/66R (Brumm, IL).

5472.5: Un-ID RYRY tape at 0411, 425/66R (Hartung, MD). RTTY stations in Czechoslovakia, China, Morocco & Azores are near this freq. Could be any except China because of the hour of reception-- Ed.

5816: ARQ station idling & sometimes sending strings of "FTFTFT..." around 2236 (Kneitel, NY).

5887.5: Rome Meteo, Italy w/wx bc at 0429, 850/66 (Hartung, MD).

6263: 3EQN, Carnival Cruise Lines' MARDI GRAS w/Telexes & asking for AP nx xmsn at 1202, ARQ mode (Kneitel, NY).

6338: Canadian Forces, Halifax, NS w/wx bc at 0444, 850/100R (Hartung, MD). GYR, Royal Navy, London w/foxes at 2212, 850/100R (Kneitel, NY).

6401: 52FHI calling 55RTX at 0205, 850/100 (Carol Kirk, CT). Yes, Carol, I did introduce you several months ago as a YL contributor to our column, but somehow that line of type got eaten by the POP'comm gremlin. Anyway, folks, Carol is one of our two YL contributors (Alice Brannigan is the other). Carol is a Ham radio op. Her 6401 kHz lagging looks like another of those Spanish Naval units-- Ed.

6795: Sofia Meteo, Bulgaria calling CQ at 0005, 425/66N (Peter, England).

6829: ZAD2, PTT Tirana, Albania in contact w/another station, 66 wpm at 1323 (US Army M/Sgt David Freed, FRG).

6848: PAP Warsaw, Polond w/RYRY tape at 1840, 66 wpm (Ary Boender, Netherlands).

6896//6954: Un-ID station w/faxes, RYRY & 1-0 count at 1155, 425/60R (Kneitel, NY).

6903: Too bad QRM interferes w/getting good copy from INTERPOL here at 1814 (Peter, England).

6908: YOG29, PTT Bucharest, Romania w/test tape at 1328, 425/66N (Peter, England).

6942.5: USIA, Kavalla, Greece, nx in EE at 2238, <425/100R (Kneitel, NY).

6987: 5L groups, 425/66R at 2240 (Kneitel, NY).

6990: Y2V4, ADN Berlin, GDR nx in SS at 2248, 425/66R (Kneitel, NY).

6999: CSY, Santa Maria, Azores w/RYRY at 0705, 425/66R (Magliano, Tahiti).

7307: ADN, Berlin, GDR w/nx in FF at 1800-1958 (Hetherington, FL). Is this 425/66N?-- Ed.

7358: ZRH, Cape Navrad, Fisantekraal, RSA w/AMVER's collected from several ships to NMN at 0030, 850/100R (Brailey, MI).

7442: VOA nx in EE from Monravia, Liberia, 425/100R at 2330 (Michael Walker, TX).

7443: NKW, USN at Diego Garcia, British Indion Ocean Territory w/coded wx to Meteo Mautitius at 0042, 750/66N (Dallas Williams, CO). Nice catch!-- Ed.

7478: VOA nx bc from Monravia, Liberia at 2341, 425/100R (Hartung, MD).

7512: Pretoria Metea, RSA w/wx data at 2345, 425/100R (Hartung, MD).

7550: XINHUA Beijing, China w/nx in EE, 66 wpm at 1923 (Freed, FRG).

7640: Wx data from somewhere in USSR at 1447, 66 wpm at 1550 (Freed, FRG). This is Minsk-- Ed.)

7646: Hamburg Meteo, FRG w/wx at 1550, 66 wpm (Freed, FRG).

7658: TANJUG Belgrade, Yugoslavia w/nx in EE at 1527, 66 wpm (Freed, FRG).

7819: 5NK, Kano Aeradio, Nigeria, w/RYRY test tape at 2245, 600/66N (Kneitel, NY).

7850: ATA Tirano, Albania, w/nx in FF at 1900, 66 wpm (Boender, Netherlands).

7892: Tfc in Polish(?), ARQ at 2220 (Kneitel, NY).

7954.5: LRN85, DyN Buenos Aires, Argentina w/nx in SS at 0211, 800/100R (Guy Atkins, WA).

7996: Un-ID station w/nx in EE at 1720, 66 wpm (Paul Spurlock, Saudi Arabia). Welcome to the fold, Paul! Paul's an American-- Ham ticket WA4FHY -- working in Saudi Arabia. He's this column's first Middle East contributor. His logging is TANJUG in Belgrade, Yugoslavia-- Ed.

8010: 5UA, ASECNA Naimey, Niger w/wx at 2330, 66 wpm (Hetherington, FL).

8045: GMP, INTERPOL West Wickham, England running "IPUK" marker, ARQ at 2000 (Kneitel, NY).

8094: "Air Orleans" (FDY), French AF, in ARQ at 2155. Frequent mentions of Le Bourget. (Kneitel, NY).

8122.8: TNL, ASECNA, Brazzaville, Congo, w/RYRY test at 2322, 850/66N (Kneitel, NY).

8165: 5YD, Nairobi Aeradio, Kenya, w/RYRY tape at 2325, 170/66N (Kneitel, NY).

8356: J8DQ, an RSA bulk carrier, VENTURE to ZSC w/Telexes, ARQ at 0021 (Editor).

8457: WTEW, NOAA vessel WHITING to NMA at 1219, 170/100R. Also NMA, USCG Miami, FL w/plaintext wx bc at 1215, 170/100R (Kneitel, NY).

9114: HGG31, MTI Budapest, Hungary w/nx in EE at 1730, 425/66N (Kneitel, NY).

9225: AP/UPI nx via AFRTS to the USN, was 170/100N at 0920 (Hetherington, FL).

9252.2: ELRB, Roberts Field Aeradio, Monrovia, Liberia w/RYRY at 0252, 425/66R. Also noted on 5393.5 kHz (Kneitel, NY).

9315.5: Un-ID station w/RYRY DE LGAT at 2047, 850/66R (Brailey, MI). That would be Athens Aero, Greece-- Ed.

9846: TUH, ASECNA Abidjan, Ivory Coast w/test tape at 0158, 425/66N (Kneitel, NY).

9909: S7Z, Victoria R., Mahe, Seychelles, tests w/faxes to Mauritius at 1220, 380/66N (Hetherington, FL).

10137: Brazzaville Meteo, Conga, w/RYRY at 0350, 425/66N (Jim Navary, VA).

10168: NMC, USCG San Francisca, CA working NAAO, USCGC GLACIER (icebreaker) at 0415, 170/100R (Williams, CO).

10200: JAE50, KYODO Tokya, Japan w/nx in EE until 0953, 850/66R (Hetherington, FL).

10217.5: PTT Havana, w/faxes test to ITT New York City, 170/66N (George Heraghty, NY). Time not specified-- Ed.

10295: Unknown INTERPOL station running "IPUM" marker, ARQ at 2255 (Kneitel, NY).

10325: "GKR2" running RYRY followed by encrypted (mixed groups) text, 425/60N at 1215-1225 (Kneitel, NY).

10464: Y7A45, MFA Berlin, GDR w/RYRY test at 1752, 425/66N (Kneitel, NY).

10524.5: HMM41, KCNA Pyongyang, N. Korea, w/nx in FF at 1240, 425/66N (Kneitel, NY).

10796: KYODO nx in EE from Tokya, Japan at 0720, 425/66N (Magliano, Tahiti).

10892: GXQ callsign tape from Royal Navy, London at 1706, 170/66R (Wolfgang Palmberger, FRG).

11142.5: Maracay Meteo, Venezuela at 0003 w/plaintext wx in SS, 850/66N (Williams, CO).

11423.5: SPW, Warsaw, Poland calling CQ in CW (followed by data burst) then into FEC mode 1332-1345, lengthy repeating tape in Polish seemed to be call-up of ships with callsigns C4GP, C4LF, C6BI5, HZCB, ELAF2, SQBE, 3EPZ4, etc., followed by a listing of callsigns & freqs including these listed for FEC mode as: SOY240 23403.5 kHz, SOT299B 18992, SON279B 13790, SOL242B 11422; in A1A mode SOO236 14362, SOL353 11535, SOI200 8001, & SOK269 10694; in F1B mode SOT265A 18651.5 kHz. Also mentioned freqs: 12521.5, 8328.5, 16698.0 kHz (Kneitel, NY).

11633: KRH51, US Embossy, London, England w/foxes tape at 1919, 100 wpm (David Alpert, NY).

12186: JANA nx in EE from Tripoli, Libya at 1810, 525/66R (Kneitel, NY).

12205: North Koreon embassy plaintext tfc, as discussed here in the past. noted from 1605-0027, 850/100N & R phases (Steven Jones, NY).

12223: USIA nx bc in EE at 2240 from Tangier, Morocco at 100 wpm (Alpert, NY).

12270: GYA, Royal Navy, London, England at 1206, w/foxes, 525/100R (Kneitel, NY).

12315//14510: RVW57/RIC75, TASS Moscow, USSR w/RYRY at 1450, 425/66R. At 1505 began repeating a short EE tape thanking Soviet military personnel for their participation in aiding the government of Afghanistan (Kneitel, NY).

12498: ELCF7, MV GORTYS, at 1830 in ARQ w/Telexes (Kneitel, NY).

12499: HBLE, tanker MOLESON, to HEB at 1825, ARQ mode (Kneitel, NY).

12501.5: HJNB, freighter REPUBLICA DE COLOMBIA, w/Telexes in SS to WCC, ARQ at 2020 (Editor).

12505: GYSJ, container ship MORETON BAY, near Las Palmas enroute Zebrugge, Belgium, w/Texexes at 1945 in ARQ (Kneitel, NY).

12519.5: ZCSV, the SNOW FLOWER w/Telex to NY City at 1640, ARQ (Navary, VA) It's a Hong Kong flag cargo ship working WNU-- Ed.

12520: USGH, Soviet trawler & fish factory ship ALEKSANDRIT out of Kaliningrad at 1216 w/RYRY & calling UJY, 170/66N (Kneitel, NY).

12524: EMMD, Soviet fish carrier PROLIV VILKITSKOVO, at 1223 calling UJY & sending RYRY, 170/66N (Kneitel, NY).

12682.5: LFC, Rogaland, Norway, w nx in Norwegian at 1518, FEC mode (Kneitel, NY).

12908: Un-ID station w/continuous foxes at 1824, 850/100R (Kneitel, NY).

12932.5: 58JDQ, Spanish Navy, Madrid, Spain w/RYRY & SGSG to 56UAZ at 1935, 850/100R (Brumm, IL). Note 2788 kHz listing-- Ed.

13366.5: 5YD9, Nairobi Aero, Kenya, w/caded wx bc at 2040, 425/66N. Mentioned 3604 & 11509 kHz (Kneitel, NY).

13381: KRH51, US Embassy, London, England w/foxes, 100 wpm at 0100 (Heraghty, NY).

13526: DHJ51, Grengel Meteo, FRG calling CQ & running RYRY test tape at 2047, 425/66N (Kneitel, NY).

13530: 5F groups, very weak sigs, 850/66N at 1510 (Jones, NY); Kneitel logged this at 1540, 900/66R as RVW53, Moscow Meteo, USSR w/coded wx.

13540: TELAM Buenos Aires, Argentina w/nx in SS at 1628, 425/66N (Jones, NY).

13581: MKK, RAF London, England w/foxes & RYIRYI at 1002, 66 wpm (Freed, FRG).

13752: HZJ, Jeddah Aero, Saudi Arabia, w/RYRY at 1643 & 2157, 425/66N (Kneitel, NY).

13735: ADN nx in EE from Berlin, GDR at 1103, 66 wpm (Freed, FRG).

13925: Y3D5, Berlin, GDR w/RYRY at 1649, 425/66R (Kneitel, NY).

14407: MKD, RAF Akrotiri, Cyprus at 1658 w/RYIRYI & foxes, 425/66N (Kneitel, NY).

14433.5: MKK, RAF London, England at 1739 w/foxes & RYIRYI, 66 wpm (Freed, FRG).

14455: PAP Warsaw, Poland, nx in RR at 1505, 66 wpm, N-phase (Editor).

14569: 5F tfc at 1208; RYA/QRA tape at 12218; nx in GG at 1225; then 5F's at 1235; all from Y7A58, MFA Berlin, GDR, 66 wpm, N-phase (Editor).

14801: ADN, Berlin, GDR w/nx in EE at 1500, 66 wpm (Frankie Gittens, Secretary, Caribbean SWL Club, Barbados).

14824: Hanoi Meteo, Vietnam, at 0045 w/coded wx, 475/66N (Williams, CO).

14901: Havana, Cuba w/EE edition of TASS nx, 1622-1722 & 1830-1930, was 425/66N (Atkins, WA).

15480: APS El Djaza'ir, Algeria, w/nx in SS at 1839, 850/66N (Kneitel, NY).

15508.5: SOP250, PAP Warsaw, Poland, w/nx in FF at 1715, 425/66R (Kneitel, NY).

15593.5: KRH51, U.S. Embassy, London, England at 1036, 100 wpm (Freed, FRG).

15693.5: ISX56, ANSA Rome, Italy at 2245 w/nx in FF, 425/66N (Kneitel, NY).

15705.5: YZJ6, TANJUG, Belgrade, Yugoslavia, at 1632 announcing "QRX 1700 GMT," 525/66R mode (Kneitel, NY).

15940: ELE23, Goodyear Plantation, Harbel, Liberia, at 1719 in ARQ w/Telexes to company HQ in Akron, OH (Kneitel, NY).

15950: CXR, Montevideo Novrad, Uruguay, w/foxes & RYRY/SGSG at 2010, 850/100R (Brailey, MI).

16000: MAP nx in FF to Africa from Morocco, 2255, 425/66R (Kneitel, NY).

16060: Nx in un-ID language here at 0850, 133 wpm (Spurlock, Saudi Arabia). It's RR from APN, Moscow, USSR-- Ed.

16107: 5L gps, ARQ at 1721 (Kneitel, NY).

16116.8: 6VK317, Dakar, Senegal at 1802 w/nx in FF, 550/66R (Kneitel, NY).

16134.1: CNWH46, MAP Robat, Morocco nx in FF at 1647, 425/66R (Kneitel, NY).

16249: VOA, Tangier, Morocco, w/RYRY to VOA in Greenville, NC at 1515, 100 wpm (Kirk, CT).

16393: Un-ID station in un-ID language, 100 wpm at 1410 (Gittens, Barbados). Nothing listed here, but only 1 kHz removed are Hungarian & Rumanian embassies in Washington, DC; 2 kJHz away is MFA in Prague, Czechoslovakio-- Ed.

16397.5: DIPLO Paris, France, nx bc in EE at 1415, 66 wpm (Gittens, Barbados).

16412: XINHUA nx in SS from Beijing, China, 0036 UTC, 170/66N (Jones, NY).

16666: Ship w/callsign ELSP calling NMF at 1804, FEC mode (Navary, VA). ELSP is the Liberian flag reefer LIMON-- Ed.

16672: UJKE, Soviet freighter PRIBOY from Kaliningrad sending tfc to UJY at 1810, 170/66N (Kneitel, NY).

17019: EBA, Spanish Navy, Madrid at 1720, 170/100R with "Navarea" bc in SS & EE (Kneitel, NY).

17201: St. Lys R., France w/tfc list in FEC mode at 1500 (Palmberger, FRG).

17207.5: AP nx in EE via WCC, Chatham, MA at 2200, ARQ (Hetherington, FL).

17208: Durban R., RSA sends wx & tfc list in FEC at 1724 (Palmberger, FRG). Ditto at 1700 (Navary, VA).

17216: Same xmsn as 17207.5 (Hetherington, FL).

17370.5: ADN nx in GG from Berlin, GDR at 1735, 425/133N (Brailey, MI).

17627: KUNA, Safat, Kuwait logged 1st time this freq at 1900, nx in AA, 340/66R (Hetherington, FL).

18040: Nx in Turkish language from Anadolu Ajansi, Turkey, 66 wpm at 1515 (Freed, FRG).

18104.3: Un-ID meteo station w/5F data at 1537, 60 wpm N-phase. Nothing listed in my info for a meteo station on this freq. Closest meteo is Cairo on 18102.3, maybe this is that station (Editor).

18164.5: Coded wx at 1722 from Khartoum Aero, Sudan, 66 wpm, R-phase (Editor).

18193.5: PL, Havana, Cuba w/nx bc in EE at 2335, 425/66R (Hetherington, FL).

18264: VNA, Hanoi, Vietnam w/nx in FF at 0523, 425/66N (Magliano, Tahiti).

18382: Tokyo Meteo, Japan w/wx at 0526, 425/66R (Magliano, Tahiti).

18547: Y313, Nauen, GDR w/RYRY test at 1342, 425/66N (Kneitel, NY).

18698: DPA nx in EE from Hamburg, FRG at 1821, 66 wpm (Freed, FRG).

18788: SUNA, Khartoum, Sudan w/nx in EE at 1750, 425/66R (Hetherington, FL).

18860: ATA, Tirana, Albania w/RYRY & QRA tape at 1455, 850/66 (Kirk, CT).

18863.3: Lots of 5L tfc 1405-1434 from un-ID sta in ARQ. Possibly an Italian embassy (Editor).

19107: "KHARGIA CAIRO" (Egypt) to "BOUSTAN RABAT (Morocco). Possibly dipli tfc in AA & EE in ARQ at 0944 (Palmberger, FRG).

19171: MAP nx in FF from Rabat, Morocco at 1605, 425/66R (Navary, VA).

19315: 4UF, UN Economic Commission for Afriva, Addis Aboba, Ethiopia sending report in EE about funds at 1440, 425/100 (Kirk, CT).

19438: LOR, Puerto Belgrano Navrad, Argentina, at 1905 w/notices to marines in SS, 170/75N (Kneitel, NY).

19794: USIA nx bc in EE from Malolos, Philippines at 0410, 425/100R (Magliano, Tahiti).

20078: DIPLO Paris, France w/nx in FF & EE at 0100, 425/66N (Williams, CO).

20148: EBA, Spanish Navy, Madrid, w/RYRY & SGSG at 1802, 850/100R (Williams, CO).

20350: NBA, USN Balboa, Panama w/RYRY & SGSG yo "YAPD" at 1800, 850/100R (Richard Krepps, TX). Glad to hove you join us. YAPD is a Venezuelan Navy vessel of some type-- Ed.

20907: Diplo tfc in Korean noted frequently at 1730-1820, 425/66N, location unknown (Hetherington, FL).

22574: NMO, USCG Honolulu, HI in FEC w/wx bc at 0130 (Hetherington, FL).

25706: Nx of Africa in EE from VOA (Malolos, Philippines-- Ed.) at 0800, 100 wpm (Spurlock, Saudi Arabia).

Before signing off, I must tell you that this column will continue to use words per minute instead of baudot rates when describing RTTY settings. The results of a recent poll of you monitors showed an overwhelming desire to retain the wpm status.

Also, several contributors and your editor use RTTY demodulators that indicate just the RTTY speed and not the RTTY "N" or "R" shift. This means that some listings will reflect that output and will not show all the RTTY setting data you're used to reading.

All of you, from tyro to super monitor, are encouraged to submit your loggings (the more, the merrier) regularly to this column so that we have an ample supply to share each month. Please send your reception reports to Robert Margolis, c/o *Popular Communications*, 76 North Broadway, Hicksville, New York 11801. **PC**

SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

BY DONALD E. DICKERSON

CNES *A Lesson in International Space Cooperation*

The Center National D'Etudes Spatiales (National Center for Space Study), or CNES, is the third largest program of space exploration in the world. CNES is the French equivalent of NASA. Both agencies are responsible for directing their nations' space program. Founded in 1961, CNES launched the first French spacecraft in 1965. Since that time CNES, in cooperation with the European Space Agency, has become the main supplier of launch vehicles for commercial payloads.

European Space Agency

The European Space Agency, ESA, is the united space program of 12 European countries. ESA membership includes the countries of Belgium, Denmark, France, West Germany, Italy, Netherlands, Spain, Sweden, Switzerland, the United Kingdom and Ireland. In 1973, the European Space Agency built its first launch vehicle, the Ariane. The Ariane rocket is built by the French company with the same name, "Arianespace," on contract to ESA.

CNES contributes approximately 50% of the total yearly budget of the European Space Agency and provides some of the leadership and direction that this international space program requires.

The European Space Agency launches all of its spacecraft from a site near the city of Kourou in French Guyana, South America. This is one of the world's best locations for a launch site. For aero-dynamic reasons, it is more economical to launch a satellite from this location near the equator. This gives ESA a distinct advantage over its competitors with less favorable sites. In 1985, the Kourou facility was expanded to include a second launch pad which is now operational. ESA has successfully launched over 415 satellites from this location. Diagram 1 shows the evolution of the Ariane launch vehicle to its present form, the Ariane 4, a fourth generation launch vehicle.

CNES and ESA are presently involved in several European satellite projects. The Meteosat weather satellites, Marces maritime telecommunications satellites and a variety of commercial communication and TV satellite systems.

Search and Rescue

The French are also actively involved in the COSPAS-SARSAT, the international search and rescue satellite program. COSPAS-SARSAT is a joint effort of France, Canada, the U.S.S.R. and the United States to provide instantaneous emergency communications for ships and aircraft in distress. The satellite platforms and launch vehicles are provided by the U.S. and U.S.S.R. while the onboard instrumentation, sensing and communications equipment are provided by France and Canada. At present there are four satellites operating in the COSPAS-SARSAT system, two launched by the U.S. and two launched by the U.S.S.R. The satellites listen for and relay any distress calls heard on the international distress frequencies of 121.5 and 406.0 MHz. This information is relayed to one of 20 ground stations world-wide that monitor the satellites 24 hours a day. Over 600 lives have been saved by COSPAS-SARSAT since the program began in 1982.

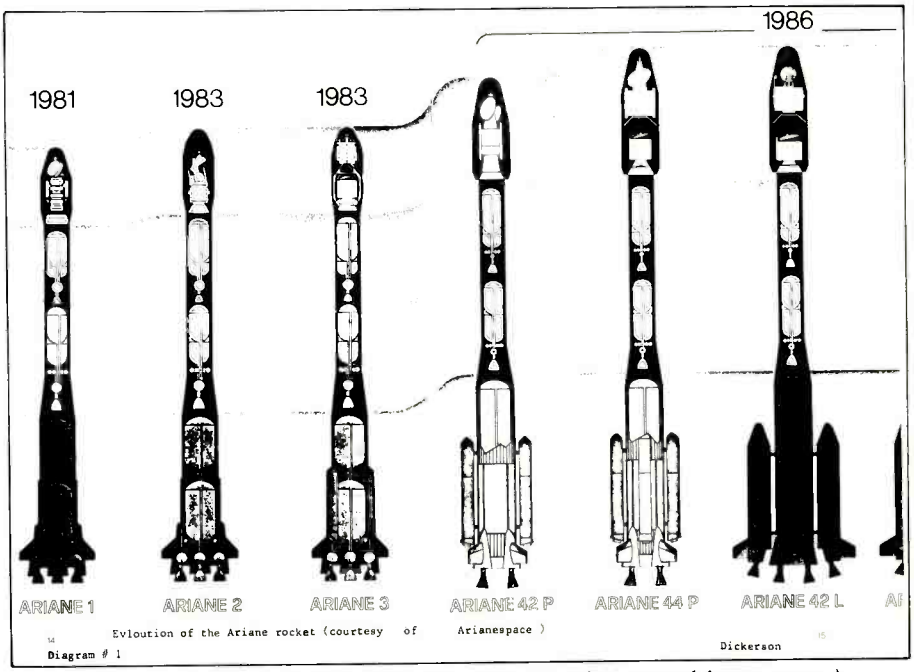


Diagram 1: The evolution of the Ariane rocket. (Courtesy of Arianespace.)

International Cooperation In Space

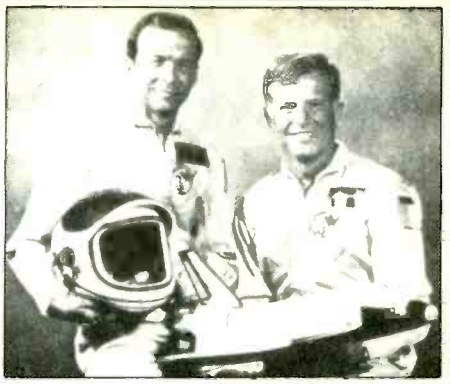
The French, perhaps more than any other western nation, have taken an international approach to the exploration of space. This is true of both their manned and unmanned programs. For example, they have developed an advanced electronic imaging system for use on meteorological satellites, perhaps the most advanced in the world, while working on a platform for the Swedes. This new system is onboard the Spot-1, an Earth resource spacecraft, and will even be used on the next generation of U.S. Meteorological satellites.

Two of CNES' most ambitious unmanned space programs are "GIOTTO" and "VEGA." The Giotto is a deep space probe created by CNES and built for the European Space Agency. Giotto was one of several probes sent to intercept Halley's Comet in March of 1986. It successfully carried out a variety of tests in nine specific categories while studying the comet.

The "VEGA" project is a Soviet program designed to study the environment of Venus. The most recent probe in this program was a joint French/Soviet designed Venera spacecraft. As with the COSPAS-SARSAT program, the French provide much of the onboard equipment for the probe. The Soviets have successfully landed several Venera class spacecraft on Venus in recent years. This is no small accomplishment considering the environment of the planet. The temperature is a constant 800°F, the cloudy surface consist largely of carbon dioxide and the planet's surface pressure per square inch is near 100 times greater than that of Earth. This puts considerable stress on the electronic equipment on the probes. The most recent Venera probe, Vega 2, included a second stage that dropped a probe into the

CNES Satellites

Spacecraft	Launch vehicle	Frequency	Type
TDF-1		17/12 GHz and 14/12 GHz	TV
TELECOM-1	Ariane	Business transponder 12/14 GHz Telecom transponder 4/6 GHz Gov't. Transponder 7/8 GHz	communications
D-A1		399.92 MHz	
MARCES/MAROTS	Ariane	1.5 GHz/137.170 MHz	Maritime
SIGNE 3	Cosmos	136.630/136.050 MHz	Gamma Ray
SPOT-1	Ariane		Landsat
D5/BI		136.250/136.350 MHz	
AJAM		136.112 MHz	
STRET 2			



The first Frenchman to reach space was Jean-Loup Chretien (right). Patrick Bundry (left) was chosen to take part in the STS-51G flight of the Space Shuttle in 1985.

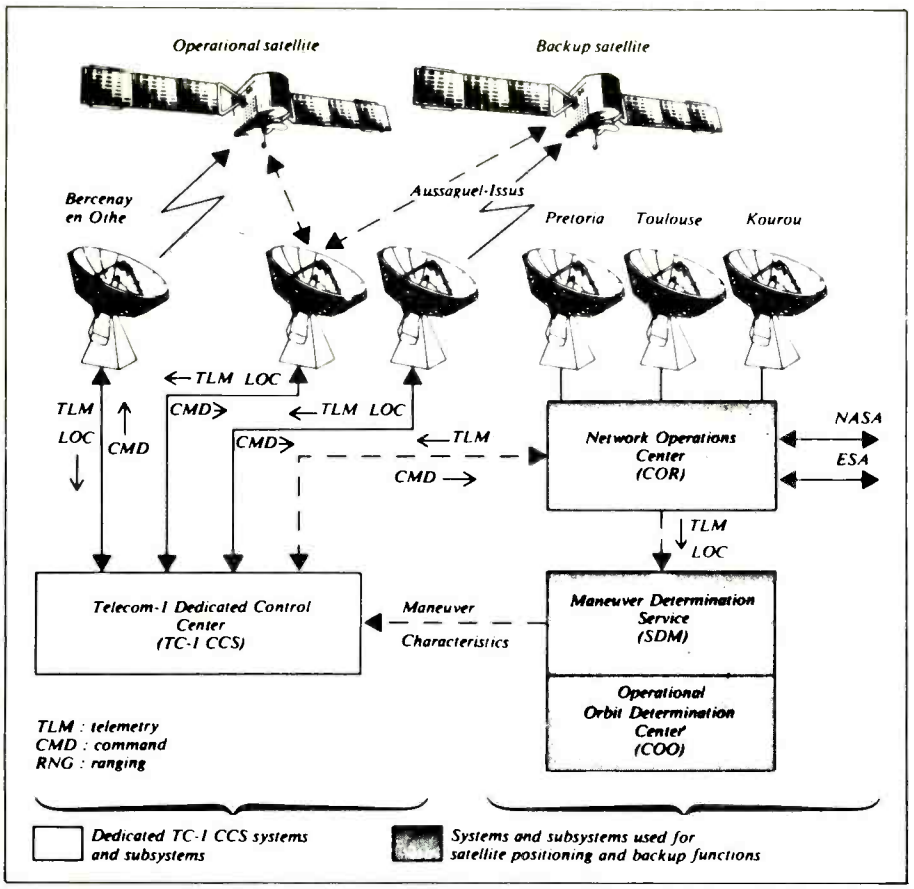


Diagram 2: The routing of telemetry from the Telecom-1, a French domestic telecommunications satellite system. (Courtesy CNES.)

Venusian atmosphere, then continued on a trajectory to intercept Halley's Comet. The results of the Halley's intercept were impressive and the Soviets invited several prominent American scientists, including Carl Sagan, to view live data transmissions from the spacecraft.

CNES Control Center

The CNES nerve center for communications is located in the Pierre Fermat building in the city of Toulouse, France. It is from here that the telemetry, command and tracking data is processed for all the space flights controlled by CNES/ESA. The data from each spacecraft is controlled by a communications console dedicated to that program or satellite system. Each satellite's telemetry is channeled through the central computing office. Diagram 2 shows the routing of telemetry from the Telecom-1, a French domestic telecommunications satellite system. Telecom-1 carries three other transponders. The main communications channel uses 4/6 GHz, a second 12/14-GHz transponder is used for business communications and the French Government uses a 7/8-GHz transponder.

CNES operates out of four Centers, one in Paris (administrative), Toulouse (communications), Evry (launch vehicles) and Kourou, French Guyana, South America (launch site).

Manned Space Cooperation

The first Frenchman to reach space was Jean-Loup Chretien. In 1982, Chretien was a crew member on the Soyuz T-6 mission to the Soviet's Salyut 7 space station. Under an agreement between CNES and the Soviet's Intercosmos Program, Astronaut Chretien and his backup, Patric Bundry, spent two years in training at Star City near Moscow, undergoing standard cosmonaut training in preparation for their flight. Both Chretien and Bundry are fluent in English and Russian as well as their native tongue. Patric Bundry was chosen to take part in the STS-51G flight of the Space Shuttle in 1985.

Last year, ten more astronauts were picked by CNES/ESA to begin training for future international flights. Many more European astronauts will be needed by the turn of the century, as two or three space stations could be in orbit by that time.

Colombus/Hermes

In response to an offer by NASA, the European Space Agency will play a major role in the planning and construction of the proposed U.S. space station, scheduled for launch some time in the late 1900's. One entire wing of the space station will be constructed and placed in orbit by ESA. This ESA space station project is known as "Colombus."

A new fifth generation heavy lift launch vehicle, the Arianne 5, is now under development. It will be capable of placing the

ESA Satellites

Spacecraft	Launch vehicle	Frequency	Type
METEOSAT P-2	Ariane	137.080/137.200 MHz	Weather/Polar
METEOSAT	Ariane	468.875/468.925 MHz	Weather/GEO
AEROSAT		1645/1660 MHz	Navigation
ECS 1-5	Ariane		Tele/Com
OLYMPUS	Ariane		TV
INMARSAT	Ariane		Maritime
EXOSAT	Delta		X-Ray
GIOTTO	Ariane		Halley's
ULYSSES	Ariane		Astronomy

construction modules for the Colombus into orbit from the Guyana launch site. After all the modules have been placed in orbit the station will be assembled in space. The Ariane 5 rocket will also double as a launch vehicle for the Hermes. The Hermes is a mini-shuttle designed by France. It will sit on top of the Ariane 5 as shown in Diagram 3. The rocket will use a combination of liquid and solid rocket boosters, similar to those used by the Space Shuttle.

A program similar to the Hermes was once considered by NASA but later abandoned in favor of the present Space Shuttle program. The Soviets have decided to build a system much like the Ariane 5/Hermes. The Soviet version could be ready for launch by 1987 or 1988. This is a very flexible system and more economical than NASA's program.

The Hermes space plane will be able to carry 6 astronauts and lift up to 15 tons into LEO (Low Earth Orbit). The spacecraft will be able to remain spaceworthy for up to 90 days while in orbit.

The French CNES plans to use Hermes class spacecraft well into the next century. It will be used not only in connection with the Colombus space station but will also service space platforms, repair satellites and carry out independent space missions similar to those carried out by the Space Shuttle. The European Space Agency is expected to give the go-ahead on the construction of the Hermes sometime in 1988. The Hermes is scheduled for launch sometimes in 1996. The Colombus is expected to be operational two years earlier.

Intercosmos

The USSR announced recently that a joint French Soviet space flight to the Mir space complex is planned for 1988. The French and Soviet cosmonauts have already been chosen for the flight and are now in training at Star City. Astronaut Jean-Loup Chretien was among those chosen for this mission. Chretien is expected to perform EVA (Extra Vehicular Activity) or space walk during this mission to the Mir Complex.

In the near future, it is expected that the two Soviet space stations, the Mir and the Salyut 7, will be docked. As the Salyut 7 has been in orbit for over five years, it is uncertain whether or not it will become a permanent addition to the Mir; it may simply be another convenient Soviet space "first." Several Cosmos expansion modules will be placed into position by a mechanical arm similar to the one designed by Canada and used on the Space Shuttle for satellite launches and repair. The Soviets may have another space first as Radio Moscow has recently announced that the new "ESDRN" (Eastern Satellite Date Relay Network) satellite system is now operational. ESDRN is the Soviet equivalent of NASA's TDRSS (Tracking Data Relay Satellite System) satellites. Both systems, when completed, will keep their respective spacecraft in constant communications with ground stations. Our last TDRSS satellite was launched on the last flight of Challenger and lost in the disaster which followed.

The Soviet's permanently-manned Space Complex should provide more opportunities for international flights as the manpower requirements for the Mir Complex will be considerably higher than that of its predecessors. In August of 1986, Radio Moscow announced that several teams of Soviet cosmonauts were already training for future missions to Mir. Each Cosmos expansion module on the Mir will have a specialized purpose and require appropriate payload specialist to maintain it.

The joint French/Soviet flight to the Mir Complex may be timed to take place during the planned celebration of the 70th Anniversary of the Bolshevik Revolution and or the 30th Anniversary of the launch of Sputnik, earth's first artificial satellite, to be commenorated some time in late 1987 or early 1988. This may be an indication of the time table for the completion of the Mir Complex or at least the addition of the expansion modules.

Conclusions

The French approach to space exploration is both pragmatic and practical. It provides us with an excellent example of a truly international approach to the exploration of space. Perhaps it's time for France, the United States and the Soviet Union to take practical steps toward setting up an International organization whose sole purpose is to plan specific programs for the joint exploration of deep space. The U.S. and U.S.S.R. have already signed preliminary statements of cooperation on a joint expedition to Mars sometime in the next century. The Soviets have announced plans to send two unmanned probes, a robot and a rover type vehicle, to Mars by the end of this decade..

A single international program of space exploration would be both economical and practical. International cooperation will be required if mankind expects to successfully and peacefully explore the solar system.

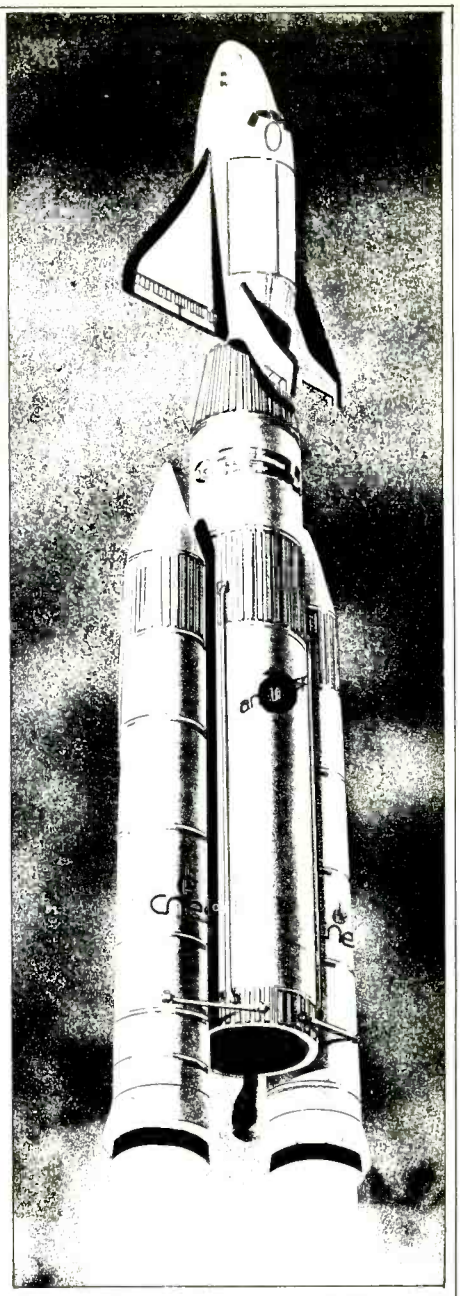


Diagram 3: Hermes shuttle craft/Ariane 5 launch vehicle. (Courtesy of CNES.)

Now! In America

For the first time, the AR2002 is available in the U.S.A.! Acclaimed worldwide for its full spectrum coverage, its superior sensitivity, excellent selectivity and convenient, compact design; it has all the features a sophisticated and discerning public service band radio user desires. Experts in Europe, and around the world report excellent performance in independent lab tests. For example: sensitivity across all bands will typically exceed .3 microvolts in NFM. And now the AR2002 is available to you exclusively through this offer.

Peformance Above and Beyond

You'll hear signals from 25 through 550 MHz, plus 800 MHz through 1.3 GHz. In any mode: narrow band FM, wide band FM, or AM. Search through entire bands, or enter selected frequencies into any of 20 memory channels. The sidelighted LCD gives full information on status and programming. Profession quality hinged keys and a digitized front panel control knob make tuning easier than ever before. There's even a real time clock with backup, a signal strength meter and a front panel head phone jack. Plus, programmable search increments, a laboratory quality BNC antenna connector with switchable attenuator, full memory backup, and power cords for AC or DC operation. A professional quality swivel mount telescoping antenna is also supplied.

...And More!

Every AR2002 has a special connector on the rear panel. It interfaces to our custom RC-pack. A little device that makes the AR2002 controllable by ANY computer with an RS-232C port. The possibilities that result from this option are nearly limitless. In effect, virtually your only monitoring constraint will be your imagination.

Yet Convenient to Own

The AR2002 is available exclusively through us — so call us direct, TOLL FREE. We'll be happy to answer any questions you may have. And if you respond like thousands of other monitor users the world over, we'll be shipping you an AR2002 within 48 hours by surface UPS for only $455. Plus we pay all freight and handling charges. Remember to ask about our custom test and triple extended buyer protection warranty plans, and our express shipping option. If you're not satisfied within 25 days, return your AR2002. We'll refund your purchase and return shipping costs. There are no catches, no hidden charges.

The AR 2002

The Professional Monitor Receiver

AOR COMMUNICATIONS
Monitor Division

Call Toll Free **800-445-7717**
VISA Visa and MasterCard
COD slightly higher
MasterCard

In IN 317-842-7115 Collect

CIRCLE 46 ON READER SERVICE CARD

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

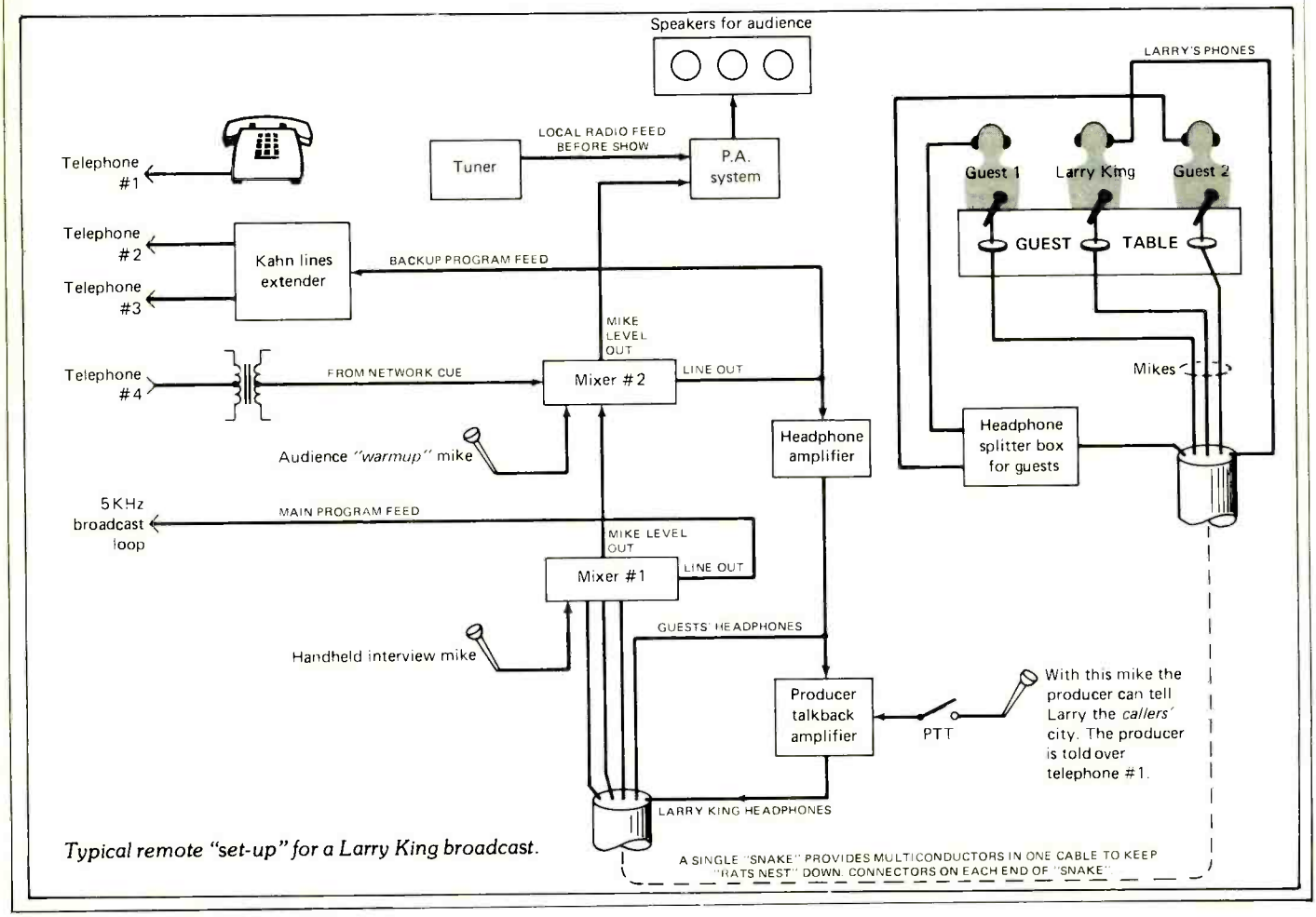
Sometimes it is a long up-hill battle to get a station on the air, especially those that are operated by institutions. October 14, 1986 saw 88.1 MHz in Baltimore become a one-station frequency. At one time, a few years back, there were as many as four 10-watt stations operating on 88.1 in the Baltimore metro area. The FCC requested all educational stations to increase their power to at least 100 watts or be over-shadowed by other stations on the same channel. After many delays, some of which were unavoidable, the famous Johns Hopkins University finally got their 10-watt station (WJHU) increased to 10,000 watts and on the air.

One nearby 10-watt station, still operating on 88.1 in College Park, Maryland, no doubt has lost some of its coverage. Interestingly, this 10-watt station is run by the University of Maryland. As to whether or not there is another frequency in the crowded Baltimore/Washington spectrum I don't know, but surely WMUC will try to find one. Ironically, Johns Hopkins does not have a communications or broadcasting course and the new facility is run by paid personnel, whereas the 10-watt operation is strictly student run. The University of Maryland, on the other hand, has an excellent communications and broadcast department.

The WJHU tower is only a couple of miles from my home as are several other high-power FM stations and, in listening on my headphone belt radio, I find noisy areas even though the GE radio is a good one. An AM stereo radio operated in the same fashion, from the belt, does not exhibit drop-outs and noisy spots. The Sony SRFA-100 is not what I would call a "belt" or "Walkman™" type radio since it has a pair of built-in speakers. My GE radio is no bigger than a pack of king size cigarettes. True to my form, it is an AM/FM radio and does not have a tape player built in. You wouldn't expect me to carry a cassette player around listening to tapes now would you! I have never done that. As a matter of fact, the tape player in my car, which will be three years old next month, hasn't been played more than a few hours.

Well enough of that. As to hearing stations outside of the area in which you live or being able to hear long distance, a tape is about the only way available and the cassette tape is an excellent way to do this. I have received several of these airchecks from readers from time to time. Philip M. Martin has put this idea to use since he lives close to the

Joe Hueter of Philadelphia, PA forwarded this photo of Radio Juticalpa (HRRZ), 560 kHz (1 kW) and 98.9 MHz. This station is in Olancho, Honduras. HRRZ's owner, Victor Rubi Zapata, is always happy to hear from DX'ers.



Typical remote "set-up" for a Larry King broadcast.

Station Updates

Call	Location	Freq	Pwr	Ant
AM				
KJNO	Juneau, AK	630	5/1	NDA
WSBR	Boca Raton, FL	740	2.5/.94	DA-2
WPRQ	Colonial Hgts., TN	870	10/0	NDA
KPRM	Park Rapids, MN	870	10/1	DA-N
KRKS	Denver, CO	990	5/.39	DA-N
WKII	Port Charlotte, FL	1090	4.8/2.5	DA-2
WYNS	Lehighton, PA	1160	4/1	DA-2
WRDJ	Daleville, AL	1560	5/0	NDA
WKIQ	Inverness, FL	1560	5/2.3	DA-N
FM				
KNMC	Havre, MT	90.1	10	377′
KCMU	Seattle, WA	90.5	.4	535′
WEKZ-FM	Monroe, WI	93.7	36.3	581′
WLCS	Jacksonville, FL	96.1	100	984′
WGER-FM	Bay City, MI	96.1	100	1020′
WHYT	Detroit, MI	96.3	20	786′
WONT	Ontonagon, MI	98.3	1.1	551′
KLUC	Las Vegas, NV, SC	98.5	96.6	1170′
KYNO-FM	Fresno, CA	99.5	21	764′
KDEZ	Jonesboro, AR	100.1	3.0	228′
WJRZ	Manahawkin, NJ	100.1	1.58	450′
KAYL-FM	Storm Lake, IA	101.5	100	332′
KPCB	Rockport, TX	102.3	2.5	325′
WQTC-FM	Two Rivers, WI	102.3	3.0	328′
WRKY	Stubenville, OH	103.5	15.8	880′
KEAN-FM	Abilene, TX	105.1	100	1164′
KESM-FM	El Dorado Sprgs., MO	105.5	3.0	188′

KEY: D = Daytime, N = Nighttime, DA = Directional Antenna, DA1 = Same Pattern Day & Night, DA2 = Different Pattern/Power Day/Night, NDA = Omni Antenna Day and/or Night, * = Special Operation or Critical Hours, N/C = No Change.

Big Apple which some say is the #1 market for radio in the U.S. Although I haven't heard his product, he says they are top notch recordings with some available on chrome tape. Anyway, if you would like to be able to hear the New York stations up to four times a year he has the area stations on C-90 cassettes. Write him for more details and mention *POP'COMM*. His address is #1 Market Airchecks, P.O. Box 568, E. Hanover, NJ 07936.

Roy Brown from Canada sent along his latest DX and a schematic for a two-transistor pre-amp for use with any antenna. We'll try to include it in a future column after I build and test the circuit. He says he hears Radio Belize (834 kHz) nightly and has logged Anguilla on 690, Fiji and Australia on 774, Columbia on 940 and the Cayman Islands on 1205.

The Chief Engineer at KLYT, FM88, in Albuquerque, NM, Gerhard Straub, tells me we had a typo on the recent listings of KLYT. They are at 88.3, not 88.9 as reported. Those of you out that way might listen and write Gerhard and tell him you not only heard the station but also saw his name in *POP'COMM*! Also, in this neck of the woods, KOB has received the go-ahead from the FCC for their synchronous transmitter which should be on the air by now. It operates at night with 230 watts from Santa Fe. The KROL synchronous transmitter seems to be doing the job intended. They hope to increase the power and may have, by now, to 500 watts at night and 700 watts during the day. It is located in Las Vegas while the main 10-kilowatt transmitter is in Laughlin, NV. KROL uses 870 kHz and KOB is on 770.

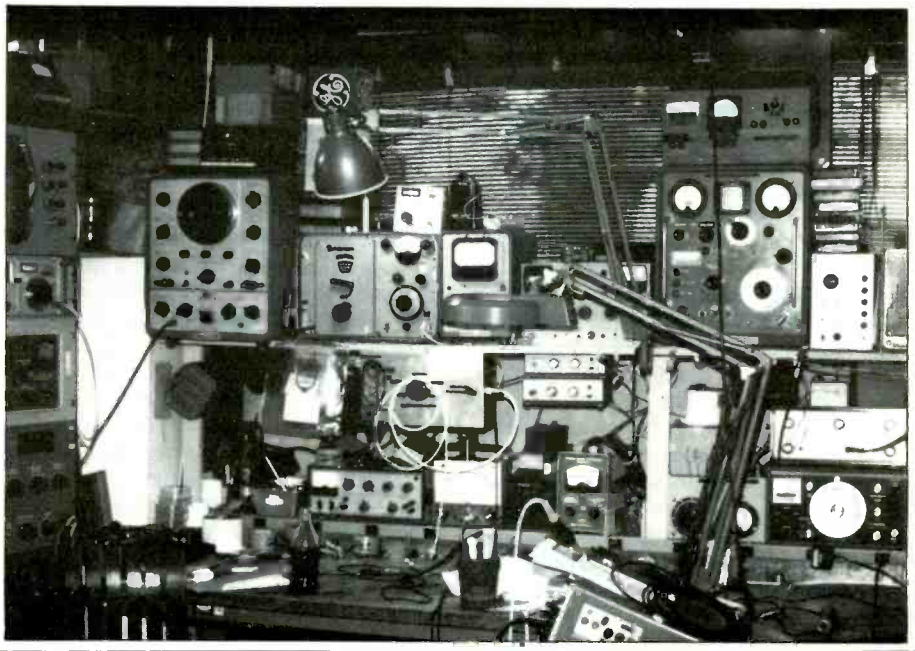
Many stations are playing a lot less vinyl

This is WBTN, Bennington, VT. The station runs 1 kW on 1370 kHz. Photo by Tony Earll, KN2AE.

today and WBEN-FM in Buffalo, NY is now 100% CD (compact disk), according to Scott Fybush. I know 98 Rock in Baltimore has pulled all vinyl where they have a CD to use instead, and they have quite a collection of CD's so far. These are fascinating machines in themselves. 98 has two Sony players which are tied together, although operated independently, through a mini computer with which they can cue a CD to a gnat's eyelash. No joke, there's a dial on the front which allows one to set the CD to start within 1/72th of a second anywhere on the disk. Talk about a tight cue! This gizmo will split syllables and will also program eight selections on the two CD players, or just a single CD in any order the operator desires. The Baltimore station also has another pair of Sony CD's in the production room for use in preparing commercials and promotion spots. Many sound effects are now available on CD. No more record scratch!

Getting back to Scott, he says he's never seen the Sony SRFA-100 which Sony has discontinued, so I'm not surprised. He says the educational station there, WRHR, has

This is part of the test bench in the author's basement.



Call Letter Changes

Location	Old	New
AM Stations		
San Luis Obispo, CA	KXZI	KJDJ
Aptos-Capitola, CA	KMFO	KNZS
Bakersfield, CA	KUNN	KLYD
Quincy, FL	WCNH	WWSD
Leesburg, FL	WINF	WQBQ
Dunedin, FL	WAMA	WGUL
Tampa, FL	WYOU	WAMA
Buford, GA	WDYX	WJYA
Eminence, KY	WSTL	WKXF
Gorham, ME	WASY	WJBQ
Aberdeen, MS	WMPA	WWZQ
Hardin, MT	KYTY	KBSR
Geneseo, NY	New	WLMO
Avon, NY	New	WYSL
Blowing Rock, NC	WQIX	WXLX
Poteau, OK	KZZE	KYYN
Scranton, PA	WBQW	WSCR
Somerville, TN	WJED	WSTN
Madison, TN	WLRQ	WNKZ
White Bluff, TN	WHRD	WBDX
FM Stations		
Linden, AL	New	WDAL
Anchorage, AK	KBLK	KXDZ
Fairbanks, AK	KECA	KWLF
Monte Rio, CA	KMGG	KCLQ
Lamar, CO	New	KNIC

Location	Old	New
FM Stations		
Pueblo, CO	KZLO	KATM-FM
Miami, FL	WAIA	WGTR
Sarasota, FL	WMLO	WSRZ
Quincy, FL	WWSD	WIQI
Athens, GA	WCAG	WUGA
Vincennes, IN	WVUC	WFML
Washington, IN	WFML	WRTB
Mason City, IA	KRNI	KUNY
Marshalltown, IA	KFJB-FM	KMTG-FM
Pittsburg, KS	KQWK	KKOW-FM
Bowling Green, KY	WLBJ-FM	WCBZ
Bangor, ME	WBGW	WYOU-FM
St. Cloud, MN	New	KCFB
Aberdeen, MS	WHAY	WWZQ-FM
Deer Lodge, MT	KDLI	KDRF
Hardin, MT	KATM	KBSR-FM
Tabor City, NC	WKSM	WYNA
Columbus, OH	WRMZ	WMGG
Cleveland, OH	WRQC	WTGR
Bellefonte, PA	WWZW	WZWW
Centerville, TN	WHLP-FM	WCQT
Clinton, TN	WNKX	WTNZ
Arlington, TX	KLTY	KHYI
Bastrop, TX	KLIQ-FM	KSSR
San Angelo, TX	KTXE	KYSD
Olympia, WA	New	KXXO

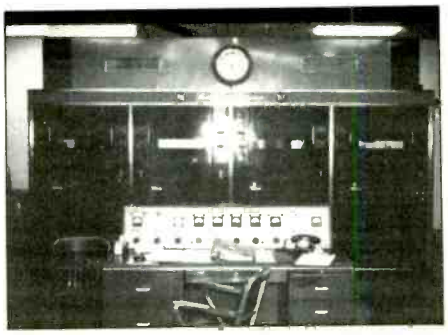
programming from several area high schools, broadcasting many high school sporting events. He also mentions a problem with the station, that although running 2500 watts on 90.5 MHz, it has low audio power. The other stations will blow your ears away when switching from RHR. Maybe you should mention it to the manager, Scott. He also has a complaint about WPXY which is a C-Quam station, says they sound terrible in mono. Also, included was a four-page typed radio/TV log of stations he's heard lately. Very neatly done. What you need, Scott, is the computer programs I have to keep track of these stations! These programs have just been expanded to include the Commodore 128, taking advantage of the 80 column screen of the 128. For full details of these programs, send me a SASE.

Another Canadian, Mike Csorbay, says he's logged over 1100 stations in 7½ years. Mike is also an SWL but says BCL'ing is his first love! How many stations have other readers logged over the years? Surely some have kept track . . . is it some kind of a deep dark secret? Drop me a note and tell me what you've done on the BC band.

Over the past couple of years we have received numerous requests asking how to put a BC station together and how much money it costs. There are many ways to go about building a station and costs vary widely. To answer a question such as this would require more space than is available in this column and it would be of limited interest to the regular reader of the usual information presented here each month. I'm putting an article together that may answer those questions and might be printed in *POP'COMM*. If we can't do that, then maybe we'll have a small handbook available for those who are interested.

AM stereo is at somewhat of a standstill for the time being. Actually, it seems to me it has been that way for quite some time. Leonard Kahn of Kahn Communications says he thinks he's won the stereo battle because Motorola keeps asking the FCC to make their system the standard for the U.S. Kahn says this request is a late inning attempt by Motorola to convince the umpire to call the game before the last inning is played. I doubt the Commission will get back into the AM stereo choosing game since they gave it up over four years ago. We will see what develops. If you'd like a listing of all the AM stereo stations operating in the U.S. and Canada send $2.50 for a postpaid return of the most up-to-date pamphlet available. The address is at the end of the column.

Last month, mention was made of the broadcast of the Larry King show in Baltimore. The show from the Mutual Radio Networks uses four to five microphones, an equal number of headphones, a public address system, two mixer amplifiers and other associated gear that takes a number of hours to set up. Most of the networks use a similar setup for any remote broadcast. In addition to Larry, the network sends two other people. They may or may not send an engineer, depending on the local situation. The Inner Harbor broadcast had a local engineer, as well as someone to operate the P.A. system.



Here is a shot of the 26-year-old WBAL 50-kW transmitter which has just been replaced with a new Continental. This is an RCA 50H Ampliphase with a solid-state exciter. The consol at the front of the picture is left over from the original 50-kW Westinghouse installed when the building was new in 1941. The transmitter still runs fine but the clock has died!

Mutual used four telephone lines and a 5-kHz program line. Two telephones are used as a backup program line by using a Kahn "Line Extender" which converts two regular dial telephone lines to a full 5-kHz program line. The third telephone is used to provide information to Larry on the telephone callers who call in to the Crystal City, VA, telephone during Open Phone America (OPA).

The fourth line is used to feed program from Crystal City to the remote location so that the telephone callers, as well as the end of the commercial breaks, can be heard by Larry and the guests. The producer has a microphone which feeds Larry's headphone so he can be told where the callers are calling from. The other guests just hear the caller and not the producer. The people in the audience also hear the callers through the P.A. system. See the block drawing of this arrangement.

If you live along the southern coast regions of the U.S., the later part of February will bring the first openings on the FM and TV band through the ducting of the signals over-water paths. This is the result of the cool nights warming rapidly with the daytime. A "duct," similar to an air conditioning duct (except much larger), is formed and traps the signal delivering it from near the transmitter to the vicinity of the receiver which can be a distance of several hundred miles away. A person living on the coast normally benefits from this more frequently than others. It doesn't take much of a receiver to be able to pick up these ducted signals; they are normally quite strong. It's like a pipeline from the station to you and, as such, the signal tends to be rather limited in coverage, point to point, like a pipeline would be.

From out of the past comes Larry Bella, who remembers staying up late at night playing DX for all the DX'ers . . . he used to test his kW BC station a lot, getting legal replies from all over the east coast. No longer in the BC business, being tired of starving to death in small market radio, he misses the fun of radio. I know what you mean, Larry, I miss the fun of small market radio, every bit of the fun . . . except the low pay. Let me tell you, big market radio is serious business and a lot of the fun is missing from that, too! Larry even sent along a couple of extra stamps for me to use to answer those who request information but do not enclose an SASE. (Hint, hint.)

It has been amazing to find out how *POP'COMM* readers have passed the magazine from one to the other, sharing with friends. Many of the requests I get for antenna plans mention having a back issue loaned by a friend. Back issues are always fun to read in many types of magazines. Current-event magazines seem dull after a few weeks, but good ol' *POP'COMM* and *CQ* are readers' delight since they never seem to get old. I've gone over some *CQ's* from 20 or more years ago and enjoyed some of the articles all over again.

Thanks for all the nice comments about the column and don't hesitate to send suggestions and information as well as some photos that would be of interest to other readers. That seems to be the hardest part in presenting the column each month . . . trying to find something of interest to look at. It is an easy matter to talk about radio, but we also like to have some graphics to make the column more attractive. It looks pretty bland with nothing but printing.

That's about a wrap for this time. Same time, same magazine, next month, folks. Until then, keep those earphones warm! My mailing address is P.O. Box 5624, Baltimore, MD., 21210. PC

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL, W3FQJ

Scanner Antenna Gain By Modification

In the April 1986 issue of *Popular Communications*, this column introduced a simple modification of a low-cost commercial UHF-TV Yagi to a high-gain T-band antenna. The only change involved a shift over to vertical polarization by doing a bit of drilling to shift the U-bolt assembly 90°. The idea spread across the country. A limitation for such a high-gain antenna was bandwidth and an inability for one to cover the entire 450-512 spectrum.

At some limited loss in peak gain, it is possible to modify a UHF-TV corner reflector and obtain directional gain over this 450-512 spectrum plus a little more. Directivity is not quite as sharp and, thus, a wider coverage angle is also possible without critical aiming. In fact, the modification does quite well even as low as the 430-450 MHz Ham radio band.

We chose a Radio Shack 15-1629 corner reflector for the test, Fig. 1. Since it is a 300-ohm design we added a 4-to-1 matching transformer, Radio Shack 15-1143. In changing over to vertical polarization the U-bolt assembly was abandoned. However, the mounting plate fastened to the corner reflector has two convenient holes that permit an easy vertical mount, Fig. 2. All you need do is drill two matching holes through the mast top, be it metal or plastic, and use two bolt/nut/lockwasher trios. The mounting arrangement is shown clearly as well as the coaxial transmission line that runs back and down from the end of the matching transformer. The connection on the 300-ohm side of the transformer to the driven element is apparent in Fig. 3 along with the transformer itself. When this photograph was taken the coaxial line had not been attached to the output of the transformer.

Give the corner reflector a try on the 450 MHz band. It will bring the band alive in some favorite direction. You can always improve your scanner enjoyment by having both an omnidirectional antenna and a higher gain one pointed in in some favorite direction. Two separate coaxial lines and a two-position coaxial switch in the radio-room do a changeover job with ease.

Recently, the Diamond D-130 discone antenna, Fig. 4, became the reference antenna here for the frequency range between 25 and 1300 MHz. It is a great convenience to have one instead of several references to cover such a wide span of landmobile, Ham, public service, satellite, aviation, marine, etc., frequencies. It is easy to hide one away somewhere in a well isolated and permanent position to minimize interaction with other antennas to be tested against this single reference. A Grove Omni had served well as a reference for several of the land mobile, aviation, and marine bands. What to do with it now? No problem! It was converted very readily to a two-element beam for the marine band with a cut frequency of about 159 MHz, Fig. 5.

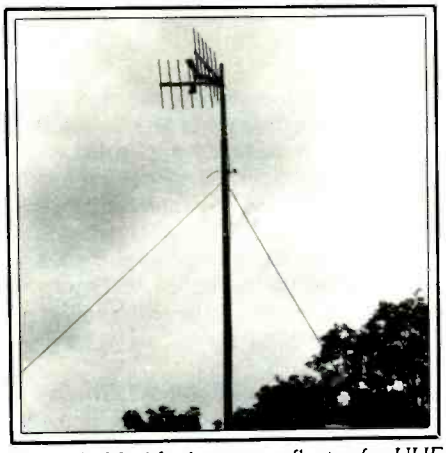


Figure 1: Modified corner reflector for UHF LO band.

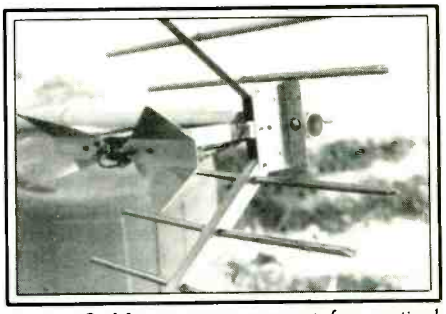


Figure 2: Mount arrangement for vertical polarization.

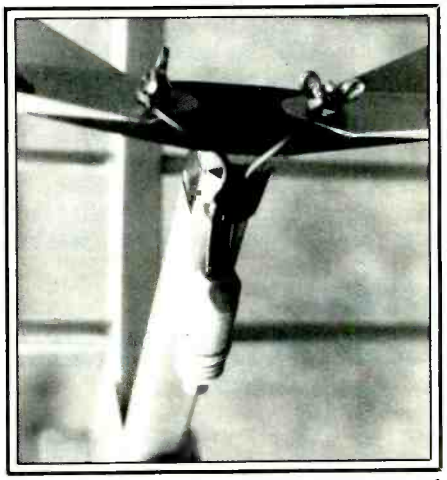


Figure 3: Connection of 300-ohm side of transformer to broadband dipole.

Dimensions are given in Fig. 6. The two segments of the dipole were cut back in length for operation in this region of the VHF HI spectrum. The feed arrangement of the Omni, Fig. 5, was kept intact. You can use any other dipole arrangement you may have available. A reflector was cut and positioned 0.2 λ back of the dipole. This spacing provides some forward gain and does not result in a too serious drop in the antenna impedance although a better match is made to a 50-ohm rather than a 72-ohm line.

It was necessary to drill a hole in the cross-arm to mount the reflector, Fig. 7. Reflector mounting was stiffened by using two back plates from two old U-bolt assemblies found in the junk box. The resultant antenna is compact and portable. Along with a couple shortened PVC pipes, we can take the assembly to the shore come the warm weather days, aiming the antenna off shore or along the bays and away from the land mass.

In summary, the favorite direction of the corner reflector was considerably better than the reference discone. The two-element beam displayed a more limited improvement in its best general direction as compared to the discone. Back pick-up was down, however, indicating a rather broad forward pattern with a wide angle and not too much gain above a vertical dipole.

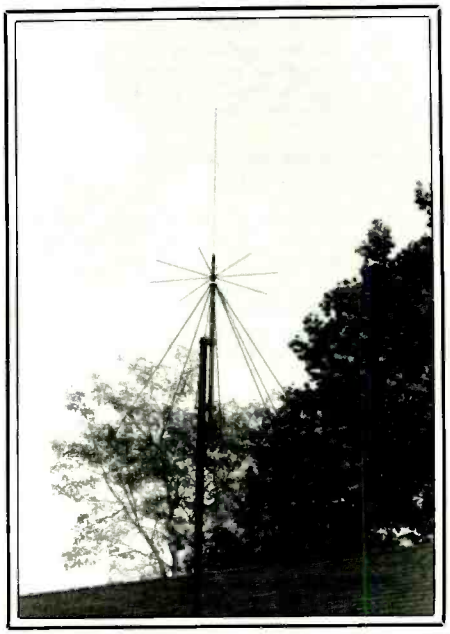


Figure 4: D-130 discone.

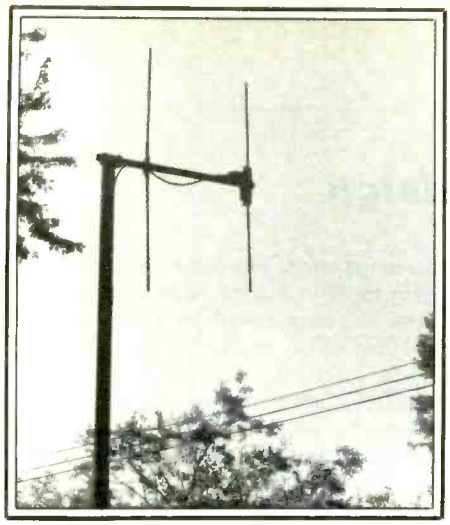


Figure 5: Modification of Omni to 160 MHz marine beam.

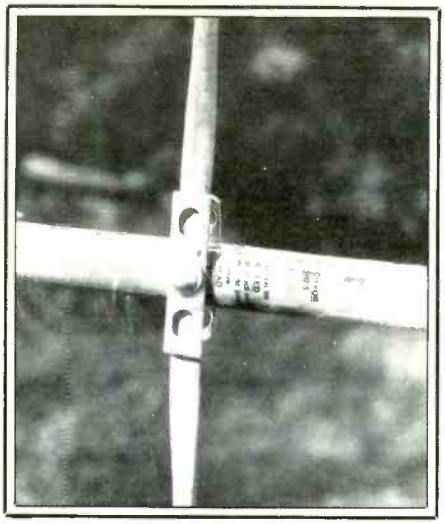


Figure 6: Dimensions for two-element 159 MHz beam.

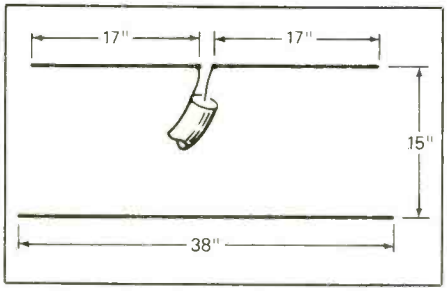


Figure 7: Adding reflector to Omni.

Don't forget to comb the flea markets and Ham fests for antenna parts. You can come up with all sorts of useful concoctions for some special receiving needs. There may be some special service signal you would like to receive as well as conditions allow. You can concentrate on such a signal with a directional antenna. More information on discone antennas and their variations is coming soon along with coverage of FM BCB antenna ideas, loop DX'ing and modifications of three-element beams. PC

SCANNING TODAY *(from page 9)*

cellular phone call is just like any other phone call, they have seen their position ridiculed in the worst possible place. Not in some radio hobby magazine, but as a full-blown feature in the *Wall Street Journal*, a primary marketplace in which to sell cellular phone use. The entire issue wouldn't have reached the public forefront if it had not been for CTIA. Nice going!

Now, as mentioned in last month's column, there is a proposal at the FCC to require labeling of all cellular phones to warn users that their conversations can be overheard. This proposal even has the support of AT&T. If this becomes part of the FCC regulations, every cellular manufacturer will be required to confess what we have said all along . . . cellular phone calls are not private. I wonder what CTIA members will say when it comes time to contribute to next year's budget. I can't wait to see what they will do to help promote cellular phones next year.

Scanner Owners Arrested In Minnesota And Indiana

Just as we go to press comes word of two arrests, one in Minnesota and the other in Indiana, for violation of state scanner laws. Totally unrelated to ECPA, these unfortunate incidents should remind us all that we cannot ignore laws, even those that are rarely enforced. In the case of Minnesota, using a scanner in a vehicle requires a permit. In the state of Indiana it is illegal to carry an operating portable scnaner; it is also illegal to have a scanner installed in a vehicle without a permit (except for certain exempt persons). So, if you do any traveling, or even want to check up on your own state laws, we strongly suggest that you obtain a current copy of the SCAN Summary of State Laws. It is available for $1.00, to cover postage and handling. Write to SCAN State Laws, P.O.Box 414, Western Springs, IL 60558. SCAN

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

Get a Marine Radio FCC Callsign

Since you are a specialist or hobbyist in all forms of emergency and survival-type communications, you should also possess FCC licenses that would allow you to operate two-way radio equipment. A marine radio telephone station license is important in that it allows you to operate on all 55 channels in the VHF (156-161 MHz) marine radio service. You don't need a boat to obtain this license, either. You may obtain an FCC station permit that allows you to use handheld transceivers or 25-watt marine mobile sets on any unspecified vessel of your choice. The only requirement is that you *never* transmit unless you are on some type of boat that is floating in navigable waters. (It would be tacky as well as illegal to use your radio equipment on your neighbor's boat sitting in the driveway!)

The marine radio telephone license is a permit for your type-accepted (Part 80) equipment to be used "portable" on an unnamed or unspecified vessel. You no longer need to obtain a personal marine operator's permit, traditionally called a "restricted operator's permit." The FCC did away with this lifetime permit several years ago because it was just a paper work—not a test as to whether or not you know how to operate your radio equipment aboard a boat.

The marine VHF/FM radio service consists of approximately 55 transmit and 78 receive channels. This is detailed in the chart accompanying this article. You would use your equipment and your FCC callsign when out on the water on any one of the indicated channels. You would use pleasure (non-commercial) channels for pleasure communications regarding ship's business. You would use the emergency channel, Channel 16, during an emergency, storm or flood to communicate with local authorities. You would use the marine operator channels (public) for telephone calls, and the commercial channels if you were a commercial operation.

You may not use channels outside of their intended and designated use! While your license may cover you to operate on all 55 channels, only certain channels may be used for certain types of communications. Make sure you are familiar with the list before going on the air.

The blue FCC Form 506 and temporary operating permit Form 506A are used in applying for your marine radio telephone license. This form is available from your local FCC field office, or directly from the FCC Licensing Bureau, Marine Division, P.O. Box 1040, Gettysburg, PA 17325.

There is no license fee for the marine radio telephone permit. Fill out the form by the numbers. You might follow the filled-out sample form appearing with this article.

Item 4 has several variations. A "regular" license is what you use if you have a boat with registration numbers.

If you don't own a boat, you can still obtain a VHF license by checking the "portable" box. This allows you to take along your marine VHF equipment and your FCC call letters to any boat that you might ride on to operate your equipment. This would include a flood rescue skiff, dinghy, kayak, white water raft, charter fishing boat, or even a jet ski or windsailer-type boat. If it floats, you are allowed to operate VHF marine radio on it.

Item 9 asks for your vessel registration number. If you own a vessel, put in the registration number. If you're going to use your

United States of America
Federal Communications Commission

Approved by OMB
3060-0096
Expires 3/31/86

Application for Ship Radio Station License

1 NAME OF INDIVIDUAL (LAST, FIRST, MIDDLE INITIAL): WEST, GORDON V

1A NAME, IF OTHER THAN INDIVIDUAL:

2 MAILING ADDRESS OF APPLICANT (NUMBER AND STREET, CITY, STATE AND ZIP CODE): [redacted]

3 TYPE OF APPLICANT (CHECK ONE): (B) INDIVIDUAL; (C) CORPORATION; (P) PARTNERSHIP; (D) INDIVIDUAL WITH BUSINESS NAME; (A) ASSOCIATION; (G) GOVERNMENT ENTITY

4 TYPE OF LICENSE (CHECK ONE): REGULAR; PORTABLE (Attach Required Showings); PLURALITY; If Plurality, indicate number of vessels

5 RELATIONSHIP OF APPLICANT TO VESSEL: OWNER; OWNER/OPERATOR; OPERATOR; OTHER (Specify)

6 NAME OF SHIP: "PORTABLE"

7 CALL SIGN (PREVIOUSLY ASSIGNED TO SHIP, IF ANY)

8 INTERNATIONAL SELECTIVE CALLING NUMBER (IF ANY)

9 OFFICIAL NUMBER OF SHIP (COAST GUARD DOCUMENTATION NO. OR FEDERAL OR STATE REGISTRATION NO.); IF NONE, EXPLAIN ON SEPARATE SHEET OF PAPER

10 CLASS OF SHIP (SEE INSTRUCTIONS): 10A GENERAL: PL; 10B SPECIFIC: YAT

11 GROSS TONNAGE (LENGTH OF SHIP) (SEE INSTRUCTIONS): GROSS TONS; FEET: UNDER 30'

12 SHIP RADIO REQUIREMENT CATEGORIES (CHECK APPLICABLE BOXES; SEE INSTRUCTIONS):
(A) RADIOTELEGRAPH STATION REQUIRED BY TITLE III, PART II OF THE COMMUNICATIONS ACT OR SAFETY OF LIFE AT SEA CONVENTION
(B) RADIOTELEPHONE STATION REQUIRED BY TITLE III, PART II OF THE COMMUNICATIONS ACT OR SAFETY OF LIFE AT SEA CONVENTION
(C) RADIOTELEPHONE STATION REQUIRED BY TITLE III, PART III OF THE COMMUNICATIONS ACT
(D) RADIOTELEPHONE STATION REQUIRED BY THE GREAT LAKES AGREEMENT
(E) RADIOTELEPHONE STATION REQUIRED BY THE VESSEL BRIDGE-TO-BRIDGE RADIOTELEPHONE ACT
NONE OF THE FOREGOING (Voluntarily equipped)

13 CATEGORIES OF TRANSMITTERS (CHECK ALL TRANSMITTERS TO BE USED):

V	VHF (FM) RADIOTELEPHONE (156-158 MHz)	Q	RADAR (2900-3100 MHz)
T	SSB RADIOTELEPHONE (1800-4000 kHz)	R	RADAR (9300-9500 MHz)
U	SSB RADIOTELEPHONE (4000 23 000 kHz)	W	RADAR (14 0-14 05 GHz)
X	RADIOTELEGRAPH (405-535 kHz)	E	EPIRB (121 5 and 243 MHz) Number
M	RADIOTELEGRAPH (2000-26 000 kHz) EXCEPT DIRECT PRINTING	S	SATELLITE (1636 5-1644 MHz)
N	RADIOTELEGRAPH (2000-26 000 kHz) DIRECT PRINTING	D	ON BOARD (457 525-467 825 MHz)
L	SURVIVAL CRAFT (8364 kHz) NUMBER	O	OTHER (SPECIFY)

14 RESERVED — (If 121 5 and 243 MHz are required for EPIRB's or the ship expected to operate in international waters beyond range of marine VHF shipboard coverage, or in the EPIRB required by the U.S. Coast Guard) — YES / NO

16A Will applicant own the radio equipment? If no, give name of owner in item 16B. — YES ✓ / NO

16B Name of owner of equipment:

17 If not the owner of the radio equipment, is applicant party to a lease or other agreement under which he maintains full control of it? — YES / NO

18 Will each transmitter be a type accepted or approved by the Commission in accordance with Part 83 of the Rules? If no, explain on reverse. — YES ✓ / NO

19 Will the ship normally communicate with foreign coast stations or make international voyages? — YES ✓ / NO

20 Will this ship be used at any time to transport passengers for hire? If yes, give maximum number to be carried per voyage: NUMBER — YES / NO ✓

READ CAREFULLY BEFORE SIGNING

Certification: 1) The applicant waives any claim to the use of any particular frequency or of the ether because of previous use of same, whether by license or otherwise. 2) The applicant accepts full responsibility for the operation and control of the requested station license in accordance with applicable laws and rules of the FCC. 3) The applicant will have unlimited access to the radio equipment and will take effective measures to prevent its use by unauthorized persons. 4) Neither applicant nor any member thereof is a foreign government or representative thereof.

Willful false statements made on this form are punishable by line and/or imprisonment. U.S. Code, Title 18, Section 1001

SIGNATURE: [signature]

DESIGNATE APPROPRIATE CLASSIFICATION: Individual Applicant; Member of Partnership; Authorized representative of Corporation; Officer who is also a Member of the Application Association; Official of Government Entity

DATE: Feb 1, 87

FCC Form 506, Page 3
May 1984

VHF-FM Frequencies

CHANNEL DESIG.	FREQUENCY (MHz) SHIP	SHORE	TYPE TRAFFIC
WX1		162.550	NOAA Weath
WX2		162.400	NOAA Weath
WX3		162.475	NOAA Weath
WXC		161.650	Canadian Weath
05	156.250	156.250	Port Op
06	156.300	156.300	Safety
07	156.350	156.350	Com'l
08	156.400	156.400	Com'l
09	156.450	156.450	Com'l & Non Com'l
10	156.500	156.500	Com'l
11	156.550	156.550	Com'l
12	156.600	156.600	Port Op
13	156.650	156.650	Nav
14	156.700	156.700	Port Op
15		156.750	EPIRB
16	156.800	156.800	Safety Calling
17	156.850	156.850	State Control
18	156.900	156.900	Com'l
19	156.950	156.950	Com'l
20	157.000	161.600	Port Op
21	157.050	157.050	USCG Only
22	157.100	157.100	USCG Lias
23	157.150	157.150	USCG Only
24	157.200	161.800	Public Corresp
25	157.250	161.850	Public Corresp
26	157.300	161.900	Public Corresp
27	157.350	161.950	Public Corresp
28	157.400	162.000	Public Corresp
65	156.275	156.275	Port Op
66	156.325	156.325	Port Op
67	156.375	156.375	Com'l
68	156.425	156.425	Non Com'l
69	156.475	156.475	Non Com'l
70	156.525	156.525	Non Com'l
71	156.575	156.575	Non Com'l
72	156.625	156.625	Non Com'l
72	156.657	156.675	Port Op
74	156.725	156.725	Port Op
77	156.875	156.875	Port Op
78	156.925	156.925	Non Com'l
79	156.975	156.975	Com'l
80	157.025	157.025	Com'l
81	157.075	157.075	USCG Only
82		161.725	US Govt Only
83 (CG)	157.175	157.175	USCG Aux
84	157.226	161.825	Public C
85	157.275	161.875	Public C
86	157.325	161.925	Public C
87	157.375	161.975	Public C
88	157.425	157.425	Com'l

CAUTION: Operation on channels not designated for use by your classification of craft or on international channels when within the United States territorial waters is a violation of Federal Communications Commission rules and regulations and may result in severe penalties.

Keyboard channel selection, a fully-synthesized, 55-channel, 25-watt transmitter and a 76-channel receiver with extremely clear sound are features of the new TI-2000 VHF FM marine radio telephone.

set "portable" on many different vessels, write "See Item 4" and then type out two or three paragraphs on how you are going to use your marine radio equipment for many different vessels in a portable manner. You *must* indicate how you plan to use the equipment on different boats if you check the "portable" box in Item 4. Skip items 6, 7, 8 & 9. Answer 10 & 11 if you have an idea what type of boat you will be on.

Item 10 asks what type of boat the equipment is going on. If it's a pleasure yacht, simply fill out the appropriate letters "PL" "YAT." You will find a full description of all types of vessels in the FCC instruction sheet that accompanies your Form 506.

On Item 12, check the "F" box which means that radio equipment is not required by law for your particular type of boat.

On Item 13, check the "V" VHF/FM radio telephone box that allows you transmitting privileges from 156 to 158 MHz.

Items 19 and 20 on the marine Form 506 are usually goofed up—even though you may now and then go into foreign waters. Item 19 is usually "No," and Item 20 only pertains to charter boats. It's usually a "No" answer, too.

Now sign your name on the bottom of Form 506, and put your name and address on the back of the form in the box. Double-check that everything is completed, and then send it to the Federal Communications Commission, Marine Branch, P.O. Box 1040, Gettysburg, Pennsylvania 17325. It takes approximately 45 days for the FCC to issue your 3-letter + 4-number callsign. This callsign must be used every time you transmit on marine VHF.

If you need to operate immediately, follow the instructions on Form 506A which allows you to go on the air using temporary callsigns made up of the vessel registration number.

There are more than 30 manufacturers of marine VHF, 25-watt, fully-synthesized transceivers as well as handheld, 5-watt, synthesized transceivers. This equipment is available from marine electronics stores as well as marine catalogs. Write to Skipper Marine Electronics, 3170 Commercial Avenue, Northbrook, Illinois 60062 for their marine VHF radio catalog of equipment. Every radio is shipped with Form 506.

Do not abuse your new license. The FCC vigorously guards the VHF/FM marine radio service near large ports and waterways. Using your radio haphazardly or illegally could cause a super-tanker to miss hearing directions from a tug, and create a devastating collision.

Using your marine radio on land could also disrupt local marine VHF communications by legitimate users. The FCC uses sophisticated homing devices to rapidly track down marine radio equipment used on shore.

However, portable-type VHF equipment can come in handy during severe flooding where rescue parties take to canoes and rowboats to save people stranded out in the water. Since floods occur from large rivers, chances are local police will also have VHF/FM marine communications equipment operating on the international distress and safety channel, Channel 16.

The marine VHF/FM marine radio service is the primary ship-to-ship and ship-to-shore marine radio telephone service in the world—so welcome aboard, and use your equipment and your new license legally.

PC

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

The decks are awash with pirate radio news and loggings this month so let's get right into things.

Larry Mann in Florida reports that there's a new FM pirate operating in the Miami area. **WRIP** (Rip Radio), featuring "The Unknown DJ," has been heard in the late evenings from around 9 p.m. to midnight or 1 a.m. Eastern Time on 91.9 MHz—in stereo! Larry reports an excellent signal strength and that the format runs from dance rock to oldies.

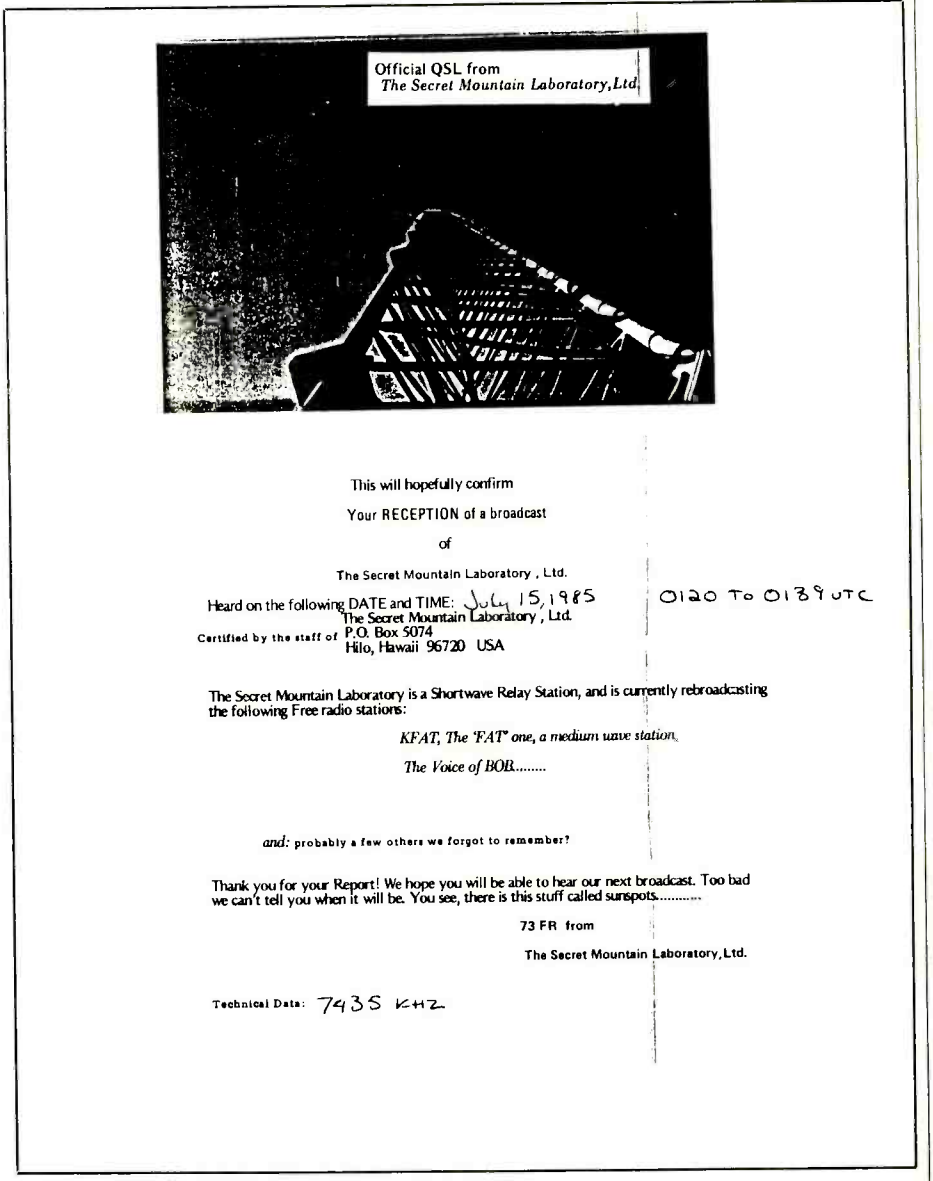
Radio Stoney Island says that they will be on the air soon. The operators call themselves "concerned people who are tired of boring programming from FCC-licensed stations." "Scott Free" says he and his staff have put a year's worth of planning into preparing for the broadcasts and will feature a variety of *anything but* Top 40 music, comedy skits and public service announcements. Radio Stoney Island is slated to operate anytime between 2000 and 0600 UTC within the 7410-7430 range. They don't mention when to expect start up other than "in the near future." Special first transmission QSL's will be issued from an address to be announced later. Other staffers are Manic Mechanic, T Boy Rex, Mr. Mann and The Who Cares Comic.

CGWN—Canada's Great White North—says it has a new address: Box 2222, New Westminster, BC V3L 5A5, Canada. Use of the old address should be discontinued.

Canadian Club Radio easily gets the prize for the most reported loggings this month. Bob St. Amant in New York had them on August 29 at 0421 on 7440 with strange sound effects and some rock to 0502 sign-off. Phil Bekkala in Michigan reports them on the same date from 0128 to 0418 tune-out with DJ's "Tool Shed Ron" and "Pilot Al." Announced 120 watts from a Johnson Viking transmitter and half wave dipole antenna. Promised to QSL reports. Also heard by Dave Bush in Ohio on that date from 0110 tune in, announcing as "Canadian free radio." Jim Gill, in Florida, heard them on September 9 from 2230-2300 on 7440, announcing possible Monday evening broadcasts. Joe Wosik of Illinois had them on August 30 between 0120 and 0448, mentioning a QSL'ing delay due to an address problem. Heard on the same date by Ben Goozner in Virginia at 0256-0412 and by Paul Johnson in Arizona on August 25 and 29 on 7440.

The address I have on file for this one: Box 140, 3090 Danforth Ave., Toronto, ONT M1L 1V1, Canada. If that isn't correct I hope someone will let me know.

WHOT in the New York City area was heard by Robert Voss in Ontario on September 1 at 0357 on 1628 kHz with oldies. Joe Wosik in Illinois had them at 0545 on 1627. Date?



Radio EXP was heard by Mark Cooper in Pennsylvania at 0127-0244 on 1620 with hardcore rock from the Sixties. No location or other information announced. One set of 16 selections was played, then repeated—this on 18 September. Anyone know anything more about this station?

CFOM was heard by Roy Brown in Manitoba on 7424 at 0408-0600 sign-off. Announced 100.3 FM with 240 watts and 120 watts on shortwave. Sounds a bit similar to TNFM which has been widely reported in recent months.

Zeppelin Radio Worldwide found on September 6 at 2312 on 7435 by Phil Bekkala, Michigan, with "Schultz" as the host, current rock, comedy, chimes and animal noises.

74-WKUE heard by Phil on 7435 on the same day from 2333-0004 with rock, comedy and oldies. Jingle said "Your station for the greatest hits of all time—74-WKUE."

Radio Deadman, 7438 also heard by Bekkala on 6 September from 0020-0030 with rock, comdey, fake ads for things like the "DeLorean Snowmobile, made in Colombia." I *think* reports on this one go via Box 5074, Hilo, HI 96720.

WQO Radio, heard on August 17 by Phil from 0108-0644 on 1630. Mainly rock, pop and talk. Address mentioned but not copied so Phil needs an address on this one.

Unidentifieds—1,618 kHz at 0452-0542 on 1 September with spoof of American Top 40. (Ross, Ontario and Wosik, Illinois).—7437 at 0331 with "Stairway to Heaven," mention of "Number 40" before fade out on August 30. —6420 at 0355 on

August 31 with a disc jockey who said they were new and would have a mail drop available soon. Also announced they were west coast pirates.—7447 on September 8 at 0302-0315 when QRM'd. Gave temperature, rock music, gave possible phone number (all from Joe Wosik, Illinois).

Other activity recently has included Radio Clandestine on 11820, Radio North Coast International on 7442, The Voice of Pubar (or any one of a number of other ways one can hear that last word) on 7437, WMTV on 7420. In general, and for long distant pirate broadcast reception, the happy hunting ground continues to be 7.300 to 7.500, mostly during the weekends. Station activity continues to be on the increase, or seems to be, anyway.

Mark G. Cooper in Pennsylvania advises reader Jon in Maryland that his logging of "The Scripture Hour" a couple of months back was actually just a religious program carried on the legitimate station, Caribbean Beacon, which operates on 1610 (not 1622) from Anguilla, in the West Indies.

There was some excellent input in the way of logs and news on the pirate scene this month. Keep it up! I look forward to having your logs of pirate radio stations received, as well as any news of pirate activity or related information you may run across. There's a real need, too, for good quality copies of pirate QSL's, photos or literature from pirate stations.

That'll do it for this voyage! I'll be back on the bridge again next month. PC

ON THE LINE

BY JULIAN MACASSEY, N6ARE

NEW AND EXCITING TELEPHONE TECHNOLOGY

Putting In Your Own Phone Wiring

Most states now allow anyone to wire in their own phones. Some phone companies say that any internal wiring is now the property of the subscriber. Depending on your skills, this can be good or bad news. If you can use a screwdriver you can now wire your phones however you like, move jacks and put in extensions. Those who have trouble with Scotch tape, let alone screwdrivers, are now going to have to find someone to work on their phones or pay the phone company by the hour for any wiring work.

Wherever a phone line enters a building, it is connected to a "protector." The protector looks like a fuse box with some screw terminals for the phone wire and a couple of brass bolt heads for each line. These brass bolt heads are not fuses, but voltage surge suppressors. They are either made of carbon or are a gas discharge type. This protector is now referred to by the phone company as the "demarc point" for demarcation point. This is where the phone company's responsibility and wire ends and the customer's starts. The protector is now somewhat analogous to the electrical company's electrical meter. After the meter, the house wiring is yours.

Any phone wiring for extra extensions or for moving a jack can start at the protector or be added elsewhere. As all phones are wired in parallel, putting in extra phones is easy. To be your own phone person you will need the following basic tools: a medium flat blade screw driver, small pliers and a wire stripper. For a better or easier job the following tools may help: a wire stapler, a multimeter and a long carbide drill bit for making holes in walls.

Getting the right phone wire used to be a problem, as was getting a jack. These days most hardware stores and some supermarkets carry the goods that you'll need to do your own wiring. Specialized phone stores have a wide range of supplies and will sell you a phone and everything you need to put it in. Phone equipment wholesalers carry a large selection of jacks and wire at good prices. At a wholesaler, the minimum length of wire you can buy is usually one thousand feet; you can buy jacks singly. Listed in your yellow pages under "Telephone Equipment and Systems—Wholesale and Manufacturers" are the names and numbers of phone equipment wholesalers in your area. Most have a counter that will sell small quantities to the do-it-yourself enthusiast.

The Wire

Internal phone wire is usually 22 or 24 gauge. It is usually jacketed. The sort of wire found in a house varies, depending on the age of the house and when the wiring was put in. Some houses are masterpieces of telephone history with specimens of every sort of wire in use since the turn of the century.

The oldest type of phone wire you are likely to encounter is rubber insulated with a brown cotton cover. The wire is either a single twisted pair or three twisted wires with the third wire either unused or grounded. Most phones in the United States and Canada use only two wires, called a "pair" by the phone company.

The next oldest wires you are likely to encounter are three plastic, colored wires in a plastic jacket. The colors are green, red and yellow. See Table 1 for an explanation of the color codes. Modern wire is usually four wires (two pair) although six pair is common in apartments. Two pair, often called "quad," usually has red, green, black and yellow wires. Some quad wire has a different color code, such as white/blue, white/orange and white/green. See Table 1 for a description of these wires.

The second pair of wires can carry several possible signals or nothing at all. The colors are black and yellow. The yellow wire is often a ground wire. On some older systems, the ringer was connected between Tip and Ground. Party line phones still use a ground wire; it is used for the ringer and to identify the subscriber.

Working on party lines is usually not allowed by the phone company. Specially modified phones are used on party lines, so you may not connect any old phone on a party line. If you have a party line and wish to do any work, contact your local phone company first. Although the ringer may no longer be grounded, the ground is often still intact.

The early Princess style telephones had lighted dials. The power from these dials was fed down the black and yellow pair. Although a house may not have had a Princess phone for years, the AC transformer, carrying about six volts, may still be in place. The AC transformer is a small pink plastic device plugged into a power outlet with some phone wire coming out of it. If you have one of these devices still plugged in and no Princess with a lighted dial, unplug it and save some energy.

Where there is also a key system in a house, the control signals that tell the system that a single line phone is in use are carried across the second pair. These controls are called "A lead" control. The black wire is called "A lead" and the yellow wire carries the "A1 lead." Homes with two lines in the house often carry the second line on the second pair. If you have two line phones, it should be on the second pair. Black is Tip and yellow is Ring, (often called Tip 2 and Ring 2). Phone wires with the striped wires would have white/orange being the same as black and orange/white being equivalent to yellow.

Table 1

Wire Color	Function
Green (White/Blue)	Tip 1
Red (Blue/White)	Ring 1
Black (White/Orange)	Tip 2 : AC voltage : A Lead
Yellow (Orange/White)	Ring 2 : AC voltage : A1 Lead : Ground
White ((White/Green)	Tip 3
Blue (Green/White)	Ring 3

There is often a third pair of wires, in single colors, which are white and blue. Often they carry a third line. White is Tip 3 and Blue is Ring 3. Striped wire equivalents are white/green: Tip 3, green/white: Ring 3.

Phone wires carry a DC voltage which, when the phone is on-hook or hung up, will vary between 48 and 52 volts. Some PBX's and small in-house systems may carry 24 volts. When the phone is off-hook or in use, this DC voltage will drop to between 9 and 3 volts. The wires with the voltage across them are the "phone line." The phone company identifies these two wires as Tip and Ring. Tip is the positive wire and ring is the negative wire. If correctly wired—many phone lines are not—Tip is green and Ring is red. Alternatively, Tip is white with a blue stripe and Ring is blue with a white stripe. If the polarity is reversed, no great damage will be done. A Touch-Tone™ phone may have a disabled pad or some phone ringers will jingle when dialing with another rotary phone. The cure for both is to swap Tip and Ring down at the jack.

Although it is a good practice to use real phone wire, in a pinch or for a temporary installation, any wire will do. If you need to pop a quick extension in for an instant office or wire the spare room before mother-in-law turns up, even zip cord will do. Phone wire is "twisted pair" to provide a balanced line and keep down noise from the environment. Most of the time, fifty feet of any old wire will not do much harm.

To join any two pieces of phone wire, many methods will work. At the bottom of the heap is twisting bare wires together and covering them with vinyl tape. Small wire nuts can be used as well. The wires can also be soldered. Wires can be joined with others under the screw terminals of a jack, junction box or protector; this is usually what the phone company does. The phone company also joins wires with devices called "jel-

ly beans." These are insulation displacement connectors that are just squeezed onto an unstripped wire. Jelly beans are a fast and effective way to join wire. Equipment wholesalers carry jelly beans; the phone company and private phone installers use these in the millions. Jelly beans for external use have grease in them to keep them from corroding. For internal use the grease loaded ones can be used if you don't mind getting your hands messy.

Phone wire can be run anywhere, although for safety and to keep induced hum down, it should be kept at least five inches from electrical wiring. A neat job is not hard to do. The wire can be tacked along the baseboard using a wire staple gun or regular wire staples. It can be run under the house, in the loft and in the walls. Rooms with fitted carpets can have the wire stuffed under the edge of the carpet. Be careful not to impale the wire on the carpet tacks.

To put in a phone in another building, wire can be run underground or overhead. Special wire should be used because the normal internal wire degrades in an outside environment. Internal wire will be okay for a few years, but eventually, water and ultraviolet will get to it. Overhead and underground wire can be purchased at phone wholesalers. If the wire is run overhead, it should have a protector installed on the far end of it. You can buy a protector at any telephone equipment wholesaler. This is to protect the phones should there be a lightning strike nearby or a powerline fall across the phone line.

Safety Note

Working on phone lines is much less hazardous than working on power wiring. The standing voltage on a phone line is below fifty volts DC and is current limited to between 20 and 50 mA. Unless your hands are damp, this will not give you a shock. If you short Tip and Ring together, no fuses will blow and no sparks will fly. It will only busy out the phone line. If the line is disconnected, you will not receive any calls or hear dial tone. If you accidentally ground Tip or Ring, there will be a terrible hum on the line.

The telephone ringer voltage is between 40 and 150 volts AC and can give you a nasty jolt. It is current limited, but is not pleasant and not fun when standing at the top of a ladder. The ringing voltage will only appear when the phone is on-hook. So, if working on live phone lines, take a phone off the hook which will drop the line voltage below 10 volts and protect you from ringing voltage. Rather than take a phone off-hook, you can also short across Tip and Ring with a pair or clip leads.

The sensible way to install wire is to work backwards. Start where the jack will be, then when the installation is nearly finished, the last thing you do is connect the wire to the live phone wire. Doing it this way keeps the current installation in use and provides a margin of safety.

Next month, wiring jacks, and the different types of jacks will be covered. PC

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It's been an interesting battle and the Los Angeles County Sheriff's Department has won. If you live in Southern California, you know how crowded—acutally, jam-packed—the airwaves are. The L.A. Sheriff's Department wanted to implement a new radio system to serve the public better, but there wasn't a frequency to be found in the Southland. The department was convinced that there was a need for more frequencies in the Los Angeles metropolitan area and approached the Federal Communications Commission with a well-thought-out plan. The Sheriff's plan called for reallocating TV Channel 16 to the land mobile service in the L.A. area. The department had to fight the broadcasters for the 482-488 MHz band. TV Channels 14 (470-476 MHz) and 20 (506-512 MHz) are already allocated for land mobile services in the L.A. area, but the L.A. Sheriff's Department proved their point: the new band was given to the department to implement the new radio system.

The new radio system will utilize 55 channels to link together the 21 sheriff's stations. The new system will be put together in phases over the next two years and will utilize more than 1,600 128-channel mobile units and more than 2,200 64-channel walkie-talkies. Eight channels in the new system will be set aside entirely for mobile data terminals, which will allow patrol units to obtain information such as vehicle registration by computer over the radio.

While the L.A. Sheriff's Department makes the gradual move from their 39 and 470 MHz frequencies, it should be noted that they will be missed on their 39 MHz channels. Many scanner listeners across North America have delighted in hearing the L.A. Sheriff's dispatchers via skip at one time or another. Many monitor hobbyists also have received QSL letters from the Sheriff's Department, one of the more receptive agencies in the United States. However, their skip signals have disrupted communications in the 39 MHz band in many areas of the nation, and have forced some agencies, such as in the Philadelphia suburbs, to seek higher frequencies to avoid the interference.

If the skip conditions are right, you might want to catch them before they move to UHF. You'll know when you're hearing the Los Angeles Sheriff's Department because of the distinctive beeps between dispatchers' communications. When the dispatcher is done transmitting and is listening to a mobile unit, a series of beeps about a second apart are transmitted by the base unit. The mobile unit transmits on another frequency (this is a duplex system) and can be retransmitted on the base frequency in instances such as chases. We'll miss hearing the L.A. Sheriff all across the country, but technology does have its price—to the tag of $58.8 million for the new system!

The Regency MX5500 scanner covers all frequencies between 25 and 550 MHz and can be used at home or in the car. The extended coverage allows reception of the 72-76 MHz fixed station band, the 220-225 MHz Ham band and the 225-400 MHz military aircraft band.

CHiPs

Some other low-band skip you might encounter from the West Coast is the California Highway Patrol, which was the subject of a popular TV series, *CHiPs*, a few years ago. The CHP operates a 42-MHz radio system that reuses frequencies throughout the state. Different CTCSS (continuous tone code squelch system) tones are used by each division of the CHP to eliminate interference. Channels used by the CHP are assigned colors and separate base and mobile frequencies are used in the duplex system. Here are frequencies you might want to check out for the CHP:

Black—42.46 base, 42.70 mobile.
Brown—42.50 base, 42.82 mobile.
Red—42.44 base, 42.28 mobile.
Orange—42.88 base, 42.66 mobile.
Yellow—42.52 base, 42.30 mobile.
Green—42.54 base, 42.24 mobile.
Blue—42.34 base, 42.18 mobile, (statewide common).
Purple—42.40 base, 42.16 mobile.
Gray—42.48 base, 42.68 mobile.
White—42.56 base, 42.72 mobile.
Ivory—45.02 base, 44.68 mobile (was governor's mobile phone).
Tan—42.42 base, 42.84 mobile.
Pink—42.44 base, 42.76 mobile.
Copper—42.60 base, 42.74 mobile.
Silver—42.08 base, 42.28 mobile.
Gold—42.12 base, 42.20 mobile.
New and unassigned—42.36 and 42.62.

The CHP Academy at Sacramento uses 42.50 MHz, brown channel, while CHP aircraft can be heard on the blue channel. In addition, California Department of Corrections transportation vehicles operate on CHP blue channel.

N.J. SPEN

H.C. Jung of Clifton, New Jersey wrote in to ask about a statewide police information channel referred to as SPEN. Actually, there are four frequencies used for SPEN (State Police Emergency Network) in New Jersey. Most municipal police departments throughout New Jersey have capability to operate on the four SPEN channels.

SPEN 1—154.680 MHz, formerly used by New Jersey State Police, this frequency is used as a common frequency for bases and mobiles throughout New Jersey during emergencies involving different law enforcement agencies. It is used primarily for all-points bulletins to surrounding towns and countries.

SPEN 2—155.475 MHz, the nationwide police emergency frequency, can be used for communications with surrounding states or as a secondary channel when SPEN 1 is in use. Some police departments use this as a "switch-over" channel.

SPEN 3—154.725 is a common channel for police use during non-emergency activities involving two or more agencies that do not share a common radio frequency. This frequency also can be used for routine operations requiring coordination between two or more agencies without common frequencies. Generally, you'll hear surveillance operations on this channel, as well as operations such as parades.

SPEN 4—153.785 MHz is used as a common channel for all public safety agencies such as police, fire, rescue and emergency management. This frequency allows law enforcement units to interface with other public safety organizations. In some areas of New Jersey, this frequency is used in large-scale emergencies.

BBS

If you're a computer nut, as well as a scanner buff, you know what a BBS is. A BBS is a computer bulletin board, a place where you can leave messages and notices, retrieve or deposit computer programs and perhaps play a few games as well.

Robert Mayer of Bartlett, Illinois writes in to say that he has set up the Monitor Post BBS for the exchange of frequency information in the 30-900 MHz bands. The BBS is operational 24 hours a day at (312) 289-0014. Although it is running only 300 baud at present, Robert hopes to be having it running 1200 baud soon.

Mods

If you're a Ham and have one of those new ICOM IC-28H 2-meter mobile radios, a simple little modification will allow you to receive (and transmit) from 138 to 174 MHz, one of our readers reports.

If you open up your IC-28H, look for a very small glass epoxy diode near the center of the main board. The diode, which is not shown on the schematic, is labeled D21 on the board. By clipping D21, you'll have a combination scanner, and 2-meter rig. However, the radio isn't type-accepted to transmit outside of the 144-148 MHz 2-meter Ham band. Be aware that this modification will nullify the unit's factory warranty.

On the Boardwalk

Mike Sasko at McGuire Air Force Base in New Jersey says he recently went to Atlantic City and noticed security personnel at the casinos using handheld radios. He asks whether all the casinos use the same frequency band and whether casino control units use radios.

First of all, the Division of Gaming Enforcement, an arm of the New Jersey Casino Control Commission, uses 460.175 and 460.250 at the casinos in Atlantic City. As far as security at the casinos, UHF business band channels are used by almost all security forces in Atlantic City. Some of the casinos use repeaters, others use split UHF channels between other channels. When in Atlantic City, set your scanner to search between 461-465 MHz and 466-470 MHz. You'll also find gaming units, housekeeping personnel and maintenance crews using radios at the casinos. Some entertainers come into town with their own radio systems as well. Don't forget to check the 151 and 154 MHz business band channels as well, as some auxiliary operations occur on those frequencies as well.

Write In

We'd like to hear from you, too, here at *POP'COMM*. We welcome your letters and lists, comments and criticism and photographs and frequencies. The address: Chuck Gysi, N2DUP, Scanner Scene, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-2909. PC

Beaming In *(from page 4)*

scrambler! It tells about the power output "to 1 watt" and a range of "up to 7 miles." Just the thing for a budding "007" or member of the *A-Team* to use for maintaining contact with cohorts during a mission, right? Wrong, Communications Breath!

The 1-watt power rating reveals that this isn't a no-license unit. The description goes on to tell how it operates in the "440-450 MHz" band. Surprise, surprise! This is a 440 MHz-band Ham transceiver! It can't be used or licensed outside of a Ham band. As a matter of fact, in order to operate it, a person would have to have at least a Technician Class Amateur License, and (even under those conditions), use for non-Ham purposes would be frowned upon to a great degree. No mention is made of any of this.

Checking with the company offering this equipment, I found that they were "fresh out of descriptive flyers on the unit." But, said the salesman, the units run such low power that I wouldn't need a license to operate them. I asked about the "encryption system" that would keep my conversations private and was told that I could program in any frequency of my choice and could select one that nobody else used; that I could easily change frequencies "at will."

The price? Cheap! I was told that these units were available at a cool $1,800 per pair! I found this interesting; the same or equivalent units sell from Ham equipment dealers for about $200 each! Either the seller of this unit didn't know or didn't care about the need for a license to operate these devices, or that the "encryption system to keep your communications private" wouldn't do anything of the kind. Neither was there any mention of how the unauthorized use of the unit could cause havoc to legitimate communications on the 440 MHz band while simultaneously buying would-be 007's a chunk of trouble with the FCC, and all for only four and a half times the retail price at a Ham equipment dealer! Quite a bargain, wouldn't you say?

The message here should be obvious. When you need a good camera, you check out photographic equipment suppliers. If you're in the market for a diamond ring, you seek out reputable jewelers. Want a pedigree dog for show purposes? Locate an AKC breeder. You want a rare coin? Go and find a professional numismatic dealer offering coins with ANACS or PCGS grading and authentication papers. You're looking for communications equipment? Speak to a professional communications supplier. He knows how his wares match up with your needs; he wants you to be satisfied with his products and services. He's happy to tell you the advantages and limitations of everything he carries so that you get the best value.

Ads in specialized publications directed at a communications-user readership (such as *Popular Communications*, DX club newsletters, etc.) are where you can find out who and where these professionals are. Also, you can ask other communications users, as well as look in the *Yellow Pages* under "Radio Communications Equipment."

We regularly receive pained letters from folks who feel that they've ended up with equipment that was less than was represented and less than they needed, often at prices that turned out to be outrageous. As their stories unfold, it invariably comes out that they hadn't dealt with a professional communications specialist. Today, the general public media is wall-to-wall with offers, deals, and bargains for everything from pagers to scanners, shortwave receivers to CB gear and cordless telephones.

URCN's Peter J. Turner (G8TSY) sent us one of the more spectacular QSL's we have seen. The actual QSL is thick, hard plastic and was designed by the BBC's Graphics Department. Peter is a cosmologist and an authority on Black Holes, Quasar red shifts, and the like, so the design of the QSL is quite appropriate.

I'm not saying that all such offerings are sinister, they're not. I *am* saying that when it comes to attempts to describe communications equipment to the general public, it's beginning to get tricky to sort out the sinister from the sincere, the facts from the fudge. Dealers who seek to sell to uninformed customers don't need to have informed sales personnel—therefore, they seldom seem to bother with such matters. Think about it.

For myself, I've found it best to stick with suppliers who specialize in the various facets of communications. I can't offer any better advice than that to my readers.

Overseas Notes

Our friend Peter J. Turner, G8TSY, tells us that he has commenced publication of a newsletter that he's willing to send at no cost to DX fans anywhere in the world. Peter calls this publication *UK Radio Communication News*. It's aimed primarily towards scanner and HF "ute" monitoring devotees.

URCN contains plenty of frequency data, and to get on the URCN mailing list all you need do is contribute information and frequency data for publication. Although Peter hasn't asked for them, my own personal suggestion is that those who want to receive URCN, in addition to contributing information and frequency data, should also include a couple of International Reply Coupons (available at most post offices) to help him defray the cost of overseas mailing.

Those who are interested, please contact the newsletter directly at the following address: Peter J. Turner, Editor, U.R.C.N., 51 Weyland Road, Witnesham, Ipswitch, Suffolk, IP6-9ET, England. Tell him that you read about it in *POP'COMM*.

Peter knows his stuff and has been interested in rooting out confidential and otherwise hidden frequencies, so the potentials for URCN sound most interesting. Peter says that he's willing to publish any frequencies that look interesting, no matter how outrageous they may be, and that means anything between 1 kHz and 14 GHz! PC

IF YOU NEED $5,000...$20,000 EVEN UP TO $500,000 TO START A NEW BUSINESS OR TO EXPAND AN EXISTING FIRM—THEN READ WHY YOU TOO WILL CALL THIS INCREDIBLE MONEY RAISING

BUSINESS OPPORTUNITY SEEKERS' LOANS MANUAL

"The Small Business Borrower's Bible"

Practically prepares the loan application for you line-by-line...the "proper" way.
All properly prepared applications are processed faster...no red tape!

EVERY LOAN DOLLAR YOU GET YOU KEEP AND USE TO OPERATE YOUR BUSINESS

Guaranteed Loans...Direct Loans...and Immediate Loans are available now!

Most men and women seriously interested in starting their own business are eligible to apply — including those who already own a business and need capital fast for expansion...or to stay afloat...even if they've been flatly refused by banks and turned down elsewhere! Yet, too many never qualify, simply because they do not know how to "properly" prepare the loan application...

In order to help those people applying for these guaranteed and direct loans fill out their loan applications the "right way" our business research along with diligent compilation and effective efforts, has successfully assembled and published a comprehensive, easy-to-follow seminar manual: The Business Opportunity Seekers' Loans Manual, that will quickly show you practically everything you'll need to know to prepare a loan application to get federally Guaranteed and Direct Loans.

Here are just **some of the many important benefits** the Business Opportunity Seekers' Loans Manual provides you with:

- **a completely filled in sample set of actual SBA loan application forms, all properly filled in for you to easily follow—aids you in quickly preparing your own loan application the right way. Each line on the sample application forms is explained and illustrated in easy-to-understand language.**
- **fast application preparation procedures for getting loans for both new start up business ventures and established firms.**
- **advises you on how to properly answer key questions necessary for loan approval and in order to help avoid having your application turned down—gives you advice on what you should not do under any circumstances.**
- **what simple steps you take to guarantee eligibility—no matter if you do not presently qualify.**
- **where you can file your application for fastest processing.**

At this point the most important question you want answered is: Just where is all this loan money coming from? Incredible as it may sound—these Guaranteed Loans, Direct Loans and Immediate Loans are indeed available right now — from the best and yet the most overlooked and frequently the most ignored and sometimes outright ridiculed "made-fun-of" source of ready money fast capital in America — THE UNITED STATES GOVERNMENT.

Of course there are those who upon hearing the words "UNITED STATES GOVERNMENT" will instantly freeze up and frown and say

"only minorities can get small business loan money from the government!"

Yet on the other hand (and most puzzling) others will rant on and on and on that

"don't even try it's just impossible — all those Business Loans Programs are strictly for the Chryslers, the Lockheeds, the big corporations not for the little guy or small companies" etc.

Still there are those who declare:

"I need money right now and small business government loans take too darn long. It's impossible to qualify. No one ever gets one of those loans."

Or you may hear these comments:

"My accountant's junior assistant says he thinks it might be a waste of my time!" "Heck, there's too much worriesome paperwork and red tape to wade through!"

Frankly — such rantings and ravings are just a lot of "bull" without any real basis — and only serve to clearly show that lack of knowledge, misinformation and and not quite fully understanding the UNITED STATES GOVERNMENT'S Small Business Administration's (SBA) Programs have unfortunately caused a lot of people to ignore what is without a doubt — not only the most important and generous source of financing for new business start ups and existing business expansions in this country — but of the entire world!

Now that you've heard the "bull" about the United States Government's SBA Loan Program — take a few more moments and read the following facts:

- **Only 9.6% of approved loans were actually made to minorites last year.**
- **What SBA recognizes as a "small business" actually applies to 97% of all the companies in the nation.**
- **Red tape comes about only when the loan application is sent back due to applicant not providing the requested information...or providing the wrong information.**
- **The SBA is required by Congress to provide a minimum dollar amount in business loans each fiscal year in order to lawfully comply with strict quotas. (Almost 5 billion this year)**

Yet, despite the millions who miss out — there are still literally thousands of ambitious **men and women nationwide** who are properly applying — being approved — and **obtaining sufficient funds** to either start a new business, a franchise, or buy out or expand an existing one. Mostly they are all just typical Americans with no fancy titles, who used essentially the **same effective know-how** to fill out their applications that you'll find in the Business Opportunity Seekers' Loans Manual.

So don't you dare be shy about applying for and accepting these guaranteed and direct government loans. Curiously enough the government is actually very much interested in helping you start a business that will make a lot of money. It's to their advantage — the more money you make the more they stand to collect in taxes. In fiscal 1986, our nation's good old generous "uncle" will either lend directly or guarantee **billions of dollars** in loan requests, along with technical assistance and even sales procurement assistance. Remember, **if you don't** apply for these available SBA funds, **somebody else certainly will.**

Don't lose out — now is the best time to place your order for this comprehensive manual. It is not **sold in stores.** Available only by mail through this ad, directly from **Financial Freedom Co., the exclusive publisher,** at just a small fraction of what it would cost for the services of a private loan advisor or to attend a seminar.

For example:

Initially, this amazing Guaranteed and Direct Loans Manual was specially designed to be the basis of a Small Business Loan Seminar — where each registrant would pay an admission fee of $450. But our company felt that since the manual's quality instructions were so ***exceptionally crystal-clear*** *that anyone who could read, could* ***successfully use its techniques*** *without having to attend a seminar or pay for costly private loan advisory assistance services.*

Therefore, for those purchasing the manual by mail, no 3 day class, no course and accommodations are required. And rather than $450 we could slash the price all the way down to just a **mere** $20 — a small portion of a typical seminar attendance fee — providing you promptly fill in and mail coupon below with fee while this special "seminar-in-print" manual offer is still available by mail at this relatively low price!

Remember, this most unique manual quickly provides you with actual sample copies of SBA Loan application and all other required forms—already properly filled in for you to easily use as reliably accurate step-by-step guides—thus offering you complete assurance that your application will be properly prepared and thereby immediately putting you on the right road to obtaining fast no red-tape loan approval.

GUARANTEE #1

Simply — look over this most effective money raising loan preparation assistance manual for 15 days — and then if you are not convinced that it can actually help you obtain the Business Loan you need right away — just return it for a full and prompt refund.

GUARANTEE #2

Even after 15 days — here's how you are still strongly protected — if you decide to keep the manual — and you apply for an SBA Loan anytime within 1 year — your loan must be approved and you must actually receive the funds or your money will be refunded in full.

Only because we are so confident that this is a fact do we dare make such a strong binding seldom-heard-of Double Guarantee. **No stronger guarantee possible!**

Of course, no one can guarantee that every request will be approved — but clearly we are firmly convinced that any sound business request properly prepared — showing a reasonable chance of repayment and submitted to SBA — will be approved.

THOUSANDS ARE PROPERLY APPLYING AND BEING APPROVED. HERE'S YOUR CHANCE TO JOIN THEM!

FREE BONUS

If you order your manual today you'll receive a valuable treasury of fast, easy, low capital and highly profitable business programs worth forty five dollars — yours absolutely free!

100% tax deductible as a business expense. Don't delay — order your copy today!

NO RISK LOAN OPPORTUNITY FORM

Detach and rush for COMPLETE PREPARATION ASSISTANCE FOR LOAN APPROVAL

Please rush me _____ copies of "Business Opportunity Seekers' Loans Manual" each at a $20 fee plus $3.00 handling and shipping.

I am fully protected by the two strong guarantees above. I'm ordering today – so I can receive FREE – the valuable treasury of fast, easy, low-capital and highly profitable business programs ... worth forty-five dollars – mine free to keep even if I decide to return the manual for a full refund.

☐ Enclosed is Full Payment
☐ Cash ☐ Check ☐ Money Order

Send payment with order.

Name _____
Please Print Clearly
Address _____
City _____
State _____ Zip _____

MAIL TO:
Financial Freedom Publishers
110 W. 5th St., Dept. PC-1
Winston-Salem, NC 27101

ORDER NOW

GUARANTEED YOUR LOAN MUST BE APPROVED . . . OR MONEY BACK — ONLY A SMALL PRICE TO PAY FOR THE LOAN YOU CAN GET . . . NO RISK AND NO HASSLES.

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

Mysteries, oddities and the inexplicable are part and parcel of the clandestine radio world. More so than any other phase of monitoring, with the possible exception of the numbers stations.

One current case, perhaps destined to become a clandestine classic, is the strange anti-Castro station Radio Caiman which continues on its merry way operating nightly on 7470 MHz and putting out a whammer of a signal. Our continuing efforts to dig some information up on this one have us still running into blank walls and dead ends. A recent report by expert Japanes DX'er Takayuki Inoue asserts that the station is run by an organization calling itself "Pro Libertad de Cuba" and that the transmitter of Radio Caiman is located south of Guatemala City. We don't know if the Inoue report concerning the possible backer of this station was picked up from earlier reports originating with our friend Dr. John Santosuosso who, last year, got a letter from this group claiming responsibility for the station, or whether the Inoue report came from independent sources. None of our sources has ever heard of anything called Pro Libertad de Cuba and we question whether such a group actually exists. Perhaps if they do exist they can prove us wrong?

Another Central American mystery clandestine, the anti-Nicaraguan Radio Monimbo, suddenly vanished during the second part of last summer. But, they may have returned recently. A station playing nothing but music has turned up just a shade below 6230, Monimbo's old frequency, between 0000-0200. If it is Monimbo, it's odd that the operators still seem to be unaware of HCJB's English broadcasts on this spot—which simply wiped out Monimbo's former 0200 broadcasts.

Radio Miskut, the anti-Nicaraguan clandestine which speaks on behalf of the Miskito and other displaced Nicaraguan Indians, and which had been inactive for some time, is active again. Currently, it's being heard on 5565 between 0130-0230, 1130-1230 and 2100-2200, in Miskito with occasional segments in Spanish and English as well. If you should hear this one you can try a report to: Misura Political Commission, Box 1668, Tegucigalpa, Honduras.

Looks like there's a new Middle East clandestine on the air—The Voice of the Pilgrim (Sawt al-Hajij). Its broadcasts are entirely in Arabic on 9860. The full schedule isn't available but it's known to be active around 1300 to past 1400. The station appears to be Islamic fundamentalist and appeals for Islamic unity, opposes the East and West blocs as well as Judaism. Calls on God to assist the mujahidin (freedom fighters) in Afghanistan, Pakistan, Lebanon and Iran.

A demonstration on behalf of the Polisario Front and its call for independence for the Western Sahara adorns this New Year's card which accompanied a QSL letter to your editor.

The Tamil separatists of Sri Lanka have had their hands in clandestine broadcasting since before that movement worked its way into the news. It looks now like the Sri Lankan government is doing something more than jamming such broadcasts. The transmitting facilities of the Sri Lankan Broadcasting Corporation are now apparently also used for a "black" version of the Voice of Tamil Eelam. Significantly, the black version is free of jamming. Broadcasts have been monitored in India between 0430-0530 and 1330-1430 on 9700, occasionally on 9560, 9675 and 9705. The 1330 broadcast looks as though it stands a chance of being heard here, in contrast to the real Tamil clandestines which haven't made it this far.

Check the usual frequencies of Radio Algeria (9509, 9640, 9665, 11715, 15160, 15215 and 17775) at 2200 daily for the broadcast of the Polasario Front, which wants independence for the Western Sahara, now controlled by Morocco. La Voix du Sahara Libre (Voice of the Free Sahara) recently QSL'ed a reception report for us. Address: Director of Information, Sahara Libre, B.P. 10 - El Mouradia, Algiers, Algeria. Reports in French are advisable.

One of the steadiest clandestines of recent years is La Voz de Cuba Independient y Democratica (La Voz del CID) and we have two people passing along logs of this one. It was heard by Pat McDonough in Pittsburgh on 9940 at 0346 in Spanish and at 0441 on the same frequency by Caroline Eaton in Herndon, Virginia. Wonder if anyone at CID has been informed about what a beating their 7380 channel is taking from QRM sources over the past couple of months?

Our own Tom Kneitel reports hearing Radio Iran (anti-Khomeni, located in Egypt) on 13560. The program at 2053 consisted of male and female announcers, in language, exchanging commentary. Signals were at a good level. Tom points out that 13560 kHz is a strange frequency that, for years, has been favored by terrorists, outbanders, bootleggers, smugglers, mercenaries, paramilitary groups, and just about every other kind of odd user category. That's because it has been internationally set aside for ISM (industrial, scientific, and medical) purposes and therefore isn't normally assigned for broadcasting or communications operations. A good frequency to check out regularly.

Your loggings of clandestine stations are always welcome for this column. But, even more than that, we'd like to see some devotees of the detective genre get involved in digging up background information on such stations, or their operators, or groups which might someday operate a clandestine station. If you find the subject of clandestine broadcasting interesting then, at the least, please keep a sharp eye out for news and background information. We can use copies of your clandestine QSL's too.

The hunt goes on! PC

COMMUNICATIONS SHOP

Advertising Rates: SCAN members and *POP'COMM* subscribers are entitled to one FREE 30-word, non-commercial classified ad per year. Enclose subscription name label with ad copy. For those people not in the previously mentioned groups, non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge $6.00 per issue. Ads from firms offering commercial products or services are $1.00 per word; minimum charge $20.00 per issue. Boldface words are $1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads must be prepaid in full at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be typewritten double spaced.

Approval: All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.

Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Communications Shop have not been investigated, the Publisher of Popular Communications cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801.

SURVEILLANCE RECEIVER, LTV, G-175, 30-260 MHz, AM-FM-CW, COR for recording, adjustable bandwidth 10 KHz, 40/75 KHz, 300 KHz, sensitivity: AM-1uv, FM-2uv, 24 lb, good condition, $275. Frank Moreland, 3748 Yosemite, San Diego, CA 92109.

LOOKING for N.H. scanner enthusiasts to trade frequencies, gear, knowledge, and to start a club. Steve Dube, 32½ Lowell Rd., Husdon, NH 03051.

FOR SALE, 10 channel crystal police scanner Realistic Pro 48 UHF/VHF/Air $25. Like new. Send check or money order to John C. Breecher, W. 262 S. 3238, Ridge Rd., Waukesha, WI 53188.

BEARCAT 210, 10-channel programmable scanner. Includes original mobile mount, wiring and instruction manual. Excellent condition. Will ship postpaid. Cashier's check $150. Mario Oliveti, 7113 Large St., Phila., PA 19149.

WANTED: Scanner descrambler to decode Motorola DVP transmissions, if possible. Also, any federal frequencies used in Louisiana/Mississippi. Mark Marchiafava, 2365 Palm Hills, Baton Rouge, LA 70809.

NEEDED: I am in need of any information about the Tennelec brand of scanner Model MS-2. This unit was purchased used without programming info or service literature. Any help would be appreciated. I will reimburse for all copy and postage incurred. Roy Eichelberger KA7GXX, 1136 Turquoise Way, Sandy, UT 84070.

WANTED: Someone living in Los Angeles, California and Honolulu, Hawaii to swap cassette tapes of Fire, P.D., Military, for tapes from my county and area. Carlton E. Hall, Sr., 108 Washington St., Wayland, NY 14572.

WANTED: Pre-1935 radio magazines—Radio News, Popular Radio, Radio Retailing, Wireless Age, Radio Craft, Radio Broadcast, etc. Also radio books and catalogs. Gary Schneider, 9511-23 Sunrise, Apt. J-23, Cleveland, OH 44133.

FOR SALE: TK-16 Regency Scanner "Used" $150. Phil Hejna, P.O. Box 815, Derby, NY 14047-0815.

ONTARIO FREQUENCIES WANTED, VHF LO, HI, Aero, and UHF. Will exchange for your preference from this area. Your response greatly appreciated. Write B. Keegan, 2806 Stillmeadow, Windsor, ONT. N8R1M6.

SCANNER CRYSTALS: Regency 154.65, 154.400. Bearcat 155.745, 155.37, 154.83, 162.55, 155.355, 154.34, 154,145, 154.19, 155.010, 155.565, 154.43, 154.785, 460.45, 460.200, 460.150, plus more, $3.50 each. Ron McHenry, 6520 S.W. Dory Ct., Beaverton, OR 97005.

FOR SALE. HYGAIN Proscan 16 ch., 3 band. Regency TMR-8HL 8 ch., 3 band. Manuals. Working. $17.50 each prepaid U.P.S. (402) 489-3970. E. J. Berryman, 5919 Newton, Lincoln, NE 68506-2742.

REALISTIC PRO-53 8 channel scanning receiver. Send certified check or M.O. $50. C.A. Lear, 1161 A-1-A Hillsboro, Pompano Beach, FL 33062.

INFO WANTED FOR Berrien, Cass, Van Buren counties, Michigan. Will provide what I have in exchange. Jim Sokol, P.O. Box 295, St. Joseph, MI 49085.

FOR SALE DX400. Cost $300. Will sell for $200 firm. New condition in original box. Philip Lanoue, 7 First St., Hoosick Falls, NY 12090. (518) 686-7837.

SBE OPTI-SCAN scanner. Model SBE 125M. Like new in original carton. Includes programming manual and some program cards. $175 or best offer. Phone 1-317-898-3899. Postpaid.

BEARCAT 100 ACCESSORIES: two adaptors connect PL259 or Motorola plug to antenna socket; car power cord with cigarette lighter plug. $17 total C.O.D. Martin Sewecke, 1028 George, Sharon, PA 16146.

BEARCAT BC-100 programmable 16 channel 8 band scanner. Send certified check or money order $125. Ron McClary, 1603, Dorchester Drive, Bloomington, IN 47401.

NEED UNIT # or car # for Franklin County and Hamilton County police and fire in Ohio. Will swap my area. K. Williams, 208 W. 2nd St., Arcanum, OH 45304.

PANASONIC RF-4900 FM/AM, 10-band communications receiver $195. Will ship free. Send bank or postal money order to: Mel Ragucci, 1430 Saturn St., Merritt Island, FL 32953.

YAESU FRG-8800 communications receiver, FRT 7700 antenna tuner, FRA 7700 active antenna, $450. Dymek DA-100D, active antenna $100. John Zidanich (716) 693-5290.

NRD525 General coverage communications receiver, 100 kHz—30 MHz. List $1179. Still in box, never used. Asking $900. (314) 921-5676.

ICOM R71, just checked out completely by factory. No modifications, has manual, dc kit (not installed.) Excellent condition, $615. YOUR SATISFACTION GUARANTEED OR "NO SALE." Details, (601) 896-6639.

FOR SALE: BEARCAT 250. Excellent condition $170. Also, 10 channel Regency crystal scanner Model ACT-E 10 H/L/u $60 FIRM. Certified check. Call Ed, 401-728-1202, 8:30 to 11:00 a.m. weekdays.

SSB OPERATORS JOIN the Delta Tango Int. Radio Group on 27 MHz. for details send S.A.S.E. to P.O. Box 709, Buffalo, NY 14215. Thank you.

LANDMOBILE AND MARINE RADIO TECHNICAL HANDBOOK has been written for current and prospective two-way radio technicians, operators, and engineers. It can be used as a radio-communications textbook for home study or classroom. Two-way fundamentals, circuit details, maintenance and installation data, test equipment types and practical usage, two-way services and frequencies, transmission characteristics and classifications, solid-state fundamentals as related to transmission circuits, modulation systems, digital and microprocessor circuits, test equipment types and usage, antenna systems, landmobile systems and circuits, repeater, trunked, and cellular radio, marine radiotelephone and radiotelegraph equipment, direction finders and loran, marine radar and FCC licensing information. 575-page SAMS book $24.95 + $2 P&H. Ed Noll, Box 75, Chalfont, PA 18914.

JOIN a radio listening club. Complete information on major North American clubs and sample newsletter $1. Association of North American Radio Clubs, P.O. Box 462, Northfield, MN 55057.

ESPIONAGE/EMBASSY Communications Guide, by Tom Kneitel. What's behind mystery "numbers" transmissions, coded embassy messages, and stations operated by foreign governments in the USA & Canada. How nations monitor each other's official codes and communications. Illustrated! Includes largest/latest registry of stations (frequencies/callsigns/locations/modes) operated embassies of the world's governments, intelligence agencies, U.N., Interpol, International Red Cross, U.S. State Department; HF/VHF/UHF. Now you can tune in on Embassy & Espionage Communications is $10.95 + $1 postage (USA/Canada/APO/FPO) from CRB Research, Box 56, Commack NY 11725.

COMPUTER PROGRAMS for Commodore 64. Menu driven providing logs for BCL/SWL. Update formats, QSL records, other. Disk or tape. Screen and/or printer. Send SASE for more info & sample printout. Manucy, P.O. Box 5624, Baltimore, MD 21210.

Advertiser's Index

MILITARY ELECTRONICS: Patrol Seismic Intrusion Device ("PSID") TRC-3: $42.50 single transmitter, $147.50/set of four, mint condition. CPRC-26 Manpack Radio, compact, transmits-receives 46-54 MHz FM, with battery box, antenna, crystal: $17.50 apiece, $32.50/pair. PRC-510 Backpack Radio, transmits-receives 38-55 MHz FM continuous tuning, with battery box, antenna: $34.50 apiece, $67.50/pair. R-748 Receiver, 130-150 MHz single channel: $27.50. R-108 Receiver, 20-28 MHz FM: $27.50 mint. ARC-27 Guard Receiver, 220-248 MHz single channel AM: $12.50 mint. 45-Day Replacement Guarantee. Add $4.50/piece shipping. Baytronics, Dept. PC, Box 591, Sandusky, OH 44870.

HOMEBREW PROJECTS list. SASE. WB2EUF, Box 708, East Hampton, NY 11937.

ICOM R71A HP (XF) EEB modified with FL44A crystal filter, remote control, special performance manual. Brand new in original carton. Save $250. Sale $899. Call Joan at (503) 688-4644.

FOR SALE: RCA model CR88A general coverage receiver, $135 and new Kenwood R2000 receiver $395. G. Davis, P.O. Box 14007, Albuquerque, NM 87191. 505-266-6081.

CAPACITORS, CRYSTALS, CONNECTORS, IC's, transistors and more for sale for next to nothing! John Carno, 64 Broad Street, Suite 201, Elizabeth, NJ 07201, or phone (201) 355-9524.

WANTED: OLDER GENERAL coverage receiver in good condition; especially interested in Hallicrafter's SX-series, Hammurlund, and National. Write to: Gary Bledsoe, 1722 Crescent Dr., Anchorage, AK 99508.

WANTED: OPERATION INSTRUCTIONS and schematic for EICO DC-wideband model 460 oscilloscope. Richard Derr, 16 S. Wylan St., Frackville, PA 17931.

PHONE BILLS TOO HIGH? Learn the secrets that corporations use to cut their phone bills—legally. My 23-page handbook is just $6.95. Guaranteed. Larry, WB2NEL, P.O. Box 39103, Washington, DC 20016.

FIREMEN! Looking for emergency lighting equipment and sirens. Also, any used VHF radio equipment. If you have any please write me. Dana Howard, Rt 1 Box 614, Holt, MO 64048.

POPULAR COMMUNICATIONS MAGAZINE for sale. Issue number one Sept. 1982 to December 1986, $80. Includes shipping. Contact: Art Zabrecky, 127 Island Drive, Elyria, OH 44035, or call (216) 322-7415 evenings.

FOR SALE: KENWOOD R-2000 shortwave, $350. Regency MX-3000 scanner, $150. Both in excellent condition. Call Robert 312-731-1774. 8505 S. Yates, Chicago, IL 60617.

WANTED: OWNERS MANUAL For Tennelec MCP-1 memory scan or copy of same. McGovern, P.O. Box 202, Walker Valley, NY 12588.

WANTED: USED SONY ICF-2010 or Magnavox D2999, must work like new and have manual. Send description and price to B.H. Bolt, 5319 Gale Lane, Ft. Worth, TX 76119.

WANTED: MOTOROLA CB (model 4022) in good working condition. Send photograph of radio and asking price to: Charles Nevergall, 7253 State Route 197, Celina, Ohio 45822.

UNIDEN BEARCAT 50-XL Programmable 10-channel, ten-band scanning receiver. Send certified check. $120. Scott Halsey, 1434 San Ignacio, Solana Beach, CA 92075. Only had for 5 months. Tax is included.

BEARCAT 100 FOR SALE. Used once. Best offer. Call (212) 724-2795.

WANTED POLICE CODES for Michigan City, Indiana and Laporte County, also State Police. Frequency info, too. New to scanning—any help appreciated. Bob Blank, 102 Keyo Drive, Michigan City, IN 46360.

REGENCY DIGITAL flight scanner. Perfect working condition, $100. David Alpert, 880 Mellody Lake, Forest, IL 60045.

FOR SALE BEARCAT 20/20 Canadian scanner. All accessories, data service sheets. Pre-tuned per my specifications. Cashier's check for $250. Original cost over $400. Used little, about 3½ years old. W.J. Gills, Rt. 2, Box 217, Columbia, NC 27925.

LIKE NEW REALISTIC programmable AM/FM scanning receiver model PRO-2003. Sales slip No. E20613 attached, proves item purchased 21 July 1986, priced $249, originally $349. Will sell for $225 or best offer. P.O. Box 9453, Ogden, UT 84409.

BEARCAT 800XLT: $275. ICOM R7000: $900. Kenwood R-600: $250. Cobra radar detector: $65. All slightly used. Marc Grant, 1221 Colony St., Flower Mound, TX 75028. (214) 724-1515.

WANTED-FEBRUARY '86 ISSUE of Popular Communications. Needed to fill complete library of Popular Communications. Rodney Grussling, 2005 West Elmira Rd., Sandpoint, ID, 83864. (208) 263-5845.

CIRCLE 8 ON READER SERVICE CARD

CIRCLE 45 ON READER SERVICE CARD

New From Spectronics!

The SONY AIR-8 Is Here!

Hand-Held Programmable PLL Scanner/Receiver For AIR BAND-2M/PSB-FM-AM(LW-MW-SW)

NOW ONLY

$269.00

Plus $4.00 UPS

Listen to 2 Meters, Forestry, Police, Fire, Air Traffic Control, LF and VHF Weather, 160 Meter AM & CW, and a whole lot more!

HERE ARE SOME OF THE AIR-8's OUTSTANDING FEATURES!

• Computer controlled PLL tuning system • 40 memory presets • Multi scan system (manual and auto) • 11″ Helical antenna w/BNC connector • Priority channel • Squelch (auto and manual) • Direct tuning

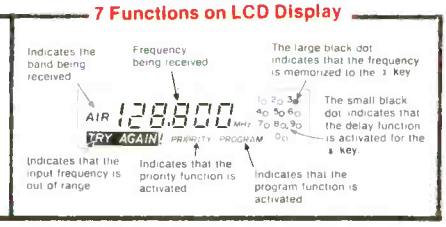
HERE'S TRUE SONY QUALITY! Feel the rugged construction, and listen to the high quality sound, and you'll know it's a Sony! The new Air-8 can scan four different frequency ranges in either direction and can store a total of forty frequencies in its four memory banks. You can recall any memorized frequency with the touch of a key, and can scan the ten channels in each of its four memory banks in any order. The Air-8 also has a delay function that prevents dropout enabling you to hear both sides of a conversation, and also a priority feature that samples a chosen frequency every three seconds for a signal. The quick-disconnect BNC connector allows different types of antennas to be easily coupled to the Air-8 for maximum performance.

The Air-8 measures 3⅛″ × 7⅛″ × 2″, and weighs just 21 oz. This is truly a sturdy little companion that will give you years of dependable performance wherever you go.

6 Frequency Bands

Band		Frequency range	Tuning interval
PSB		144 - 174 MHz	5 kHz
AIR		108 - 136 MHz	25 kHz
FM		76 - 108 MHz	50 kHz
AM	SW	1601 - 2194 kHz (1603 - 2194 kHz)	1 kHz
	MW	530 - 1600 kHz (531 - 1602 kHz)	10 kHz (9 kHz)
	LW	150 - 529 kHz (150 - 530 kHz)	1 kHz

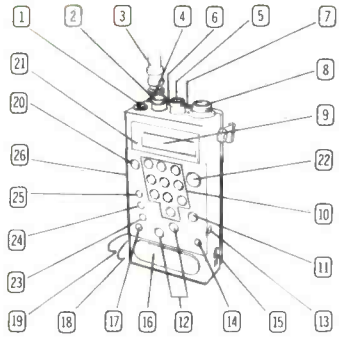
7 Functions on LCD Display



THOUSANDS IN USE ALL AROUND THE WORLD!

PACKED WITH SONY STATE-OF-THE-ART TECHNOLOGY

(1) POWER Switch (2) Volume Control (3) 11″ Helical Antenna (4) BNC Antenna Connector (5) Squelch Control. Features both manual and automatic modes. **(6) Earphone Jack (7) AM External Ant Jack (8) Band Selector.** Selects Air, PSB, AM, or FM. **(9) LCD Display** (See detailed illustration above) **(10) Counter Keys.** Used to program frequencies for direct tuning and memories, and also to recall memories. **(11) EXECUTE Key (12) SCAN Keys.** Used for scan tuning and manual tuning. **(13) LIGHT Switch (14) KEY PROTECT.** Locks out all keys on front face. **(15) EXTERNAL DC INPUT (16) High Quality Speaker (17) ENTER Key.** Used to memorize frequencies. **(18) Battery Compartment** (rear) **(19) 9kHZ/10 kHZ Selector** (Inside battery compartment). Used to change MW tuning interval. **(20) DIRECT Key.** Used for direct tuning. **(21) LED Receive Indicator (22) MEMORY Scan Key.** Used for scan tuning each memory bank. **(23) PROGRAM Key.** Used to initiate the program function. **(24) DELAY Key (25) PRIORITY Key.** Used for sampling a priority channel every 3 seconds. **(26) Heavy Duty Body.** Rugged military/industrial grade construction. AND DON'T FORGET . . . IT'S A SONY!



SPECTRONICS, INC.

1009 GARFIELD ST., OAK PARK, IL. 60304

PHONE **(312) 848-6777**

MasterCard VISA

WORLD'S LEADING SONY COMMUNICATIONS SPECIALISTS!

CIRCLE 34 ON FREE INFORMATION CARD

Yaesu has serious listeners for the serious listener.

Yaesu's serious about giving you better ways to tune in the world around you.

And whether it's for local action or worldwide DX, you'll find our VHF/UHF and HF receivers are the superior match for all your listening needs.

The FRG-9600. A premium VHF/UHF scanning communications receiver. The 9600 is no typical scanner. And it's easy to see why.

You won't miss any local action with continuous coverage from 60 to 905 MHz.

You have more operating modes to listen in on: upper or lower sideband, CW, AM wide or narrow, and FM wide or narrow.

You can even watch television programs by plugging in a video monitor into the optional video output.

Scan in steps of 5, 10, 12½, 25 and 100 KHz. Store any frequency and related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.

Plus there's more, including a 24-hour clock, multiplexed output, fluorescent readout, signal strength graph, and an AC power adapter.

The FRG-8800 HF communications receiver. A better way to listen to the world. If you want a complete communications package, the FRG-8800 is just right for you.

You get continuous worldwide coverage from 150 KHz to 30 MHz. And local coverage from 118 to 174 MHz with an optional VHF converter.

Listen in on any mode: upper and lower sideband, CW, AM wide or narrow, and FM.

Store frequencies and operating modes into any of the twelve channels for instant recall.

Scan the airwaves with a number of programmable scanning functions.

Plus you get keyboard frequency entry. An LCD display for easy readout. A SINPO signal graph. Computer interface capability for advanced listening functions. Two 24 hour clocks. Recording functions. And much more to make your listening station complete.

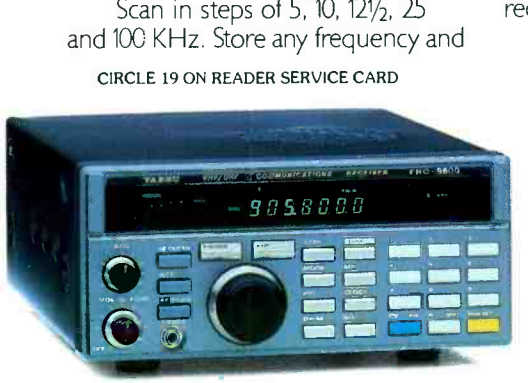
Listen in. When you want more from your VHF/UHF or HF receivers, just look to Yaesu. We take your listening seriously.

YAESU

Yaesu USA
17210 Edwards Road, Cerritos, CA 90701
(213) 404-2700

Yaesu Cincinnati Service Center
9070 Gold Park Drive, Hamilton, OH 45011
(513) 874-3100

CIRCLE 19 ON READER SERVICE CARD



Dealer inquiries invited.

Prices and specifications subject to change without notice.
FRG-9600 SSB coverage: 60 to 460 MHz.

KENWOOD

...pacesetter in Amateur radio

NEW

Hear it All!

R-5000

High performance receiver

***THE* high performance receiver is here from the leader in communications technology—the Kenwood R-5000. This all-band, all mode receiver has superior interference reduction circuits, and has been designed with the highest performance standards in mind. Listen to foreign music, news, and commentary. Tune in local police, fire, aircraft, weather, and other public service channels with the VC-20 VHF converter. All this excitement and more is yours with a Kenwood R-5000 receiver!**

- **Covers 100 kHz-30 MHz in 30 bands, with additional coverage from 108-174 MHz (with VC-20 converter installed).**
- **Superior dynamic range.** Exclusive Kenwood DynaMix™ system ensures an honest 102 dB dynamic range. (14 MHz, 500 Hz bandwidth, 50 kHz spacing.)

- **100 memory channels.** Store mode, frequency, antenna selection.
- **Voice synthesizer option.**
- **Computer control option.**
- **Extremely stable, dual digital VFOs.** Accurate to ±10 ppm over a wide temperature range.
- **Kenwood's superb interference reduction.** Optional filters further enhance selectivity. Dual noise blankers built-in.
- **Direct keyboard frequency entry.**
- **Versatile programmable scanning, with center-stop tuning.**
- **Choice of either high or low impedance antenna connections.**
- **Kenwood non-volatile operating system.** Lithium battery backs up memories; all functions remain intact even after lithium cell expires.
- **Power supply built-in.** Optional DCK-2 allows DC operation.
- **Selectable AGC, RF attenuator, record and headphone jacks, dual 24-hour clocks with timer, muting terminals, 120/220/240 VAC operation.**

Optional Accessories:

• VC-20 VHF converter for 108-174 MHz operation • YK-88A-1 6 kHz AM filter • YK-88S 2.4 kHz SSB filter • YK-88SN 1.8 kHz narrow SSB filter • YK-88C 500 Hz CW filter • YK-88CN 270 Hz narrow filter • DCK-2 DC power cable • HS-5, HS-6, HS-7 headphones • MB-430 mobile bracket • SP-430 external speaker • VS-1 voice synthesizer • IF-232C/IC-10 computer interface.

More information on the R-5000 and R-2000 is available from Authorized Kenwood Dealers.

R-2000 150 kHz-30 MHz in 30 bands • All modes • Digital VFOs tune in 50 Hz, 500 Hz, or 5 kHz steps • 10 memory channels • Programmable scanning • Dual 24-hour digital clocks, with timer • 3 built-in IF filters (CW filter optional) • All mode squelch, noise blanker, RF attenuator, AGC switch, S meter • 100/120/220/240 VAC operation • Record, phone jacks • Muting terminals • VC-10 optional VHF converter (118-174 MHz)

Specifications and prices are subject to change without notice or obligation.

KENWOOD

TRIO-KENWOOD COMMUNICATIONS
1111 West Walnut Street
Compton, California 90220

CIRCLE 71 ON READER SERVICE CARD