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Magazine

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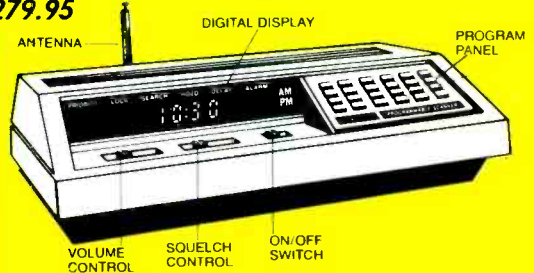
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CIRCLE 78 ON READER SERVICE CARD

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EDITORIAL STAFF
Tom Kneitel, K2AES
Editor

Anita Hippius
Associate Editor

CONTRIBUTING EDITORS

Gerry L. Dexter
Shortwave Broadcast

Robert Margolis
RTTY Monitoring

Gordon West, WB6NOA
Survivalist Communications

Mike Chabak
Utility Communications

Don Schimmel
Ute Intercepts

Darren Leno, WD0EWJ
Alternative Radio

Harold A. Ort, Jr.
Military Consultant

Janice Lee
Radar Detectors

Chuck Gysi, N2DUP
Scanners

Julian Macassey, N6ARE
Telephone Accessories

Mark J. Manucy, W3GMG
AM/FM Broadcasts

Ed Noll
Antennas

BUSINESS STAFF

Richard A. Ross, K2MGA
Publisher

Herb Pressman, KA2UGV
Advertising Manager

Dorothy Kehrwieider
General Manager

Arlene Caggiano
Accounting

Cheryl Chomicki
Subscriber Services

PRODUCTION STAFF

Elizabeth Ryan
Art Director

Barbara Scully
Artist

Dorothy Kehrwieider
Production Manager

Gail M. Schieber
Production Assistant

Pat Le Blanc
Richard Kishanuk
Phototypographers

Hal Keith
Technical Illustrator

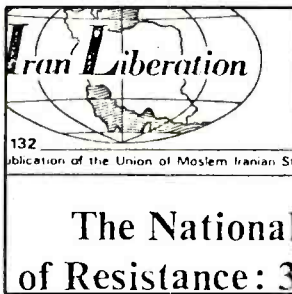
Larry Mulvehill, WB2ZPI
Contributing Photographer

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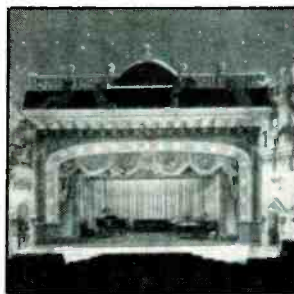
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We recommend: *The World Below 500 kiloHertz; Low Band Skip Directory; Landmobile and Marine Radio Technical Handbook.* *by R. L. Slattery*

This month's cover: Jim Gaines, Security Host at Walt Disney World, Florida. Disney's amusement and recreation parks, one in Florida and one in California, rely heavily on two-way radio. See story on page 10. Photo by Larry Mulvehill, WB2ZPI.

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BEAMING IN AN EDITORIAL

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When last September's earthquakes caused enormous loss of life and destruction of property in many parts of Mexico, it thrust shortwave radio into international headlines. Amateur Radio proved to be the only communications link between Mexico and the rest of the world. Every newspaper, newsmagazine, and radio/TV news broadcast was brimming over with reports from Ham operators and shortwave listeners tuned in on the signals from Mexico City and other areas.

Again, less than a month later, shortwave radio was the focus of world attention as it became the only way to find out what was taking place aboard the *M.V. ACHILLE LAURO*. The first reports of the hijacking came from a Ham operator in Sweden who had been monitoring the maritime radio bands. Subsequent reports from monitors throughout the Middle East and the shores of the Mediterranean told of communications from the *ACHILLE LAURO* as well as Rome's coastal station and the large fleet of NATO vessels conducting maneuvers near the cruise liner.

Shortwave radio doesn't always make world headlines; the earthquake and the hijacking happened to be exceptionally dramatic and newsworthy. Nevertheless, they point up the fact that communications and international broadcast monitoring remains the most vital and exciting of all avocations.

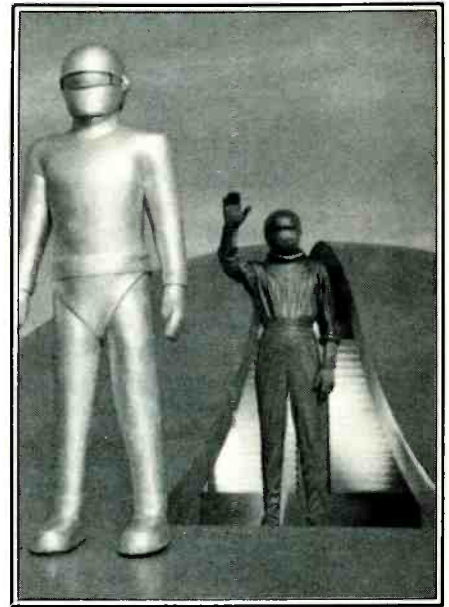
You can sit in your home and use your scanner to hear the behind-the-scenes activity in your community. And, just as easily, you can tune your communications receiver to zero-in on tomorrow's world headlines while they are in the process of being made. No matter how great any other hobby might be, it still can't offer that kind of excitement or personal involvement with community and world affairs.

No doubt about it, it's the king of hobbies! Aren't you proud to be a part of this unique hobby? We are!

Reflections In A Golden Ear

POP'COMM readers are the greatest! The other day, Bernie (our letter carrier) dropped off a parcel from Ed Parsons, a reader in Arkansas. Beneath the brown paper outer-wrapping was a very fancy box done-up in gold foil.

Let's face it, POP'COMM readers have a very unique approach to things and I wondered what surprise I might expect when I unwrapped the parcel. I wasn't disappointed; it was a rubber chicken that had been generously spray painted metallic gold. A note accompanying the chicken explained that Parsons had waited in anxious anticipation for the announcement of the Pulitzer Prizes because he was "absolutely certain"



"Alright, so go to the A&P. But it's the last time I'll ever let you bring that damned beeper aboard!"



"I don't care if Trinidad is a new country for you, Blivens. Sign off with the guy and send out the bank alarm!"

that his "favorite magazine in all of the world" (that's us) was going to win one.

The Pulitzer Prizes were given out and POP'COMM wasn't on the glory roll. Ed Parsons rose to the occasion. When he renewed his POP'COMM subscription, he awarded us the golden chicken—which he assures me is a genuine Arkansas "Pullet Surprise."

I graciously accept the *Pullet Surprise* on behalf of the entire staff. Like I said, POP'COMM readers are the greatest—truly a breed apart!

We put it up on the wall; but everything

isn't on the wall, we do come across things that are a little off the wall. For instance, would you believe that someone (with a totally straight face) applied to the FCC to operate an "extraterrestrial paging service." The applicant requested the operation on 930.0125 MHz.

Guess they want to let E. T. know to call home! I can just hear this system in operation.

"Beep-beep! Calling Unit 9987."

"Klaatu borada niku."

"Gort, your mom wants you to pick up a little Comet right away."

"Klaatu borada niku."

"No, not Halley's Comet—a can of Comet from the A&P. It's for cleaning rust spots off the UFO."

"Klaatu borada niku. 10-4!"

We're going to have to wait a while for this rare treat; the FCC refused to allocate the requested frequency for this purpose. In the meantime, Gort will have to just keep monitoring CB Channel 19.

The official decision on the "extraterrestrial paging service" brainstorm is contained in FCC Common Carrier Action Report #CC-63, released this past September. The FCC is most definitely an agency without a sense of humor.

And speaking of not having a sense of humor, in the aftermath of Hurricane Gloria, which roared through the northeastern states last autumn, many electric utility crews were required to re-energize about one million utility company customers who lost their electric power. In order to do this, repair crews were imported from distant utility companies to lend a hand; the scanner frequencies were really hopping for those lucky enough to have their electric power restored and those owning hand-held scanners.

One lineman working in my area from an out-of-town utility company was on frequency chattering away about how he used to work for our local utility and how he missed all of his former co-workers. Finally, he wearily remarked, "Anybody remember old Clem? I think I miss him most of all—sure wish he was still here!" "How come?" was the natural question at that point, to which the reply was, "Cause I married his widow!"

You really do hear some wild things on a scanner if you listen long enough. Last year I was in my car driving through a midwestern state—monitoring one of that area's low band state police channels. Suddenly, from out of the blue (literally), came the very loud voice and signal from a taxi dispatcher located in the Caribbean—West Indian accent and all.

The fellow was apparently unable to copy the police mobile units on frequency and he began calling the state police operator right on top of his dispatching. At first the police

dispatcher tried ignoring the chap's repeated calls, hoping his new-found friend would go away quietly, but no luck! The guy just kept calling him over and over like a broken record.

Finally, the state police operator went back to the taxi dispatcher and firmly but pleasantly asked him to turn off so that he could continue sending his traffic. You'd have thought that would have done the trick, but the recognition only made the taxi guy worse. That caused him to commence a relentless series of transmissions consisting of heart rendering begging and pleading for a response. In fact it was so bad that the state police couldn't use that frequency for a full 20 minutes while this character went through every ploy he could think of in order to finalize what must have surely been a "dream" DX contact for him.

When he ultimately gave up his frantic calls, there was a pregnant pause of about 30 seconds while all concerned waited to see if the siege had truly ended. Eventually an anonymous police mobile unit popped in to pretty well sum up how everybody on channel felt about the incident—"If that guy didn't get off the air soon we were all gonna have to stop breathing it!"

And that's the name of that tune!

We Are Proud To Announce...

... that SCAN, the publication of the Scanner Association of North America (SCAN), will henceforth be incorporated within the pages of *Popular Communications*. This means that SCAN members will now be receiving *Popular Communications* as part of their membership benefits.

POP'COMM will now include the most popular features that have long appeared in SCAN, and we will have the advantage of being able to draw upon the talents of the many fine authors who have contributed their expertise and talents to SCAN.

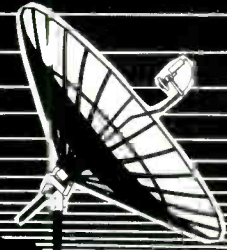
POP'COMM will therefore continue to bring our readers what they've always liked best about the magazine, plus many exciting new features that will add to the knowledge and enjoyment of communications.

Inasmuch as SCAN is the largest organization of its kind in the world, the inclusion of the group's publication into POP'COMM's pages means a quantum leap in circulation, a benefit to everyone involved with POP'COMM.

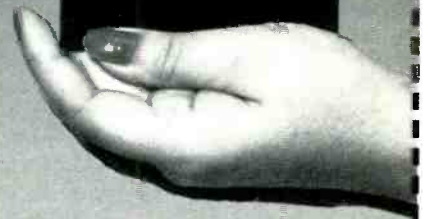
This is part of a continuing effort by all of us here at POP'COMM to bring our readers the most dynamic monthly publication ever to cover the field of communications. We told you that we had some surprises on tap—and there are several more in the works. Watch for them!

T.K.

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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.

Values Our English Language Skeds

As an employee of the United States Foreign Service, I am one of the many thousands of Americans abroad who happen to be shortwave listeners by necessity rather than by choice. It is not actually a hobby with me any more than the average American considers listening to the FM radio in the family car a hobby. I don't have a "shack" or other special place to listen to shortwave radio. Actually, I have a Kenwood R-2000 in the rack with my VCR and stereo equipment instead of the standard AM-FM tuner found in homes in the States. I carry a Sony ICF-2002 on my frequent travels around West Africa and usually end up throwing a piece of wire out of a hotel window for an antenna, sometimes causing consternation among the local population. I have an excellent antenna system at home although it has often come close to causing great bodily harm and/or death through necessary maintenance.

The point is that to American families living in some countries overseas, shortwave radio is a simple necessity if one wishes to keep track of everyday goings on in the land of round door knobs. I would like to thank *Popular Communications* for its "Selected English Language Broadcasts" and "Listening Post" sections. I enjoy other sections of the magazine, but often use these departments as the equivalent of *TV Guide*.

As every shortwave listener knows, VOA leaves much to be desired in the way of entertainment. AFRTS is better, but still tends to be stale. I would like to enter a plea of support and encouragement for those wonderful people operating and planning commercial shortwave broadcast stations. We only rarely receive WRNO, but when we do we think it's the greatest thing on the air. We're looking forward to NDXE's arrival and hope their chief antenna tuner has more sympathy for Americans in third world countries. If any of those entrepreneurs or their potential sponsors read this, and I would hope that they would have the sense to read your magazine, they should know that the Americans who represent the United States abroad do have purchasing power. But it's sometimes years before we even know a new product exists, much less know how to order it.

Popular Communications has supported commercial shortwave in the past and I would like to offer my sincere thanks and encouragement to keep up the good work.

I'm sure I speak for most of the American community abroad in saying that someday we would like to actually have a choice of which music, news and sports from the United States we can tune to.

Barry R. Weathersby
American Embassy
Abidjan, Ivory Coast
U.S. Department of State
Washington, D.C. 20520

Our Selected English Language Broadcasts, which we run seasonally, has turned out to be one of our most popular features. We're very pleased to learn that you find it useful in your own efforts to catch up on news from home and elsewhere in the world. Ever since this section began appearing in our pages, we have received lots of mail from members of all of the military services stationed outside of North America; those correspondents tell us how valuable this information is to them. We have even gotten mail from Americans and Canadians telling us that they take the information with them on overseas vacations! Your's is the first letter we have received from a member of the Foreign Service telling us about the usefulness of this section. Thank you for your kind words!—Editor

Vive La Difference

I'm confused by the terms "pirate," "bootlegger" and "clandestine" station. On the one hand, they would seem to mean almost the same thing and yet they don't appear to be fully interchangeable. Please explain.

Ed Gordon
Toronto, Ontario

The meanings of these words appears to change slightly from time to time and there is a tendency to use them interchangeably. I'd say that currently, a pirate is a broadcasting station that makes no bones about the fact that it has no license. A bootlegger is an unlicensed broadcaster trying to pass itself off as fully licensed. A clandestine station is an unlicensed broadcaster operated for the purpose of presenting anti-government, revolutionary, or radical political views in the hopes of changing public opinion.

In terms of the Ham bands, the terms pirate and bootlegger do seem to be interchangeable and traditionally mean a station (usually unlicensed) posing as a station it isn't (perhaps a specific licensed station). In Ham radio you might also come across the term "undercover station." This is a (possibly, but not necessarily) licensed station located in a country where Ham radio activity is frowned upon or disallowed by the government in power.

Keep in mind, like the terms, "freedom fighter," "terrorist," "guerrilla," or "revolutionary," the application of labels may be greatly dependent upon the subjective sentiments of the viewer.—Editor



The PLO's communications become more active just before a terrorist incident. This is one of their ID badges.

Terrorist Communications

Bravo on the November issue story about monitoring terrorist communications. I had been trying for months to search out that information. Is there any indication that specific groups prefer certain frequencies? I'm interested in monitoring the groups operating out of the Middle East and North Africa (Tunisia, Lebanon, Lybia, etc.)

C. Ben Landau
Tel Aviv, Israel

This type of activity has been reported in and around the 20 meter ham band (14 MHz), with the PLO and its related groups often noted active (using SSB) between 14338 and 14348 kHz. Frequency 14128 kHz, which is inside the ham band, has also been used. Black September, the terrorist group who conducted the 1972 Olympics massacre in Munich, was a regular user of 14290 kHz.—Editor

Manual Labor

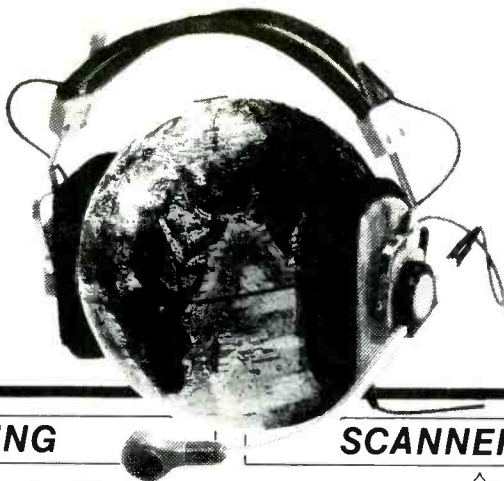
I've made many inquiries about obtaining paperwork (operators' and repair manuals) for a military surplus transceiver having a nomenclature of RT/FRC-93 but have drawn a total blank. Someone did tell me that the manual I need carries a "TM" code number. Can you let me know where to obtain such a manual; otherwise I have the world's most ornate paperweight.

Terry Loughrin
Russellville, AR

The equipment you have is made by Collins and is also known as their Model PM-2. The military tech manual ("TM") covering this gear is called TM 11-5820-529-15. There are several sources for TM's and one dealer carrying well over 1,000 different titles for equipment made between WWII and the present is Surplus AI, P.O. Box 215, Hunlock Creek, PA 18621. If this guy hasn't got it, the TM probably doesn't exist. Check through his catalog and I'm sure you'll find information on any mil surplus equipment in which you're interested. Tell him POP'COMM sent you!—Editor

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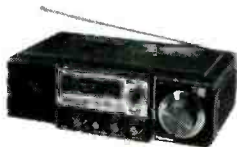


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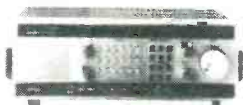
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Welcome

Welcome to the first issue of *Popular Communications* that incorporates *SCAN Magazine*. For our members, it is an opportunity to have a much wider spectrum of information that *Popular Communications* provides. For *POP'COMM* readers, we hope it will be a chance to get acquainted with the nation's largest not-for-profit association of scanner radio users . . . and to join us in the active defense of our rights to free access to the radio spectrum.

The Right To Listen Continues Under Attack

The "Electronic Communications Privacy Act of 1985" (House Bill H.R. 3378 and Senate Bill S 1667) continues as the most serious threat to the traditional American right to listen to the airwaves that we have faced. The result would be so outlandish that some people have viewed it in disbelief . . . "it couldn't happen."

Don't bet on it! If you look at the powerful forces behind it, such as the Cellular Trade Industry Association (with AT&T, MCI, PacTel and others as members), plus support of groups like the American Civil Liberties Union (who apparently feel that listening to cellular phone calls by police could circumvent existing wire tap laws), you will know what we are facing. It is nothing less than the wholesale change of our traditional right to unrestricted ownership of radio receivers to a situation where they require special permit or exemption. Even the recall of scanners was seriously talked about in the first House Judiciary hearing! While it was concluded that this would be impractical, it gives some understanding of how serious the situation is. They want to try to legislate "privacy" of the airwaves. And, while the focus is on the high stakes cellular phone business, the end result could be anything and everything from a ban on listening to aircraft communications to severe restrictions of ham radio autopatches.

It is our opinion that this legislation will pass in some form, not only because of the powerful forces behind it, but also because portions of the legislation deals with protecting computer data and electronic mail.

The need for legislation to protect computer data from "hackers"

and industrial spies is something we have no quarrel with. However, the extension of those laws to open radio signals is an entirely different matter. We need to make sure that those who are working on this legislation understand the difference and separate these two issues. All of us need to call, write, and write again to our U.S. Representatives and Senators about how this legislation would infringe on our rights to use radio receivers. If we don't act, we would very well join the majority of the rest of the world, where governments restrict the right to listen. We will have given up a fundamental right simply because one industry, intent on making their cellular phone products appear more attractive, has attempted to legislate reality. Non-encrypted radio signals can never be truly "private." Let's not let our rights be trampled in an attempt to change that reality through legislation. Write that letter today!

New Member Information Number

We have a new number and new hours for member inquiries. Call 312/822-9745 between the hours of 2 p.m. and 4 p.m. Central Time. (That's between 3 p.m. and 5 p.m. Eastern Time and Noon and 2 p.m. Pacific Time). These new hours were established to allow access from both the east and west coast. At other hours, 24 hours a day, we have a new recording system to take your message. The best way to resolve problems, change an address, etc., continues to be to write to us at: SCAN; 240 Fencil Lane, Hillside, IL 60162. Be sure to enclose the latest magazine label, if possible.

Public Service Award Nominations Open

If you know of a local police, fire, or other public safety official who has performed an extraordinary act in the line of duty, take a moment and nominate him/her for the SCAN Public Service Award. Just drop us a newspaper clipping or other details, along with your name, address, and phone number. If your nominee is selected, there is a cash award and a handsome plaque, and you will also receive a plaque for making the nomination. Send your nomination to: SCAN AWARD NOMINATION, 240 Fencil Lane, Hillside, IL 60162.

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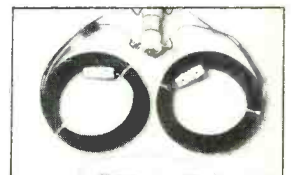
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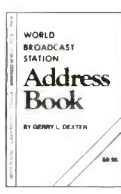
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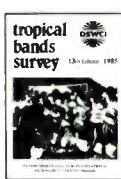
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CIRCLE 149 ON READER SERVICE CARD

Scanning Disney

**Disneyland And Walt Disney World – Two Favorites!
Enjoy Them All The More With Your Scanner At Hand!**

BY RICK MASLAU, KNY2GL

The two wonderful Disney parks—Disneyland in Anaheim (CA), and Walt Disney World at Lake Buena Vista, near Orlando (FL)—are reputed to prefer that patrons leave their hand-held scanners at home when visiting. Not that scanners are forbidden in the parks, but neither are they welcomed with brass bands playing fanfares.

Nevertheless, for months now, *POP'COMM* has been receiving two types of letters relating to communications at these parks. One type of letter asks that we furnish our readers with frequencies. Other letters contain information on frequencies there.

While the bits and scraps of information we have received should, ideally, all fit together like a jigsaw puzzle to form a neat little picture—they don't! Some of the information is partial, and some of it is conflicting.

We are passing along a compilation of what we have thusfar received from our readers. We have hopes that our adventuresome readers will venture forth with hand-held scanners in order to fill in the blanks and also present additional information.

In addition to the frequencies shown in our chart(s), it may pay to try monitoring frequencies 5 MHz higher than the 453 to 464 MHz-band channels shown. Thus, check out 467.575 MHz as well as 462.575 MHz; in some instances you may find additional communications systems.

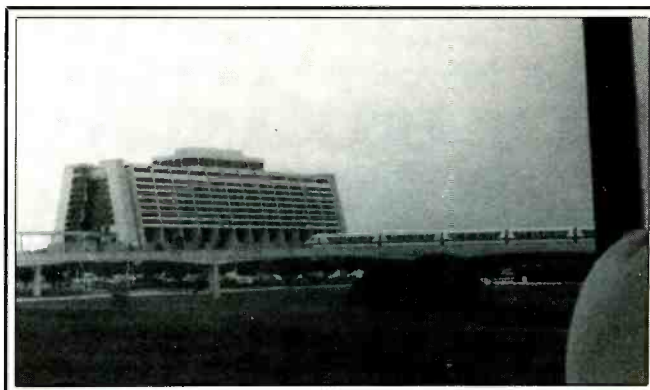
So, take those hand-held scanners with you, gang. Punch-up all of the frequencies and search out others. And be sure to let us know your findings!

Disneyland Anaheim, California

42.98 MHz	KC7032	Rides
151.745	KNGU380	Disneyland Hotel
154.57	KC7032	Submarines
154.60	KC7032	Steam Trains, Autopais, Fence
154.625	KYY709	Paging (voice/data)
460.15		Anaheim Police
462.575	KAD2116	Countywide Repeater (Purple freq.)
464.4125	KA81486	Maintenance (Orange freq.)
464.4625	KA81486	Security (Blue freq.)
464.4875	KA81486	Parking & Operations (Green freq.)
464.5125	KA81486	Special Events (Yellow freq.)
464.575	WYA716	Disneyland Hotel security
464.6375	KA81486	Emergency (Red freq.)
464.7625	KA81486	Telephone (White freq.)

Walt Disney World Lake Buena Vista, Florida

151.655 MHz	KJU650	Construction
151.895		20,000 Leagues submarines
154.43		Fire Dept.
154.625	KNGU357	Hilton Hotel
155.37		Police Intersystem
157.74	KRW819	Paging
453.825	KRT728	Fire Dept. Mutual Aid
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461.30	WZE419	



The monorail system transports visitors to and from the hotels and theme parks within Walt Disney World, including the Contemporary Hotel (shown). (Photo by Anita Hipius)



The rides and attractions of Disneyland and Walt Disney World rely heavily on radio communications. (Photo by Anita Hipius)

461.60	KUL488	Hotels, Transportation
462.55	KAA8207	Operations/Paging
462.575	KAA8207	Monorails (Ops. Chan. 2)
462.625	KAA8101	Land Transportation, Parking, Magic Kingdom, Fort Wilderness (Maint. Chan. 1)
462.65	KAA8101	Magic Kingdom maintenance, Operations/Paging
462.675	KAA8209	Theme Park maintenance (Maint. Chan. 2)
462.775	WYT220	
462.85	WZL392	
463.75	WZL393	
463.975	KUR462	Entertainment
464.125	KUL489	Security/Administrative (Security Chan. 2)
464.40	KUL487	Security (Security Chan. 1)
464.525	KNGQ730	Hilton Hotel
464.625	KUL486	Utilities
464.80	KUM848	Taxi cabs

PC

NEW! Lower Price Scanners

Communications Electronics,TM the world's largest distributor of radio scanners, introduces new lower prices to celebrate our 15th anniversary.

Regency[®] MX7000-CA

List price \$699.95/CE price \$379.95/SPECIAL
10-Band, 20 Channel • Crystalline • AC/DC
Frequency range: 25-550 MHz. continuous coverage and 800 MHz. to 1.3 GHz. continuous coverage
The Regency MX7000 scanner lets you monitor military, F.B.I., Space Satellites, Police and Fire Departments, Drug Enforcement Agencies, Defense Department, Aeronautical AM band, Aero Navigation Band, Fish & Game, Immigration, Paramedics, Amateur Radio, Justice Department, State Department, plus thousands of other radio frequencies most scanners can't pick up. The Regency MX7000 is the perfect scanner for intelligence agencies that need to monitor the new 800 MHz cellular telephone band. The MX7000, now at a special price from CE.

Regency[®] Z60-CA

List price \$379.95/CE price \$179.95/SPECIAL
8-Band, 60 Channel • No-crystal scanner
Bands: 30-50, 88-108, 118-136, 144-174, 440-512 MHz.
Hear Police, Aircraft and the FM Broadcast Bands.
The Regency Z60 covers all the public service bands plus aircraft and FM music for a total of eight bands. The Z60 also features an alarm clock and priority control as well as AC/DC operation. Order today.

Regency[®] Z45-CA

List price \$329.95/CE price \$159.95/SPECIAL
7-Band, 45 Channel • No-crystal scanner
Bands: 30-50, 118-136, 144-174, 440-512 MHz.
The Regency Z45 is very similar to the Z60 model listed above however it does not have the commercial FM broadcast band. The Z45, now at a special price from Communications Electronics Inc.

Regency[®] RH250B-CA

List price \$613.00/CE price \$329.95/SPECIAL
10 Channel • 25 Watt Transceiver • Priority
The Regency RH250B is a ten-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this, radio is synthesized, no expensive crystals are needed to store up to ten frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH250 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A UHF version of the same radio called the RU150B covers 450-482 MHz. but the cost is \$449.00. To get technician programming instructions, order a service manual from CE with your radio system.

NEW! Bearcat[®] 50XL-CA

List price \$199.95/CE price \$114.95/SPECIAL
10-Band, 10 Channel • Handheld scanner
Bands: 29.7-54, 136-174, 406-512 MHz.
The Uniden Bearcat 50XL is an economical, hand-held scanner with 10 channels covering ten frequency bands. It features a keyboard lock switch to prevent accidental entry and more. Also order part # **BP50** which is a rechargeable battery pack for \$14.95, a plug-in wall charger, part # **AD100** for \$14.95 and also order optional cigarette lighter cable part # **PS001** for \$14.95.



Regency
RH250

NEW! JIL SX-400-CA

List price \$799.95/CE price \$469.95/SPECIAL
Multi-Band, 20 Channel • No-crystal Scanner
Search • Lockout • Priority • AC/DC
Frequency range: 26-520 MHz. continuous coverage.
With optionally equipped RF converters 150KHz-3.7 GHz.
The JIL SX-400 synthesized scanner is designed for commercial and professional monitor users that demand features not found in ordinary scanners. The SX-400 will cover from 150 KHz to 3.7 GHz. with RF converters. Order the following RF converters for your SX-400 scanner. **RF-1030-CA** at \$234.95 each for frequency range 150 KHz - 30 MHz. USB, LSB, CW and AM. (CW filter required for CW signal reception); **RF-5080-CA** at \$194.95 each for 500-800 MHz.; **RF-8014-CA** at \$194.95 each for 800 MHz-1.4 GHz. Be sure to also order **ACB-300-CA** at \$99.95 each which is an antenna control box for connection of the RF converters. The **RC-4000-CA** data interface at \$259.95 each gives you control of the SX-400 scanner and RF converters through a computer. Add \$3.00 shipping for each RF converter, data interface or antenna control box. If you need further information on the JIL scanners, contact JIL directly at 213-926-6727 or write JIL at 17120 Edwards Road, Cerritos, California 90701 U.S.A.

SPECIAL! JIL SX-200-CA

List price \$499.95/CE price \$157.95/SPECIAL
Multi-Band - 16 Channel • No-Crystal Scanner
Frequency range 26-88, 108-180, 380-514 MHz.
The JIL SX-200 has selectable AM/FM receiver circuits, tri-switch squelch settings - signal, audio and signal & audio, outdoor AC power supply - DC at 12 volts built-in, quartz clock - bright vacuum fluorescent blue read-outs and dimmer, dual level search speeds, tri-level scan delay switches, 16 memory channels in two channels banks, receive fine tune (RIT) ± 2KHz., dual level RF gain settings - 20 db pad, AGC test points for optional signal strength meters all for this special price.

Regency[®] HX1000-CA

List price \$329.95/CE price \$189.95/SPECIAL
6-Band, 30 Channel • No Crystal scanner
Search • Lockout • Priority • Scan delay
Sidelit liquid crystal display • Digital Clock
Frequency range: 30-50, 144-174, 440-512 MHz.
The new handheld Regency HX1000 scanner is fully keyboard programmable for the ultimate in versatility. You can scan up to 30 channels at the same time. The LCD display is even sidelit for night use. Order **MA-256-CA** rapid charge drop-in battery charger for \$68.95 plus \$3.00 shipping/handling. Includes wall charger, carrying case, belt clip, flexible antenna and nicad battery. Order now.

NEW! Bearcat[®] 100XL-CA

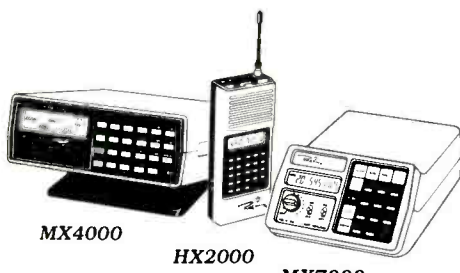
List price \$349.95/CE price \$209.95/SPECIAL
9-Band, 16 Channel • Priority • Scan Delay
Search • Limit • Hold • Lockout • AC/DC
Frequency range: 30-50, 118-174, 406-512 MHz.
The world's first no-crystal handheld scanner now has a LCD channel display with backlight for low light use and aircraft band coverage at the same low price. Size is 1 3/4" x 7 1/2" x 2 1/4". The Bearcat 100XL has wide frequency coverage that includes all public service bands (Low, High, UHF and "T" bands), the AM aircraft band, the 2-meter and 70 cm. amateur bands, plus military and federal government frequencies. Wow... what a scanner!
Included in our low CE price is a sturdy carrying case, earphone, battery charger/AC adapter, six AA ni-cad batteries and flexible antenna. Order your scanner now.

NEW! Regency[®] HX1200-CA

New direct channel access feature
List price \$369.95/CE price \$214.95/SPECIAL
8-Band, 45 Channel • No-crystal scanner
Priority control • Search/Scan • AC/DC
Sidelit liquid crystal display • **EAROM Memory**
Bands: 30-50, 118-136, 144-174, 406-420, 440-512 MHz.
The new HX1200 scanner operates on 120V AC or 9.6 VDC. Permanent memory backup. Size 2 3/4" x 2" x 7 3/4". Includes wall charger, carrying case, belt clip, flexible antenna and nicad batteries. Order today.

SPECIAL! Bearcat[®] DX1000-CA

List price \$649.95/CE price \$339.95/SPECIAL
Frequency range 10 KHz. to 30 MHz.
The Bearcat DX1000 shortwave radio makes tuning in London as easy as dialing a phone. Features PLL synthesized accuracy, two time zone 24-hour digital quartz clocks and more. Add \$12.00 for shipping.



MX4000

HX2000

MX7000

CIRCLE 172 ON READER SERVICE CARD

NEW! Bearcat[®] 800XLT-CA

List price \$499.95/CE price \$299.95/SPECIAL
12-Band, 40 Channel • No-crystal scanner
Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512, 806-912 MHz.
The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 1 1/2"

OTHER RADIOS AND ACCESSORIES

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Panasonic RF-B300-CA Shortwave receiver	\$195.95
RD95-CA Uniden Remote mount Radar Detector	\$139.95
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BC 20/20-CA Bearcat 40 channel scanner SALE	\$224.95
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BC 260-CA Bearcat 16 channel scanner SALE	\$194.95
BC 300-CA Bearcat 50 channel scanner SALE	\$254.95
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MA257-CA Cigarette lighter cord for HX1000	\$19.95
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SMRU150-CA Service man. for Regency RU150	\$20.00
SMRPH410-CA Service man. for Regency RPH410	\$20.00
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RRF-CA Railroad frequency directory	\$10.00
CIE-CA Covert Intelligenc. Elect. Eavesdropping	\$14.95
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A70-CA Base station scanner antenna	\$35.00
USAMM-CA Mag mount VHF/UHF ant. w/ 12' cable	\$39.95
USAK-CA 3/4" hole mount VHF/UHF ant. w/ 17' cable	\$35.00
USATLM-CA Trunk lip mount VHF/UHF antenna	\$35.00
Add \$3.00 shipping for all accessories ordered at the same time.	
Add \$12.00 shipping per shortwave receiver.	
Add \$7.00 shipping per scanner and \$3.00 per antenna	

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20+ Countries On A Table Radio!

Maybe You Didn't Know About The Radiobeacon Stations Throughout The World That You Can Hear On An AM Broadcast Radio

BY WALTER B. LOGAN III, KFL4LF

Everybody knows about the radiobeacons that are so numerous in the 200 to 400 kHz band. Less well-known are other radiobeacons that are active between 500 and 1800 kHz. That's right. The lion's share of that portion of the spectrum (535 to 1605 kHz) is taken up by the AM broadcasting band. Well, that's only in North America. In other parts of the world, broadcasting stations share time with beacons; in some instances, the same transmitting facilities are used for broadcasting and beacon operations.

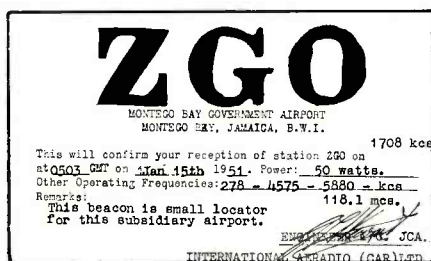
Even within the normal tuning range of many broadcast receivers (530 to 1620 kHz), there are more than 20 different nations transmitting radiobeacons. If you have a communications receiver, there's even more to monitor, and this is the best time of the year to try!

The January '84 issue of *POP'COMM* discussed monitoring the 200 to 400 kHz band, and now it's time to clue you in on this lesser-known but equally interesting band.

Like all radiobeacons, the 500 to 1800 kHz stations transmit their identification call over and over, very slowly in Morse code. If you're monitoring on a regular broadcast receiver, you'll note that the type of modulated CW the beacons use can be received without the need for your receiver to have a BFC—the is, the capability to receive the unmodulated type of CW that's used on the ham, maritime, and commercial shortwave bands.

And don't let the fact that you might not be able to copy CW dash your hopes. These beacons send so slowly that you can copy down the *dots* and *dashes* with a pencil and then decipher the stations' identification letters at a later time. Since the letters are repeated over and over again, there are plenty of chances for you to try again if you missed a letter.

Let's face it. Even with the huge assortment of stations operating on these frequencies, at best no one listener could ever hope to hear the majority of transmitters, especially those operating between 535 and 1606 kHz. Interference from American/Canadian broadcasters is such that many frequencies will be blocked. But remember that best listening here comes late at night and during



Most radiobeacon QSL's are by means of prepared reply cards. This 50 watt beacon on 1708 kHz used to be heard throughout North America. (Courtesy Tom Kneitel)

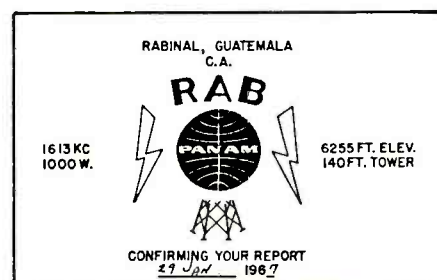
the early hours of the morning—and many broadcasters are off the air at that time. Also, even though many beacons are low powered and intended for short-range coverage, they operate on frequencies that are offset from those used by broadcasters in the U.S. and Canada.

Even so, the modulated CW used by the beacon stations has a relatively good ability to be heard through interference. Actually, one of the main problems is that while your reception capabilities are best at night, some of the beacons operate only during daylight hours in their own locality. Your best bet is to try for everything and feel that any stations heard in the North American broadcast band are a real accomplishment.

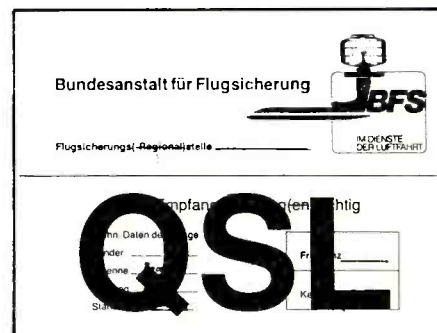
It is occasionally possible to QSL (mostly by means of a prepared reply card) these beacon stations. The biggest problem is finding a good address to use for mailing your report. Many (but not all) of these beacons are operated by governmental entities, however, some (especially in Latin America) are operated by airlines.

We have compiled what we feel is about the most comprehensive listing of 500 to 1800 kHz radiobeacons thusfar attempted. While it was compiled piecemeal from several sources, undoubtedly it isn't all-inclusive. Nevertheless, it is a mix of stations you'll find relatively easy to monitor and those that you'll be lucky to hear even after long and diligent searching with the best equipment installed at a super location.

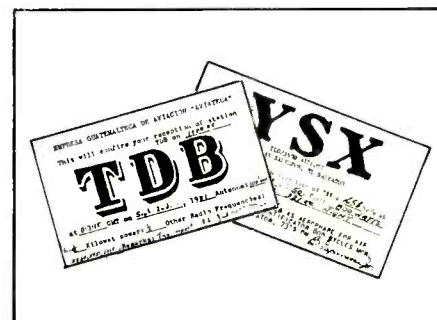
Inasmuch as new radiobeacons do come on the air from time to time, just as older



Radiobeacon RAB in Guatemala has been on the air for years. Its 1 kW signal and clear frequency means it's one of the best ones to try for when you're embarking on a radiobeacon monitoring career. (Courtesy The Beacon Guide)



A few beacons verify reception with printed QSL's. The problem is getting a good address to use in mailing your report. (Courtesy The Radiobeacon Handbook)



The changing face of the radiobeacon scene. These two beacons (TDB in Guatemala with 500 watts on 1700 kHz, and YSX in El Salvador with 800 watts on 1658 kHz) were once very active, but are now history. (Courtesy Tom Kneitel)

RADIOBEACONS 500 TO 1800 kHz								
kHz	ID	Location	kHz	ID	Location	kHz	ID	Location
507	GBL	Giebelstadt, W. Germany		SHU	Patrick AFB, FL	602	FOL	Lyon, France
510	AMZ	Amazona, Ecuador		SNJ	Everett WA	605	NA	Slantsy, USSR
	AV	Avord, France		SZM	Salmon #1 AK	611	KD	Krasnodar, USSR
	BE	Bedford MA		UOC	Iowa City IA		PZ	Petrozavodsk, USSR
	GDL	Guadalajara, Mexico		XWM	Pope AFB, NC	620	A	Ryazan, USSR
	HM	Hamilton, Ontario		*	US Military		L	Ryazan, USSR
	HO	Colmar, France	525	DQK	Pacific (Chevron Oil)	625	FC	Svir, USSR
	MAT	Matamoros, Mexico		GI	Amiens, France	630	WK	Velikiye, USSR
	PO	Hsinchu, Taiwan		KU	Chia Isl, Taiwan	634	LAM	Lambourne, UK
	RB	Resolute Bay, NWT		PWW	Pacific (Chevron Oil)	640	G	Leningrad, USSR
	SN	St Yan, France		UP	Chernyakhov, USSR		Z	Kiev, USSR
	ST	St Truiden, Belgium		UUU	Swanton VT	642	KN	Kostino, USSR
511	HES	Pitt Point AK		UZF	Winooski VT	647	SF	Simferopol, USSR
	LMX	Les Mureaux, France		VXS	Jersey Center VT	650	A	Leningrad, USSR
512	ETH	Etimesgut, Turkey		VY	Royan, France		B	Leningrad, USSR
	MAM	Matamoros, Mexico		XAP	Rutland VT		BR	Leningrad, USSR
	OKF	Hopkinsville KY		XJU	Middlebury VT		F	Lvov, USSR
	XFX	Pope AFB, NC	526	MDK	Spokane WA		G	Lvov, USSR
	*	US Military		MMT	McEntire AFB, SC		K	Leningrad, USSR
513	BG	Fairfax KS		MTZ	Tuskegee AL		MG	Steblev, USSR
	ME	Annecy, France		ONN	Ft Meade MD		ST	Tandybulak, USSR
514	HYD	Coeur D'Alene ID		SF	Sofia, Bulgaria	652	ON	Peschanka, USSR
	JT	Stephenville, Nfld.		UUP	Uplands, Ontario		PR	Ventspils, USSR
	NCA	New River MCAS, NC		VHD	Atterbury IN	656	GZ	Grozny, USSR
	SSK	Ft Chaffee AR		XBA	Baer Field IN		MR	Murmansk, USSR
	XKR	Alaska (USAF)		XCS	Washington DC	657	G	Minsk, USSR
515	LI	Luxeuil, France		XHY	Hayward CA		N	Minsk, USSR
	OS	Columbus OH		XKF	Davis OK	659	S	Timisoara, Romania
	PKV	Pt Lavaca TX		XRY	Yakima WA	661	CLR	Criel, France
	PZT	Pacific (Zapata Oil)	527	*	US Military	665	KN	Kaunas, Lithuanian SSR
	RRQ	Rock Rapids IA	528	0J	Olathe KS	670	STN	Stornoway, Scotland
	SRL	Santa Rosalita, Mexico		DCI	Duck Isl #3 AK	675	UU	Costanta, Romania
	XJE	Jeanette Isl AK		KB	Kindley Fld, Bermuda	685	FK	Verhneye-Vysotskoya, USSR
	XZU	Drillship SEDCO 708, AK		UUU	Swanton VT	688	IP	Chernaya Gryaz, USSR
516	ZR	Beziers, France		UZF	Winooski VT	694	QL	Algasovd, USSR
	FVW	Yakima WA		VXS	Jersey Center VT	700	AD	Moscow, USSR
	LOF	Alaska (USAF)		XAP	Rutland VT		DG	Riga, Latvian SSR
	YWA	Petawawa, Ontario		XJU	Middlebury VT		MR	Moscow, USSR
	**	Tinker AFB, OK		XLL	Langley AFB, VA	710	FOM	Marseilles, France
517	FN	Clinton IA	529	*	US Military		TL	Tallinn, Estonian SSR
518	BPX	Barracouta, Australia		FDV	Nome AK	716	NR	Daugavriva Lightbouy, USSR
	FB	Persanbermont, France		SQM	Level Isl AK	718	IU	Byshev, USSR
	MC	McMurdo, Antarctica	530	AAW	Watana Creek AK	720	B	Odessa, USSR
	NAI	Philadelphia PA		AS	Alert, NWT		X	Odessa, USSR
	NYG	Quantico VA		FWW	Pope AFB, NC	732	W	Riga, Latvian SSR
	000	Pope AFB, NC		FY	Frobisher, NWT	734	WCO	Westcott, UK
	TS	Toulouse, France		NAS	Pensacola FL	739	K	Kiev, USSR
	XGU	Pope AFB, NC		NB	North Bay, Ontario		Z	Kiev, USSR
519	ALB	Alboran, Spain	532	YCH	Chatham, NB	740	BR	Reni, USSR
	HUG	Kalkett AK	534	MEW	Cape Canaveral FL	745	BG	Karmanovo, USSR
	LIS	Level Isl AK		AGN	Agen, France	770	LR	Krakow, Poland
520	AW	Arlington WA		CV	Calvi, France		FC	Svir, USSR
	BHZ	Belo Horizonte, Brazil		KAR	Karbo, Sweden		N	Moscow, USSR
	BRI	Balikesir, Turkey		MI	Mildenhall UK		NK	Krasnoborka, USSR
	DF	Muhrani, USSR		VL	Valladolid, France	773	VZH	Voronezh, USSR
	ONB	Brussels, Belgium	541	WR	Varna, Bulgaria	785	BK	Vilnyus, Lithuanian SSR
	SLE	Ljungbyhead, Sweden	544	EVX	Evreux, France		WH	Vilnyus, Lithuanian SSR
	TO	Topeka KS	545	QS	Les Casquets, Chan Isls		ZH	Vilnyus, Lithuanian SSR
521	AN	Avignon, France	553	VR	La Verdiere, France	791	AR	Astrakhan, USSR
	DWH	Houston TX	562	PB	Phalsbourg, France		SU	Belozorsk, USSR
	GF	Cleveland OH		LG	Limoges, France	796	MN	Malaya Dobron, USSR
	GZE	Goose Lake TX	563	LMG	Limoges, France	797	CFD	Cranfield, UK
	INE	Missoula MT	565	LKW	Lyulyakowo, Bulgaria	805	B	Yerevan, USSR
	ORC	Orange City IA		KS	Ophalia, USSR	822	DY	Minsk, USSR
	SYG	Arcola TX		PR	Oktyabrsky, USSR	825	DR	Kiev, USSR
522	CEH	Challenge Isl AK	568	OP	Kikerino, USSR		KB	Kiev, USSR
	XRБ	North Staines AK	570	FE	Oktyabrsky, USSR		UP	Chernyakhov, USSR
	**	Lakehurst NAS, NJ	580	MN	Malaya Dobron, USSR	826	LF	Petrovka, USSR
523	LDD	Little Diomedes AK		YO	Selishce, USSR	827	GR	Gorki, USSR
	PV	Pithiviers, France	583	MD	Mineralyne-Vody, USSR	830	SW	Shepetovka, USSR
	RS	Deadhorse AK		NR	Mineralyne-Vody, USSR	870	KRW	Krakow, Poland
524	AJG	Mt Carmel IL	585	R	Tbilisi, USSR	875	IP	Bronitsa, USSR
	CL	Creil, France		V	Tbilisi, USSR		IP	Drogbych, Poland
	FMW	Alaska (USAF)	592	OZH	Ordxonikidze, USSR	881	SP	Stavropol, USSR
	FZ	Ste Hubert, Quebec	595	G	Moscow, USSR	885	DG	Kirishi, USSR
	HEH	Newark OH		O	Moscow, USSR	899	IO	Yoshkar Ola, USSR
	HL	Castelnau, France		T	Moscow, USSR	906	LF	Pechory, USSR
	HRD	Kountze TX		W	Moscow, USSR	930	SW	Vykhma, USSR
	MNL	Valzez AK	598	A	Tirana, Albania	944	RV	Rostov Don, USSR
	RRW	Jacksonville AR	600	AZ	Kishinev, USSR	950	KS	Kotlas, USSR
				OW	Kishinev, USSR	968	RL	Sillamy, USSR

kHz	ID	Location	kHz	ID	Location	kHz	ID	Location
975	RD	Rokishkis, USSR	1618	5Q	Penny Strait, NWT		URC	Urlos, Brazil
	TJ	Totma, USSR		COE	Cachoeiro, Brazil		**	US Military
985	FK	Kelemntievo, USSR	1619	KL	Klowningarna Light, Sweden	1639	*	Ft. Hood TX
995	IV	Kislovodsk, USSR	1620	CEP	Concepcion, Bolivia	1640	SUV	San Javier, Bolivia
1005	KX	Yerevan, USSR		EUX	Alaska (Dept. Interior)		*	Ft. Campbell KY
	MD	Ostashevo, USSR		**	US Military	1642	5R	Penny Strait, NWT
1025	US	Muravlyanka, USSR	1623	FAM	Fazenda Amalia, Brazil		**	US Military
1055	IN	Sukhotino, USSR		GNV	Alotau, Papua New Guinea	1643	*	Ft. Hood TX
1060	ED	Nemirov, USSR		HUM	Humaita, Brazil	1644	**	US Military
1061	SR	Saransk, USSR		PTT	Porto Trombetas, Brazil	1645	3H	Mackenzie Delta, NWT
1070	DN	Dnjaprop, USSR	1624	RAQ	Alaska (Dept. Interior)		FFD	Alaska (Dept. Interior)
1080	GA	Lyutezh, USSR		*	Ft. Campbell KY		TLC	Tulcan, Ecuador
1120	MO	Morozovsk, USSR		KU	Krogstadsudde, Sweden		YPI	Yaupi, Ecuador
1145	EB	Tripolaya, USSR		PAT	Pastaza, Ecuador	1648	*	Ft. Hood TX
1155	NS	Kanev, USSR		PP	Tapajos, Brazil	1650	SOT	Reyes, Bolivia
1160	VH	Chervony, USSR		TIKX	San Jose, Costa Rica		UIB	Quibdo, Colombia
1260	BR	Daneuka, USSR	1626	V2	Yellowknife, NWT	1651	*	Ft. Bragg NC
1285	SW	Savvelovo, USSR	1627	3F	Axel Heiberg Isl, NWT	1655	BLB	Bootless Bay, Papua NG
1290	AA	Bogdanovska, USSR		NPA	Novo Paraíso, Brazil		LOJ	Loja, Ecuador
	TU	Beliy, USSR	1630	SK	Skallen, Sweden		PAT	Pastaza, Ecuador
1550	RY	Reyes, Bolivia	1632	*	Apolo, Bolivia	1656	BUV	Ft. Rucker AL
1600	NHG	Palmer Sta., Antarctica		OKT	Tabubil, Papua New Guinea		*	Ft. Hood TX
1602	LGM	Leguizamo, Colombia	1633	*	Ft. Hood TX	1660	SNG	San Ignacio de Velasco, Bolivia
1606	3A	Kimek, NWT	1634	SKQ	Ft. Rucker AL		**	US Military
	M2	Roche Point, NWT		*	Ft. Hood TX	1662	KUP	Kubuna, Papua New Guinea
	SRE	Sucre, Bolivia	1635	6Q	Sainville, NWT		PZA	Puerto Canezas, Nicaragua
1608	**	Ft. Campbell KY		LMC	Limoncocha, Ecuador		XP	Kubuna, Papua New Guinea
1610	TDA	Trinidad, Bolivia		ORI	Orito, Colombia	1664	**	US Military
1613	RAB	Rabinal, Guatemala		*	Ft. Hood TX	1665	6G	Arctic Red River, NWT
1615	3E	Mackenzie Delta, Canada	1636	ROK	Alaska (Dept. Interior)		CIO	Cicuco, Colombia
	MIL	Guincemil, Guatemala		**	US Military		CRB	Cabo Norte, Brazil
	OR	Phira, New Zealand	1637	*	Ft. Hood TX		LAG	Lago Agrio, Ecuador
	NZ	Nadzab, Papua New Guinea	1638	LBR	Labrea, Brazil		RIO	Riobamba, Ecuador
1616	*	US Military		TPQ	Tapuruquara, Brazil	1668	CCI	Cucui, Brazil
							FCR	Fazenda Cristalino, Brazil
						1669	AGQ	Ft. Rucker AL
						1670	6T	Ft. Good Hope, NWT
							CZU	Corozal, Colombia
							FU	Auckland, New Zealand
							N2	Cape Grassy, NWT
							PAH	Prairinha, Brazil
							TIPM	Palmar, Costa Rica
						1672	**	US Military
						1675	ESM	Esmeraldas, Ecuador
							TSL	Tsili-Tsili, Papua NG
							*	Ft. Bragg NC
						1676	8P	Prince Gustav, NWT
						1677	LAS	Salto Santiago, Brazil
						1680	CCI	Cucui, Brazil
							**	US Military
						1682	QQ	Quebec, Brazil
						1684	**	US Military
						1685	MAC	Macara, Ecuador
							MER	Mercaderes, Colombia
						1687	*	Ft. Hood TX
						1688	90	Simpson Lake NWT
							BCS	Jenjamin Constant, Brazil
							ERP	Eirunepe, Brazil
							**	US Military
						1689	MH	Mt. Hagen, Papua New Guinea
						1690	BBT	Ft. Rucker AL
							MDE	Medellin, Colombia
							**	US Military
						1692	KIU	Kiunga, Papua New Guinea
						1694	*	Ft. Bragg NC
						1695	TBU	Tibu, Colombia
						1698	*	Ft. Bragg NC
						1700	MAS	Macas, Ecuador
							OLM	Olmedo, Ecuador
						1703	**	US Military
						1704	TNT	Tegucigalpa, Honduras
						1708	ATM	Altamira, Colombia
							BDA	Boca do Acre, Brazil
							CUA	Carauari, Brazil
							CUE	Cuenca, Ecuador
							**	US Military
						1710	P2	Drake Point, NWT
							SNG	San Ignacio de Velasco, Bolivia
						1711	**	US Military
						1712	**	US Military

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CIRCLE 78 ON READER SERVICE CARD

Iranian Close-Up

A DX'ers Look At This Strange And Troubled Nation

BY GERRY L. DEXTER

Most days, you can listen to it by the hour on 15.084 MegaHertz. The Voice of the Islamic Republic of Iran, mostly in Farsi (Persian), comes from one of several high power Iranian transmitters. That frequency represents only a scratch on the surface. Broadcasting from Iran and transmissions by dissident elements against the government of the Ayatollah Khomeini are both at all-time highs.

Despite a savage, multi-year war with Iraq, the Iranian government has moved with speed and determination to create a broadcasting system that will completely cover the country, extend the voice of the government far beyond Iranian borders, and better serve that government's needs.

Not that Iranian broadcasting was any small time affair in the days of the Shah. The late occupant of the Peacock Throne spent millions on developing Iranian Radio and Television and made it the voice of his government. National Iranian Radio and Television (NIRT) was an organization of considerable size and power, run by a relative of the Empress.

But mistakes were made in the approach to programming, particularly on TV, and these mistakes were one of several elements that led to the eventual downfall of the Shah. Iranian TV imported many western programs and huge sums of money were spent to develop a worldwide news-gathering capability. Satellite links were used to provide feeds from western TV news organizations. The average Iranian TV viewer had access to everything from a stand-up report outside the White House to reruns of *I Love Lucy*.

The result was a developing westernization of Iranian culture and a growing oppo-

Mr. Gerry L. Dexter
RR4-Box 110
Lake Geneva, WI 53147
U.S.A.

September 9, 1983

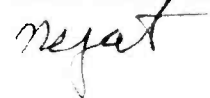
Dear Mr. Dexter,

This is to acknowledge the receipt of your Aug.1, 1983 letter. The correct translation of the title of Radio NEJAT IRAN in English is "Radio Liberation" belongs to the Front for the Liberation of Iran (FLI), a movement for the liberation of our homeland from Khomeini's regime.

Radio NEJAT IRAN, broadcasts two, one hour program on shortwave the evening program at 18.30 GMT on 11660 kh, and the morning program at 3:00 GMT on 9032 kh.

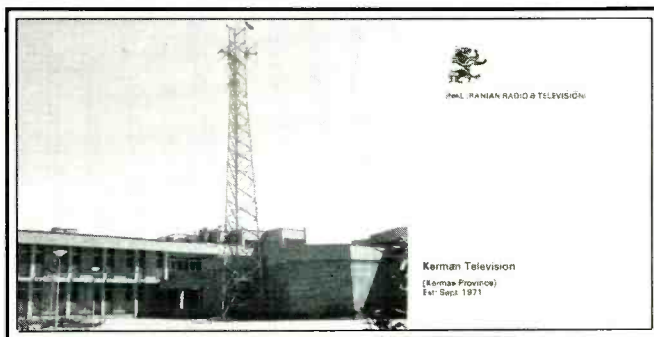
We are sorry that we are unable to furnish you with some photographs.

Radio NEJAT IRAN



QSL from Nejat Iran, one of the stations opposing Khomeini.

A QSL from Iranian Radio when the Shah was still in power.





Dear Sir

Thank you for the reception report on our radio station. It gives us great pleasure to confirm the correctness of your report. We are pleased that the Voice of Fedai (Radio of the Organisation of Iranian Peoples' Fedai Guerrillas) can be heard such a long distance away.

The following are some information concerning the station's operation.

RADIO SCHEDULE:

Frequencies: 3941 and 4680 KHZ
 Date: Every day
 Times: Main Programme: 17:00-17:45 G.M.T.
 Respected the following day: 9:00- 9:45 G.M.T.
 Language: Persian (Farsi)

It is of great interest to our technical staff to be aware of the station's performance regularly. We shall be grateful, if you would fill out a RECEPTION FORM enclosed with this letter and return it to us every once in a while. We would also appreciate receiving any technical advice or any other kind of help from you. We are looking forward to hearing from you again.

With our warmest thanks for your attention.

THE VOICE OF FEDAI

Enclosed are: Recording of one of our programmes
 "QSL" Card
 Reception Form
 Literature about O.I.P.F.G.

The Voice of Fedai A.C.A., BP 43, F-94210 Fontenay-sous-Bois, France.

A form letter QSL from the Voice of the Fedai's.



This attractive card was issued by the apparently now defunct Radio Vatan.

work more adaptable to the present needs and circumstances of the people. Broadcasting workers who supported the revolution and willingly adopted the new line were helped and encouraged, while those resistant to change were replaced. Some are apparently still unsure of themselves, unfamiliar with the nuances of the current line of religious culture guiding the revolution, and thus are afraid to speak up for fear of saying the wrong thing.

Broadcasters are encouraged to earn the confidence of the people to ensure that programs will be more effective. Programmers are encouraged to "tell the truth based on facts" in order to win the hearts and minds of the people and not let citizens get the idea they are being made to understand the current government view by force of propaganda.

Broadcasters are also told that they should try to make society understand that their job is an extremely difficult one. That way, shortcomings are more likely to be forgiven or overlooked, while even small advances or successes will be seen as large achievements.

Carelessness in broadcasting is said to be tantamount to a crime and incompetence, if deliberate, about equal to treason against the state. Only people who agree with the revolution and its aims are given broadcasting responsibilities.

The government looks upon Iran's revolution as unique in history and therefore believes no other country is capable of producing acceptable television programs for the Iranian people. Some shows are imported, but they are given a thorough once-over before being aired. Parts of an imported program are edited or even deleted. The result is a mutated program generally unsatisfactory anyway. Iranian TV producers are being encouraged to create more original programming.

There have been complaints that the programming is dull. In response the government has pointed out that, while variety is certainly desirable, programs should neither be too happy and upbeat nor too sad and depressing. A more even line is sought which will reflect Islamic values to the population and still be interesting enough to draw viewers and listeners.

Iran claims its newscasts provide an accurate reflection of events in the Iran-Iraq war, telling the bad news along with the

sition to this trend by traditionalists who were already opposed to the Shah.

The Shah did make an attempt to bring an educational television service to the Iranian people, building a large and modern studio complex for this purpose. But again, his mistake was to westernize the effort through the use of program producers and personnel drawn from several U.S. university TV operations. Once in power, Khomeini quickly shut down the entire operation.

Under the new regime, NIRT became Islamic Republic of Iran Broadcasting (IRIB), which runs the Voice of the Islamic Republic of Iran (VOIRI)—or Voice and Vision of the Islamic Republic of Iran (to include both radio and TV). Broadcasting is seen as playing an important part in the cultural construction of Iranian society, serving as an instrument for educating and guiding the people, reshaping the personality of individuals. Radio and TV are seen, ideally, as two-way media that are supposed to reflect to the people what the broadcasters have gained from them. Since the government is seen as

almost fully representative of the people's wishes, nothing is considered wrong with using broadcasting as a means of propagandizing government policies to the people. Radio and TV are charged with the preservation of Islam and the promotion of the achievements of the Iranian revolution. Programs are designed to educate and train viewers and listeners along those lines.

Pure entertainment is looked upon as the easy way out. Khomeini, in fact, once tried to ban all music from the airwaves, calling it "no different than opium." Even the Ayatollah couldn't make that dictate stick.

Iranian officials note that, when the revolution succeeded, radio and television were unprepared. Personnel had not done their homework and were not ready for the new ways the revolution was teaching. This, however, is apparently not seen as a crime but rather as an unavoidable situation that required guidance in order to be corrected. Radio and TV producers, writers, announcers, and other broadcasting workers are steered toward new training to make their

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VOICE OF IRAN

Tribune of the National Movement of the Iranian Resistance 'NAMIR'

NO 14 SEPTEMBER/OCTOBER 1984 - PRICE 50p/5FF/\$1



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PAGE 13



The National Movement of the Iranian Resistance produces this magazine.

national Affairs Department, P.O. Box 19395, 1774 Tehran, Islamic Republic of Iran.

Iraq has a number of transmitters assigned to jamming Iranian broadcasts, and listeners can often pick up the Iraqi "warble" jammer on 15.084. Iran returns the favor and jams Iraqi broadcasts. In 1984 Iran expanded its jamming efforts to stations in other countries, saying that world broadcasting distorts the real facts about Iran and the revolution. It also accuses foreign broadcasters of jamming its programs either with transmitters sending noise or by broadcasting programs on or near Iranian frequencies. This is not only cited as a justification for the jamming but for the expansion of facilities at VOIRI as well to counter "evil propaganda" from abroad. The government views broadcasts from other countries as international arrogance, which it says can be of greater significance than the actual shooting war with Iraq. Iran's current jamming efforts appear to be aimed primarily at anti-Iranian clandestine stations and broadcasts from the

Soviet Union. Millions of dollars are being spent in this effort.

The Iranian government claims that there are more than 40 stations broadcasting programming hostile to the revolution (note the programs previous on this subject). The count, however, includes such stations as the BBC and Voice of America, in addition to several strictly clandestine stations calling for the overthrow of Khomeini.

These real Iranian opposition radios come in a mystifying assortment of names, locations, frequencies, and backers. To make matters worse, the situation never remains the same for very long. The current line-up includes these:

The Voice of the Communist Party of Iran, aired from 1725 GMT (sometimes earlier) to 1900 on 3.864 and 4.770. The last 15 minutes of the transmissions are said to consist of coded number broadcasts. The station has several mailing addresses: "B.M." Box 2123, London, WC1V 3XX, England; Postfach 50 11 42, 5000 Cologne, Federal Republic of Germany; B.P.

good. Iraq, on the other hand, is accused of distorting the news and reporting victories where none existed. Iranian radio and TV, incidentally, have discontinued the airing of air raid sirens, but have given no reason for the change.

Iranian broadcasting geared up for new growth with the announcement of a five year development plan in 1983. Two full-time radio networks were put into operation to serve the domestic audience. One is a 24 hour per day national network, the other a combination of educational programming from Tehran and programming produced in provincial centers. Television, FM broadcasting, and shortwave are also under expansion, and there has been a steady stream of new facilities going into operation.

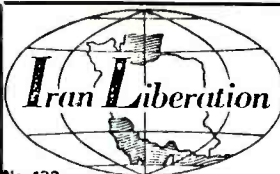
Even before the start of the five year plan, Iran had six 500-kilowatt shortwave transmitters, employing 16 antenna systems, which could reach two-thirds of the world. In 1983, a 400 kilowatt shortwave transmitter went on the air from Kish Island and, in the spring of 1984, another 400 kilowatt appeared from Kamalabad operating on 4.990 (later 4.985). This one is designated the "Prophet's Mission" transmitter and uses 14 steerable antennas.

The *World Radio TV Handbook* lists 64 medium wave stations scattered throughout the country, ranging in power from 2 kilowatts to the giant 1,200 kW station at Chahbar on 765 kiloHertz. There are 27 FM stations using powers of five kilowatts or more (and a number of others with lower power). Iran also has 39 program production centers throughout the country and 23 regional/provincial networks—some using only one frequency, some employing several mediumwave and FM channels. A special Radio Koran service operates during two 3-hour segments each day over transmitters in 16 cities.

On shortwave VOIRI can be found at various times of the day on 3.779, 4.985, 6.105, 6.150, 7.215, 7.230, 9.022, 9.765, 11.735, 11.930, 15.085, and 15.315. English for North America is still limited to just one half hour daily at 1930 to 2000 GMT on 9.022 and 11.930. The frequency 15.084 is usually heard all day long, mostly in Farsi.

The half-hour North American English segment offers these programs:

- Monday — Science and Scientists in Islam
— The Imam's Message
- Tuesday — Buds of Freedom
— Special Feature on Europe and America
- Wednesday — Analysis of the True Characters of Western Radio Stations
- Thursday — Buds and Hopes
— A Look at the Moslems in the Islamic Land of Afghanistan
- Friday — A Look at the Past and Present of Colonialism and Colonialists
— Survey of the Principles of the



On the eve of the Olympic Games:

Captain of Iranian national soccer team executed

Messages of condolence from Mr Rajavi and members of Iranian national sports teams

On page 5

No. 132

Fri 3 Aug 84

A Publication of the Union of Moslem Iranian Students Societies Outside Iran, supporters of the People's MOJAHEDIN Organisation of Iran

The National Council of Resistance: 3 years after

It was three years ago on such days that the National Council of Resistance was founded, soon after the start of the nationwide Resistance against the Khomeini regime. By then Khomeini's campaign to destroy all democratic freedoms and annihilate the last signs of popular sovereignty was well underway and his entire apparatus, by now totally reactionary in content, was fully in this end.

The MCR seeks to establish a democratic and independent Iran in which there would be political pluralism. It recognizes that sovereignty can only be exercised through the people's free vote and by the representatives of the various social divisions and classes. The Council does not believe in a religious government or the imposition of any ideology or religion on the society. The guaranteeing of democratic individual and social freedoms and the elimination of discriminations and oppressions based on ethnic...

democratic, progressive and nationalist political parties, organisations, associations and personalities of Iran. Among these are such central forces as the People's Mojahedin Organisation, which is active on a nationwide scale in Iran, and the Democratic Party of Iranian Kurdistan, the main force of the Kurdish Resistance. Other members include social and occupational groups like the bazaar merchants' union known as the Towhidj Trades Association. There are also...

Resistance forces in the Iranian army at war with Khomeini

Some of the activities of servicemen who support the Mojahedin

Three years ago, in the summer of 1981, the People's Mojahedin Organisation decided to send their leader, Mr Massoud Rajavi, outside Iran to set up the democratic alternative to the Khomeini regime. This was after the regime had become entirely reactionary in content and through its imposition of absolute repression was eliminating the last traces of freedom and suppressing the popular, progressive forces.

(Continued on page 4)

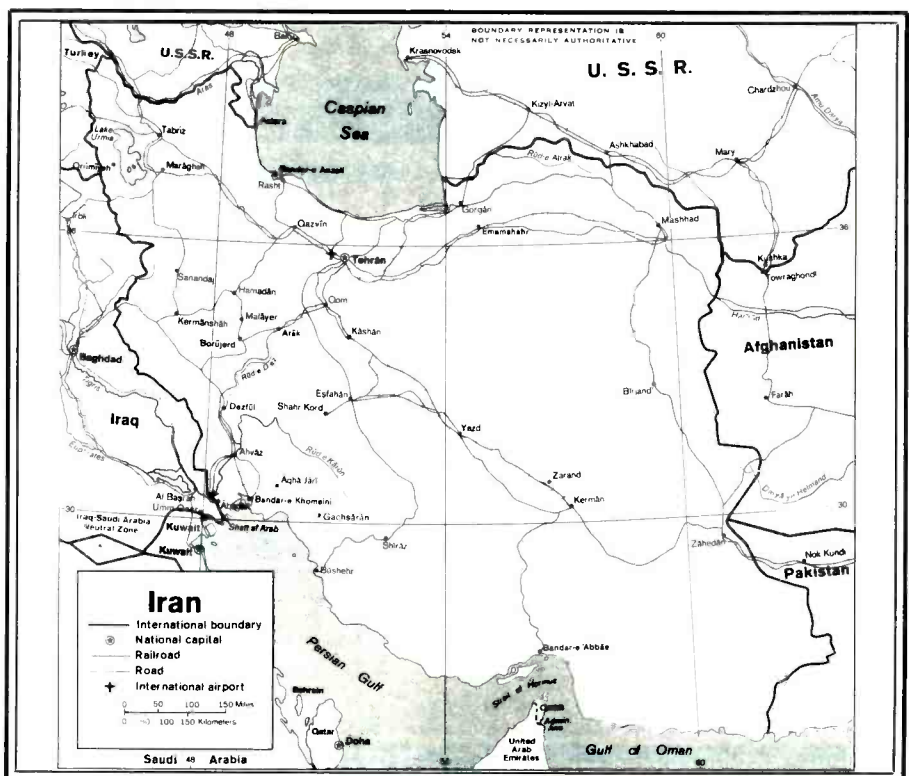
"Blood money for Iranian ships"

Newspaper of the Union of Moslem Iranian Students Societies Outside Iran which supports the People's Mujahedin.

- Constitutional Law of the Islamic Republic of Iran
- Listener's Special
- Saturday — The World in the Preceding Week
- Rays of Light of Koranic Teachings
- The Islamic Banking System
- Sunday — Getting To Know Islam and the Islamic Revolution
- The Role of Oil in History

Domestic programs in Farsi (usually carried on shortwave) include such features as News and War Reports, What's Happening at the Front, Review of Foreign Radios, Islamic Revolutionary Guards Program, The Army Program, The Reconstruction Crusade, and the World in Revolution.

Iran has been a consistently good verifier of reception reports (even during the hostage crisis) and letters can be directed to Voice of the Islamic Republic of Iran, Inter-



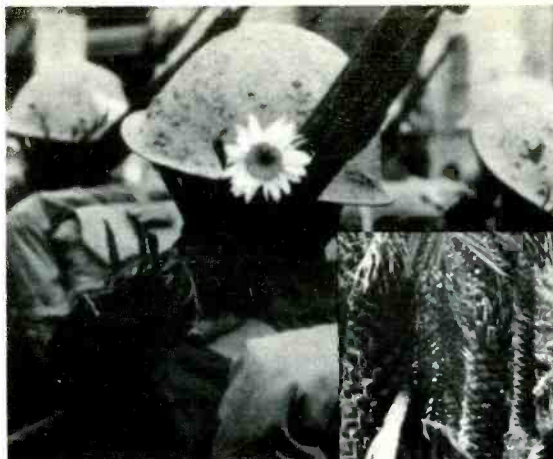
23, F-75660 Paris Cedex 14, France; and FHI. C.P. 1064, 10100 Turin, Italy. The identification in Farsi is "In Seda-ye ishte Komeniste Iran." Not heard in the United States.

Voice of the Fedai'i is also a communist outlet, operated by the guerrillas of the Fedaiyen-e-Khalq-e-Iran and operating from 1700 to 1745 and 0900-0945 on variable 3.941 and 4.680. As the revolution sorted itself out, the Fedai'i wanted no U.S. contacts-supported nationalization of the banks and regional autonomy for various Iranian minorities. Eventually, they adopted revolutionary activities against the Iranian revolution and have supported the Iranian Kurds. The groups support the idea of a Democratic People's Republic of Iran. The station has confirmed reports sent to A. C. A., B.P. 43, F-94210, Fontenay-sous-Bois, France. There is likely some connection with the Voice of the Communist Party of Iran.

Radio Nejet-e-Iran is a pro-monarchist station run by the Front for the Liberation of Iran and is on daily from 0330 to 0525 and 1630 to 1825 on 9.027 and 15.555. In the past this one has also been known as "Salvation of Iran." The "Front" is made up of a number of groups, parties, and individuals seeking a government that reflects the will of the people.

Radio Iran Toilers is a Soviet-supported station backing the Iranian Tudeh (communist) party and airing programs over the domestic transmitters of Radio Afghanistan. It is scheduled on 6.085 and 7.200 from 1600-1700 and 0230-0300. Tudeh initially supported Khomeini, apparently mostly because of his anti-American line, but when equal dislike was turned toward Moscow, switched to the opposition.

Voice of the Crusader, formerly known as Radio Mujahedin-e-Khalq, is operated by the Mujahedin-e-Khalq or Crusaders of the



A recent card from the Voice of the Islamic Republic of Iran.



Masses and may have some connection with the Voice of Iranian Kurdistan (below). Transmissions lasting about three hours are aired at 0230, 1100, and 1700 on 5.955 (or 5.960) and sometimes on variable 3.948 and 4.198. Broadcasts are believed to come from Iraqi transmitters. The group is said to support former Iranian premier Bani Sadr and have ties to the Council of National Resistance.

Voice of Iranian Kurdistan is operated by the Iranian Kurdish Democratic Party, probably also from Iraq. The party seeks an independent Kurdish state in what is now Iran. Broadcasts are on from 0330-0430, 0900-1030, and 1330-1500 on 7.400 and 9.405.

Radio Iran has two stations; the original Radio Iran and the (Free) Voice of Iran were combined under one name a couple of years

ago. Both were and are broadcasting over Iraqi radio transmitters using essentially the same frequencies with their programs just preceding or immediately following each other. The Voice of Iran was operated by supporters of General Owaisi, while the original Radio Iran supported Shapur Bakhtiar, the last prime minister under the Shah. These have apparently joined forces under the flag of the Iranian National Resistance Movement. Scheduled at 0400, 1300, and 1830 on 3.360, 7.170, 9.400, 9.584, 11.640, 11.750, and 15.560. The station has also been noted recently with very strong signals between 0130 and 0245 on 7.425. Address: 17 Blvd. Raspail, 75007 Paris, France or P.L.K., 084012-A, 5000 Cologne, Federal Republic of Germany.

Voice of the Iranian Revolution operates in the 1230-1330 period on frequencies that range from 6.366 to 6.383 and/or 6.420-6.440 and 7.245-7.300.

National Voice of Iran is a long-standing opposition radio having operated continuously since 1959. It is a communist outlet, supported by the Soviet Union from a transmitter in Baku, Azerbaijan SSR. It is scheduled from 1745-1815 and 1930-2000 on 5.915 and 6.025.

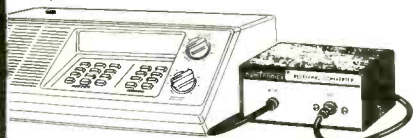
Radio Vatan (Homeland) which operated from Egypt using money supplied from the estate of the late Egyptian leader Anwar Sadat now appears to be inactive and may have merged with Nejet-e-Iran.

Many of the clandestines operating in opposition to the Khomeini regime are not scheduled at opportune times and frequencies for reception in the U.S. A few, such as Radio Vatan, Radio Iran, and Nejet-e-Iran, have been logged and verified by a number of U.S. listeners.

With the Iran-Iraq war showing no signs of letting up, with much of the world still nervous about Khomeini, and a considerable variety of opposition groups seeking his downfall, it would seem that Iranian radio will remain an interesting study for short-wave listeners for some time to come. **PC**

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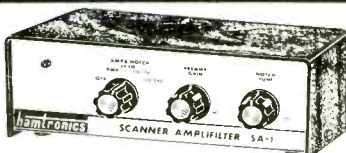
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Radio To The Rescue

VOA Uses Ham Radio In Covering Mexican 'Quake

BY ANDY GUTHRIE

When a catastrophic earthquake rumbled ashore from the depths of the Pacific Ocean off Acapulco, Mexico, toppling buildings and killing thousands in downtown Mexico City last September, it also cut off the area from the rest of the world.

Telephone, telex, and broadcast circuits snapped along with most of the capital's electric and telephone lines.

In the Voice of America's Washington newsroom, as wire service reports of the quake began to come in, Chief Assignment Editor Edie Apple tried to call VOA Correspondent Gary Tredway in Mexico City. The line was dead.

Ms. Apple, a veteran correspondent and former VOA Paris Bureau Chief, assigned Charge Editor Andy Guthrie to get through to Mexico City any way possible.

Guthrie turned to the VOA maintenance engineers, who operate the Voice of America amateur radio club (K3EKA). Three members of the newly re-activated organization, Club Trustee Hugh (KB3TB) Katz, Richard (WA9VIV) Baltes, and Greg (K9FL) Gavagan were all on duty. A section of work bench in the VOA engineering maintenance shop was quickly turned into a listening post.

As Greg began to patrol the 20 and 40 meter bands to get the calls of U.S. hams already beginning to work Mexico City, Richard kept his eye on the TV monitor to pick up the names or call letters of hams supplying info to TV news organizations.

Within a few minutes we heard "This is XE1VIC, go ahead with your traffic," crackling over the VOA receiver. XE1VIC, the station of Ham Victor Keller, quickly became one of Mexico City's few electronic links with the outside world. Broadcasting in both English and Spanish, Mr. Keller quickly began handling international traffic, relaying messages from the news media and anxious relatives about family members in the quake zone.

Baltes and Gavagan realized their Yaesu FT-757 transceiver, with a top output of 100 watts, but using a scaled-down antenna system on the VOA building roof in downtown Washington, could not consistently reach Victor. So they began calling relay stations in the southern and western United States for assistance.

The VOA Ham Club has been operating on reduced power lately in order not to interfere with the primary shortwave and medium wave operation. Ham transmissions had "bled" into some of the VOA broadcast studio control rooms. This technical prob-



Amateur Radio played a vital role in the aftermath of the Mexican earthquake.

lem has now been solved and the club is in the process of moving to a new location and going back on full power.

Within a few hours, urgent VOA News messages for Correspondent Tredway and part-time reporter Lucy Conger were relayed into Mexico via Vince (WB6HVN) Cox in San Bernardino, California, Julian (WA5PME) Kent in Jackson, Louisiana, and Glenn (KC3EK) Tracy in Catonsville, Maryland.

Tredway and Conger were urged to make their way to any Ham operator's home and radio VOA to confirm wire service damage reports and give other details for VOA's 24-hour news service. VOA News Director Don Henry had already decided we would not directly re-broadcast any ham-relayed reports in order to conform to our understanding of the new FCC regulations.

About 8 p.m. eastern time that night, a connection was made. Tredway and Conger had made their way to the home of Carlos Arciniega (XE1MT) Castaneda in the Mexico City suburb of Benito Juarez. From there, they were able to raise Julian (WA5PME) Kent in Jackson, Louisiana.

Kent called VOA's Ham listening post and told them to tune in 14.217, but the VOA unit could not receive XE1MT directly. So Kent patched the Mexico end of the conversation into his phone and VOA Charge Editor Dick Chamberlin took notes as Tredway confirmed the extent of the quake damage. Chamberlin's report, quoting Tredway's account of the earthquake,

was ready for broadcast in English and the VOA's 41 other languages by about 9:30 p.m. eastern time the night of the quake. To our knowledge, it was one of the first reports filed from Mexico City by a broadcast journalist after the quake.

Afterward, VOA News Director Don Henry congratulated the VOA Ham unit for its help. Plans are being studied to use the facility to reach VOA correspondents in the future whenever all regular communications links with an area of the world are cut off.

The Voice of America is the U.S. Government's International radio broadcasting agency, transmitting more than 1,300 hours of programming every day in English and 41 other languages, to an estimated audience of 120-million listeners each week. A branch of the United States Information Agency, VOA first went on the air in February of 1942.

The program service broadcasts news on the hour in English around the clock, and in other languages. The programming, which includes music and features about the United States, is designed to inform foreign audiences about this country.

The VOA Ham Club (K3EKA) operates on an irregular schedule, as engineering duties permit. All Hams who work the station will receive a distinctive VOA QSL card. Mail should be addressed to Hugh Katz VOA/BZ, VOA Ham Club, Room G-510B, The Voice of America H H S—North Bldg., 330 Independence Avenue, S.W., Washington, DC 20547.

PC

Fireman Makes Second Rescue From Fire

"Too often, you end up with dead people. It's a good feeling when they live."

Those were the words of Guy McGowan, a 31-year-old firefighter with the Chicago Fire Department. According to an account in the *Chicago Sun-Times*, McGowan knows what he's talking about. He has made two lifesaving rescues from burning buildings in a four-month period.



Chicago Sun Times photo by Tom Lenehan

SCAN PUBLIC SERVICE AWARD

McGowan's most recent rescue was of three-year-old Ronald Ford, Jr. McGowan had to crawl through dense smoke to save the boy after he had been left in the burning building. The boy's mother and father were awakened by the fire at about 10:20 a.m. and had fled to safety, not knowing that Ronald was still in the building.

A few minutes later, the first firefighters arriving at the scene of the fire were told that the boy was still inside. McGowan and other firemen entered the burning building.

"We went into the kitchen and didn't find anybody," McGowan told the *Sun-Times*. "Then I went into the bathroom and found the boy lying unconscious on the floor."

"I got him out as quick as I could. I started doing CPR (cardio-pulmonary resuscitation). There was no heartbeat or breathing. Then the paramedics came and took over. The smoke was real thick in there."

McGowan later added that the heat was so intense it "could fry your lungs." (Ford was reported to be in critical condition the next day, being treated for smoke inhalation.)

Assigned to the Chicago Fire Department's Hook and Ladder Company No. 7 on Chicago's West Side, McGowan was recommended for department awards for the two rescues. Daniel Doyle, Third Battalion Chief, said that McGowan did "a nice job."

McGowan, a five-and-a-half year veteran of the fire department, said that he was pleased to rescue young Ford, but he downplayed his own efforts, saying "firefighters work as a team," according to the *Sun-Times*.

Several months earlier, McGowan rescued a woman and four children from a sixth-floor apartment in a public housing building on Chicago's South Side. The five people has been trapped in a rear bedroom while the rest of the apartment was being gutted by fire. McGowan dashed into the room and rescued the five just as the bedroom door was about to burn through. All of those caught in the burning apartment were unharmed.

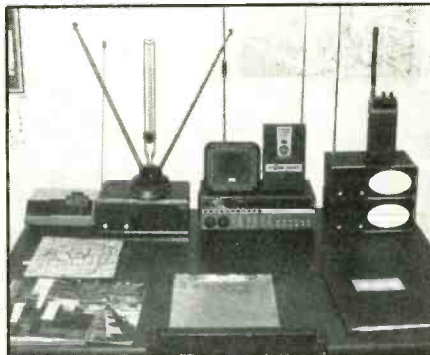
For these two rescues, Guy McGowan will receive the SCAN Public Service Award. The award includes a special commendation plaque and a \$100 cash prize.

SCAN

Our congratulations to this issue's winners of the SCAN photo contest.

Best Appearing

Here's an example of old and new — scanners, that is. Tim McLean of Mt. Zion, Illinois, has several Bearcat scanners of different vintages in this neat shack.



SCAN PHOTO CONTEST WINNERS

Right in the middle is a new Bearcat 300 scanner, used by Tim to monitor and scan for new frequencies. A Bearcat 12 monitors local and state police frequencies, and two Bearcat 3's are used to listen to surrounding counties.

Tim says that he "goes mobile" with his Bearcat Five Six. He is a member of the Mt. Zion Fire Department and a fire pager keeps him advised of all calls. A Storm Sentry also provides weather information.

Congratulations, Tim!

The SCAN sponsored photo contest is a periodic feature. To enter, send a sharp, black/white photo of your base or mobile installation to SCAN Photo Contest, 240 Fencil Lane, Hillside, IL 60162. (Photos cannot be returned and become the property of the Scanner Association of North America, which is the sole judge of winning entries.)

All winners receive a Uniden Bearcat Alert Weather warning radio as their prize.

Best Equipped

The winner in this category is Carl L. of Hayward, California. Carl uses a Bearcat 210XL

scanner, Bearcat 100, JIL SX-200, Panasonic RF-3100 receiver, National SW-54, Realistic Mini-Patrolman, Realistic 30-A CB unit, two LED clocks, and a Panasonic television.

Outdoor antennas in use include a multi-band omni-directional scanner antenna, a 100-foot-long L-shaped longwire antenna, and an experimental pyramid-shaped short-wave antenna. We hope your new Bearcat Severe Weather Warning Radio will help you keep up with the weather in the Bay Area, Carl!

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increments, the HX2000 is a sure winner.

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CIRCLE 12 ON READER SERVICE CARD

Radio Long Ago

Leafing Through The Pages Of Time To See The Roots Of Broadcasting And Communications

BY ALICE BRANNIGAN

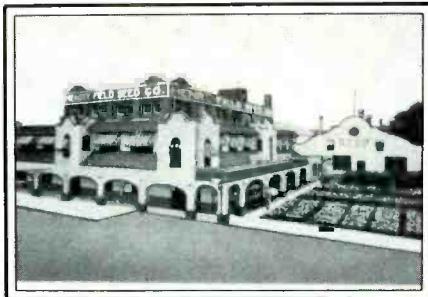
The next time anybody tells you how great broadcasting has become, agree with them but add that at one time it was rather seedy. 'Tis true! Fact was, during the mid-1920's, broadcasting became the scene of a battle between the egos of two moguls of the seed business—Henry Field and Earl E. May, both of Shenandoah, Iowa.

Let it be noted that the community of Shenandoah (in southwestern Iowa) is a relatively small place; even today it accommodates less than 6,000 souls. Shenandoah was founded in 1870 with the advent of the railroad. It owes its name to the resemblance early settlers saw between the local Nishnabotna River Valley to the Shenandoah Valley of Virginia. However, the main feature of the community is that it has long been a mecca for large nurseries and seed and mail order houses. Obviously, in retrospect, it looks as though the small community wasn't large enough to simultaneously contain the egos of Messrs. Field and May, at least not very comfortably!

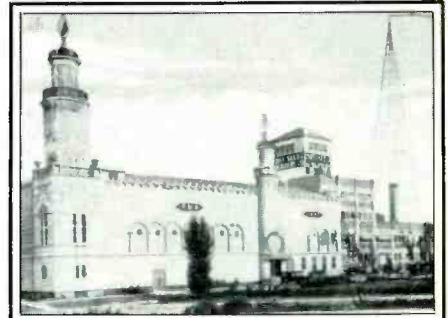
In 1924, Henry Field, owner of the Henry Field Seed Co., opened up a broadcasting station to advise the world of his wares. At his offices, located at 407 Sycamore Street, he established station KFNF with 500 watts on 1130 kHz. The KFNF transmitter (please appreciate that I have resisted the temptation to use the term "transmitting plant" in this case) was located, along with the KFNF studio, adjacent to his seed company building.

Henry Field said that KFNF's callsign stood for *Known For Neighborly Folks*, but he didn't at all feel especially neighborly when, only a year after KFNF went on the air, someone set up a rival broadcasting station in the small community. That station was KMA, operated with 500 watts on 650 kHz, by Field's rival, Earl E. May, owner of the May Seed and Nursery Company located on the corner of Elm and Lowell Streets. May, denying that the callsign was based on his last name, insisted that it stood for *Keeps Millions Advised*. Feeling that May had attempted to steal his thunder, Field wasn't impressed.

It wasn't only that KMA was on the air that annoyed Henry Field, it was also that KMA was housed in a far larger and more impres-



Henry Field's station KFNF was located in a modest structure to the rear of the seed company. Some photos show a steel lattice tower atop the KFNF studios.

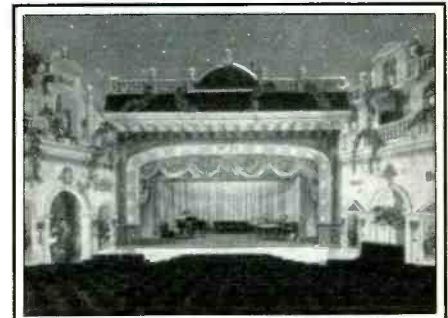


Earl May's imposing headquarters housed station KMA. Looking like a Moorish castle, it gave KFNF a lesson in one-upmanship.

sive edifice than was KFNF. In fact, KMA was located in a building that looked like a Moorish castle. KMA's owners had also spent lots of money erecting a lavish radio studio known as the Mayfair Auditorium. Containing hundreds of seats, it was constructed with balustrades and with arched recesses filled with plants and flowers of many colors and shapes. The auditorium was certainly the equal of any theatre or opera house in the nation. In any event, in southwestern Iowa it was nothing than a sensation. Moreover, its name, Mayfair, bore a striking similarity to the name of its owner, Earl May!

No doubt about it; Earl May may have come along with his broadcasting station a year after Henry Field, but he did it with sufficient panache to take away at least some of the glitter from KFNF's appearance on the broadcasting scene in 1924. Remember that KFNF and KMA, at 500 watts, were (in 1920's terms) rather powerful stations and had regular audiences throughout the entire center of North America.

By 1927, KFNF had shifted to operation on 650 kHz. A year later it moved over to 890 kHz and upped its power to 1 kW (500 watts at night), where it shared time with KUSD (Univ. of South Dakota at Vermillion) and WILL (Univ. of Illinois at Urbana/Champaign). Also playing the frequency changing game was KMA, which hopped over to 930 kHz in 1928. Although it shared time on 930 kHz with station KGBZ (operated by Dr. George R. Miller in York, Nebraska), it remained there until just prior



KMA's exquisite Mayfair Auditorium was, in size and luxury, the equal to almost any theatre in the nation. Not only that, it was given a name that was somewhat close to that of its owner, Earl May.

to WWII, running 1 kW days and 500 watts at night.

The mid-1940's found KFNF on 920 kHz (1 kW days, 500 watts nights). KMA had moved to 960 kHz and increased its power to 5 kW; it had also moved its transmitter to Route 48.

Today, KFNF is known by a different callsign, KYFR. Its owners are Family Stations, Inc., of Oakland, California; this company also owns shortwave broadcast station WYFR (transmitters in Okeechobee, Florida).

KMA is presently owned by the May Broadcasting Company. A bouquet of colorful flowers from amaryllis to zinnias for these two "seedy" stations; and even one for another early Iowa seed company broad-



In 1938, KFNF took out an FCC license for a portable 30 MHz remote pickup transmitter. It was known as W9XPL, although KFNF's Chief Engineer reported that he used to slide it down into the 10 Meter Ham band for some quick contacts whenever there was a skip opening. Its circuit consisted of six type 19 tubes and a single type 30 tube.



Station CKLW called this Ford their remote pickup van in 1934.

caster, KSO of Clarinda (A.A. Berry Seed Co., 1380 kHz, 500 watts).

Station CKLW, I Almost Hate You!

One of the most annoying things about DX'ing on the broadcast band in my neck of the woods is that when you tune past 800 kHz at night, you can't help but hear CKLW in Windsor, Ontario. The problem is that they play great music, and once I get an earful of their programming, it's virtually impossible for me to keep tuning around for stations on other frequencies! I just sit there trapped on 800 kHz. CKLW is very addictive, I warn you!

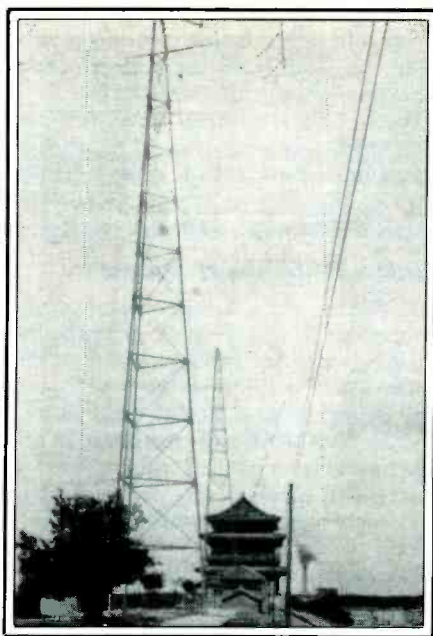
This station commenced broadcasting in 1932 and currently runs a full 50 kW for serving its Windsor/Detroit daytime audience and a far larger group of listeners at night.

We came across a wonderful photo of CKLW's 1934 remote pickup news vehicle, a '34 Ford.

Warning: The Surgeon General Has Warned That CKLW Can Be Dangerous To Your DX'ing!

From The Mysterious Orient

Remember China in the old days? Terry and The Pirates, The Sand Pebbles, The



The towers of the U.S. Navy's station NPP, in China during the "gunboat diplomacy" era, loom over a pagoda.

Good Earth, and like that. Those were the days when many nations had extensive commercial interests in China, a nation traditionally torn by strife from within and without. A number of major world powers maintained a military presence in China to protect their own country's citizens and commercial interests.

Commencing in 1928 and extending until 1937 (when Japanese aircraft bombed and sank the USS PANAY), a fleet of six U.S. Navy river gunboats patrolled the Yangtze River.

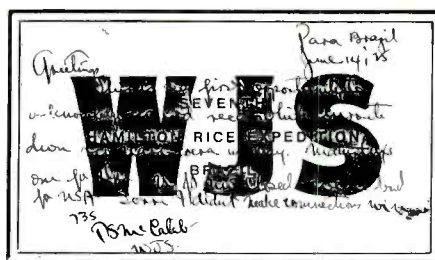
In conjunction with U.S. military operations in China, in the 1920's the U.S. Army operated station WUQ on 397 kHz from Tientsin. In the 1930's this station was known as WVN on 5995, 8860, and 13920 kHz. The American Consulate at Shanghai operated a monitoring station (identified by the code letters NPJ) that maintained a watch on 17.3, 57.66, 76, and 315 kHz.

The primary American military station was NPP in Peking (a/k/a Peking, Peiping, and/or Beijing at various times). In the gunboat era, NPP operated on 66, 76, 157, and 315 kHz. Our rare photograph of NPP dates from those days and shows two large towers looming over the roof of a pagoda. Thanks to reader "Shanghai" Schwartz, USN Ret. of California, for this photo.

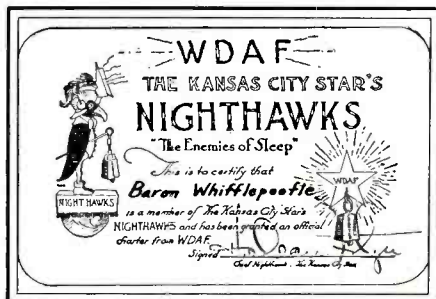
Expedition Station

Expeditions used to explore "darkest Africa" or "the wilds of South America" on a regular basis. Often they would be given permission to contact Hams via their commercially licensed ship or land radio gear.

That's the way it was with the Seventh Hamilton Rice Expedition that sailed off to Brazil in the mid-1920's. A postcard from the expedition's "sparks" indicates that their callsign was WJS and the station could con-



This postcard from station WJS was associated with an expedition to Brazil.



Like many early broadcasters, WDAF encouraged DX listeners by sending out zany membership cards.

tact Hams (no frequencies were mentioned). The card was mailed from Para, Brazil, in June of 1925 and notes that WJS was on the way back to the U.S.

In attempting to check out WJS, I found that in 1919 the callsign was used by an American ship, the S.S. AMPHION. Unfortunately, neither the AMPHION nor WJS appear in records of a few years later, so I can't be certain if there was any connection between this expedition and that vessel.

An Old-Time Custom

Back when broadcasting was in its youth, stations devised all manner of clever gimmicks and promotions to build nighttime DX audiences. This included special programs of interest to DX'ers, collectible verification stamps, and various awards and listeners' clubs for those who were willing to spend the wee small hours of the morning trying to hear DX. It was a somewhat different relationship then between stations and DX hobbyists than has been generally noted in several decades.

These promos were quite clever and often rather zany. DX'ers of that era rose to the occasion by taking the fullest possible advantage of all DX opportunities and DX programs, stamps, and clubs. With all due respect to those 27 MHz operators who felt that CB'ers invented wacky radio handles, I must point out that many DX listeners of the 1920's and early 1930's preferred to be known to the world by means of radio nicknames. One was an author for *Radex*, a DX'ers magazine, who was known only as "Count de Veries."

Jim Parisi of California helped to recall this when he sent us an undated membership card in a station's DX "club." This card bestows membership in WDAF's *Nighthawks* (*The Enemies of Sleep*) upon a DX'er who went by the nickname of "Baron Whif-

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flepoofle." WDAF, owned by the Kansas City Star (Missouri), commenced operation in 1922 and this card is probably from sometime between 1923 and 1933.

We wonder if anybody at WDAF (610 kHz, 5 kW) remembers the old Nighthawks group and if there are any other members still out there in radioland. Goodnight, Baron Whifflepoofle, wherever you are!

Radio Polonia It Wasn't

Poland has had a rather hectic history. Its independence was declared in 1918, but the Russians took large territories from Poland in 1921. In 1939 the Nazis and the Soviets divided up what was left of the nation. By the end of WWII, with millions of its citizens having been brutally exterminated, a Soviet satellite state was created (1947) and its borders were again redesigned and reduced.

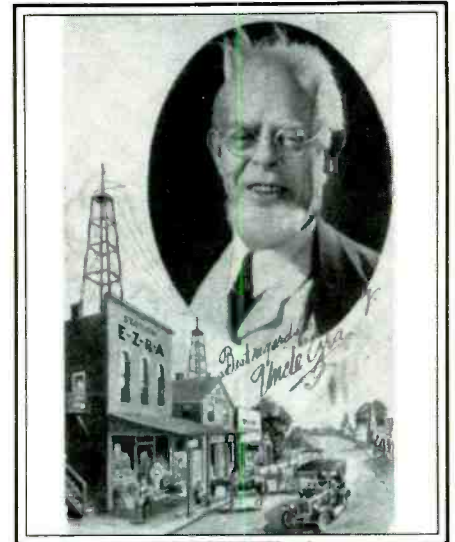
However, in the years just before WWII, Poland did enjoy 18 years of rather peaceful existence. During that period, it engaged in broadcasting that was quite different than the heavy-handed political programs one hears these days from Warsaw.

Polish Radio, during the 1930's, was most active over stations SPD (11500 and 11535 kHz) and SPW (13635 kHz). Programs directed toward North America solicited reception reports and were rewarded with QSL cards that were strikingly beautiful. These programs, which were heard daily, were sent out over 10 kW transmitters in Warsaw. Many DX hounds proudly displayed the Polish Radio bright blue and black QSL's sent out by SPD/SPW.

Shown here is one of the QSL's sent out by Polish Radio in late 1937, less than two



Poland has known less than 20 years of true independence during the 20th Century. This QSL from 1937 was issued at the tail end of that too-brief period.



Alka Seltzer's "Station EZRA" sent out this gag QSL card to listeners in 1938. It even shows of Uncle Ezra himself. Note the station's call sign on the front of the general store, and the great antenna system.

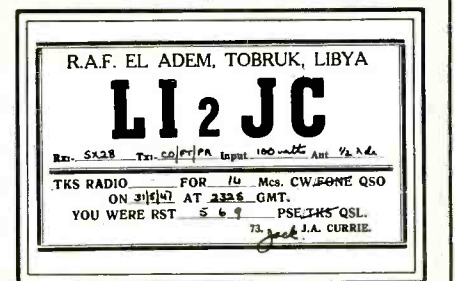
Historic Ham QSL's

Libya was originally settled by Berbers, and later occupied by Carthage, Rome, Vandals, and the Ottomans. Italy ruled it from 1912. During WWII, the North African nation was the scene of fierce fighting, especially in the area of Tobruk.

After WWII, Libya was ruled by Britain and France. It was given complete independence in 1952.

Prior to WWII there was apparently no Ham activity in Libya; consequently, official ARRL prefix lists dating back to early 1938 show the nation as not having a Ham prefix. After WWII, however, prior to being assigned its own prefix (5A), it was the place where many British and French military personnel were stationed. Some of these folks were Hams, and where there are Hams there are always stations on the air, one way or another!

If Libya had no official Ham prefix, no problem; an unofficial one would be used. And that's what happened! The February '47 official ARRL prefix list, for the very first time, announced that Libya was using the Ham prefix "LI." This prefix was shown in parentheses, indicating



that it was unofficial, spurious, or questionable.

And, official or not, Ham stations where operating from Libya. Our QSL from Libya is from station LI2JC and is dated May of 1947. It's from Jack Currie (who used his initials in his Libyan call sign). Jack was stationed at the RAF base in El Adem. LI2JC was running 100 watts into a dipole while receiving with a Hallicrafters SX-28.

It didn't bother any of the "LI" Hams that they had to invent a prefix in order to put their stations in operation, even if LI was actually (and officially) a prefix belonging to Norway—and that's a long way from Libya in anybody's Rand McNally! Way to go, "Tommy!"



Eric Swedberg sent in this mystery photo and we ran it in the October '85 issue. Dr. Robert Keiper identifies it as Long Beach, California, and the radio towers as belonging to KFOX or KGER.

years before Poland's independence ended—thrusting the nation into a period of darkness that has thus far lasted for 47 years, and doesn't look like it will end soon.

Few listeners today have ever seen one of the broadcast QSL's from Poland's pre-war days. It's a rare treat for the eyes!

The Callsign Was EZRA

A few issues back down the line a reader tried to stump me with a question about a station with the callsign KUKU. I was slightly frantic trying to dig this one out of stacks of dusty records until I realized that KUKU was a mythical station that was part of a 1930's comedy program—sort of a vintage WKRP in Cincinnati. Would you believe that this very same reader is now asking me for information with the callsign EZRA.

I didn't bite twice. If it wasn't a callsign used by a Soviet ship, then it was a rib. Assuming that EZRA couldn't be a for-real callsign (unless Soviets suddenly rediscovered their long lost sense of humor), I immediately pursued the information outside of official records.

My hunch was right, and I even came up with a photo of station EZRA, along with a snapshot of its owner/operator, Uncle Ezra.

Uncle Ezra's Radio Station was a cornpone radio program emceed by Pat Barrett. The station described itself as "the powerful little 5-watter down in Rosedale," and its programs consisted of interviews with and performances by an assortment of hilarious rural people who had supposedly dropped by the general store to visit around the pot-bellied stove with Uncle Ezra.

The famous Sons of the Pioneers and actress Fran Allison (of Kukla, Fran and Ollie) were regulars on EZRA, which was on NBC in 1934 with a 15-minute "broadcast" three times a week (sponsored by Alka Seltzer). This schedule continued until 1938 when EZRA went to two 15-minute programs plus a half-hour on Sunday. From 1940 to 1941 the program aired Saturdays and was sponsored by Camel cigarettes.

Our look at Uncle Ezra and his fictitious hillbilly 5-watt radio station is courtesy of a card sent out by Alka Seltzer in 1938 to accommodate the many DX'ers who wrote to EZRA and asked for a QSL.

This has got to be one of the most unusual QSL cards ever sent out. A tip of the hat to those DX'ers who even thought to ask for a

QSL card from EZRA—and a curtsy to Alka Seltzer for rising to the occasion with a wonderful and clever QSL to send back.

Would modern DX'ers have ever thought to write to WKRP (Cincinnati) or WJM-TV (Channel 12, Minneapolis/St. Paul, according to Mary Richards) for a QSL card? No way! C'mon gang, get with it!

Solved: One Mystery!

Thanks to reader Robert J. Keiper, M.D., of Downey, California, we have an identification on a mystery photo that was run in the October issue. The reader who sent in the mystery photo thought it might be Buffalo (New York) because the partial word "Buff" could be seen atop one of the buildings. Two large transmitting towers were mounted on the roof of a building that also had a sign which might have read "State Insurance."

Dr. Keiper sent us a wealth of documentation to identify our photo as a scene from Long Beach, California, taken at least 55 years ago. What we thought was a railroad trestle at the right of the photo is actually the Long Beach Pier, and the letters "Buff" indicate the roof of Buffum's Department Store on Pine Avenue. The word "Skooter" refers to an amusement ride along the beachfront. The radio towers, atop the State Theatre, were either from KFOX or KGER.

Pioneer Passes Away

We were saddened to learn of the passing of Will Reuman, W2RB, last October 3 at

the age of 89. Mr. Reuman, who lived in Amityville, New York, was the founder of no less than four broadcasting stations in the New York metropolitan area—WWRL, WRFM, WGLI, and WTFM.

His first station, began when he was 30, was WWRL in the Woodside section of Queens, New York City. This station had a 100 watt transmitter on 1500 kHz (presently running 5 kW on 1600 kHz) commencing in 1926. WWRL has always specialized in ethnic programming and introduced listeners to announcer Norman Brokenshire and singer Ethel Zimmerman (later known as Ethel Merman). After WWII, WWRL's programming branched out into the Hispanic and Black markets and spotlighted Tommy Small, better known as Dr. Jive.

WRFM (105.1 MHz), begun in 1953, was WWRL's sister station on the FM band. In the late 1950's, Reuman began WTFM and WGLI on Long Island. He sold WWRL in 1963 and was advised to also sell his FM stations because there wasn't any market for FM programs. Reuman felt that FM was "an elegant medium" and elected to ignore the advice. His instincts turned out to be correct.

Reuman's introduction to radio was rather humble. In the early days of radio he scavenged the streets of New York City's "Hell's Kitchen" area for scraps of silver foil to sell to junk dealers. With his earnings, he would buy galena crystals and other components for his Ham station.

See you next month!

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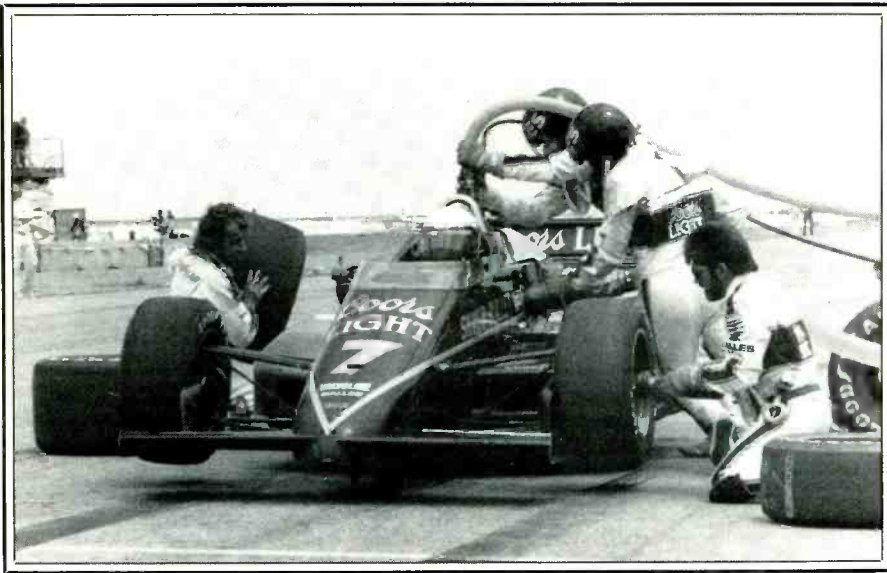
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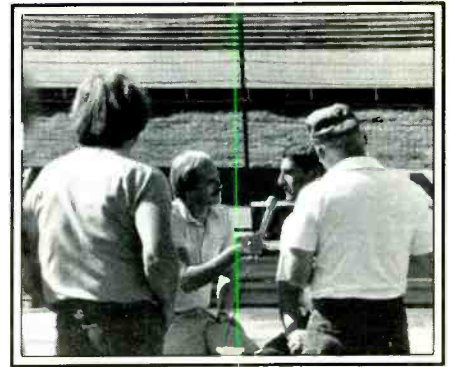
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Pit crews fuel and service a racer during a quick stop in the pit area. (Photo courtesy of Championship Auto Racing Teams)



ESPN crews conduct an interview in the pit area at the Domino's Pizza Pocono 500. The crews use both general mobile radio service and business band channels. (Photo by Chuck Gysi, N2DUP)

Racing With The Radio

Tracking The Racing Crews With A Hand-Held Scanner

BY CHUCK GYSI, N2DUP

The hand-held scanner—like the camera and binoculars—is rapidly becoming an essential item to tote along to car races. While binoculars helps one see the race and the camera helps to record the race, the scanner helps one “hear” the race.

The drivers in most big races use two-way radios to communicate with their pit crews and team; the driver can radio in for parts or repairs that he will need on his next pit stop or the crew can advise the driver of safety matters.

However, the use of radios at races doesn't stop there. Hand-helds, mobile units, and portable repeaters are also used by track officials, timers, observers, security guards, medical and fire units, and the news media.

The trick to tuning in all the fast-paced action is knowing where to look. Most professional drivers use UHF business band radio channels for chatting with their pit crews. In fact, most race cars now sport 6-inch quarter-wave whips for the radio systems.

Drivers and their race teams consider the frequencies they use a closely guarded secret; in the hands of the competition, it could pose a problem. While many teams used just one or two channels in the past, many now employ multi-channel radios so they can switch frequencies during the race to avert eavesdropping on scanners by the competition's crews in the pits.

The equipment used by drivers include both simplex and repeater systems. At the pits, long poles wave in the air carrying ground plane base station or modified mobile antennas with artificial ground planes—cut-out round metal plates—under them. Special headsets fit in the drivers' helmets and are plugged into mobile radios in the race cars.

The radios can then be used by the driver to advise his pit crews that he is planning to come in on a certain lap so the crews can scramble to be ready to service the car. The driver can also advise his crews whether the car is experiencing problems. The pit crews, on the other hand, can use the radio to relay information to the driver during the race, such as where cars gaining on him are located, his speed as he rounds a lap, safety problems on the track and possible problems and conditions with competing drivers' cars he may be interested in.

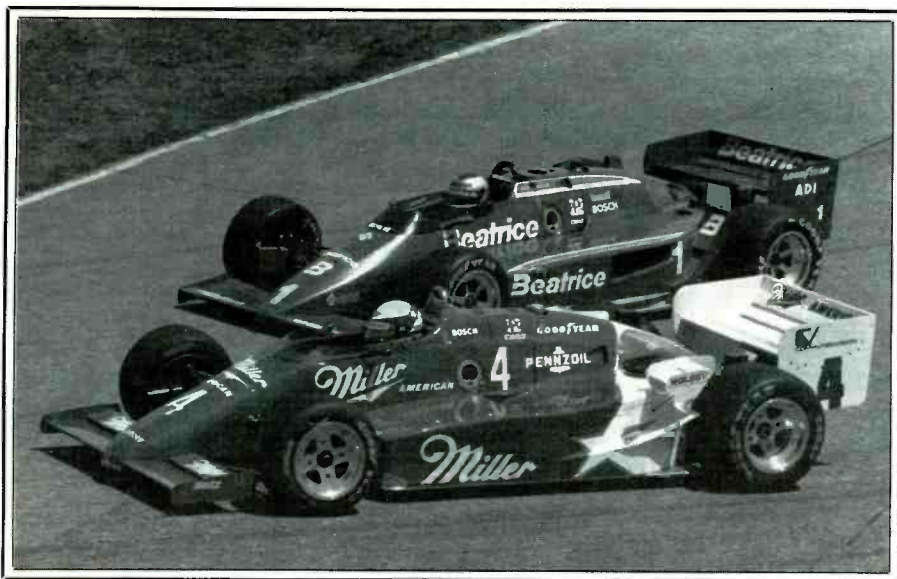
It can be thrilling to hear a driver check in with his crew after winning a race, and you may want to lower the volume when a racer loses a wheel and goes into the wall on one of the last laps and screams a few choice words over the air.

In addition to the actual races, the drivers and their crews use the radios during time trial qualifications and practice runs on days immediately prior to a race. During time trials, only one driver is on the track at a

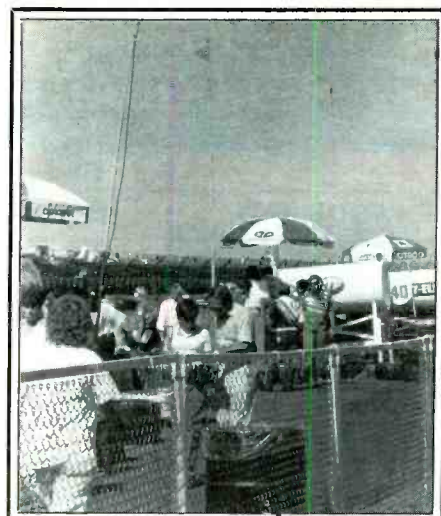
time, so it is easy to track down who is using what frequency—if you can search out the frequency fast enough.

Actually, if you plan to set up a monitoring post or use a hand-held scanner during a major race, it is best to show up at the track during the time trials and practice runs to help locate other administrative frequencies that will be in use. Because track crews are in operation during the pre-race events, you can search out their frequencies so you can dedicate your monitoring during the race to searching out drivers' channels. If you already know what channels are being used by security and other track operations, you won't waste time trying to figure out what you are hearing during the day of the race. If you have more than one scanner (a must to really search out channels), use one radio to scan the administrative channels you have already located and use the other scanner to search out new frequencies. And use two hands to keep the radios going. It's tough work, but it's a lot of fun. You also might want to use a tape recorder to help decipher all the action after the race.

Keep all your notes in order as you monitor so you don't waste valuable time listening to the same channel more often than you need. One trick I used was to take a notebook and list all the possible frequencies that race and news media communications could pop up on during the race, and then I



The UHF whip antenna for the driver's radio is mounted on the body of the car behind the roll bar. (Photo courtesy of Championship Auto Racing Teams)



The long poles waving in the air carry UHF ground plane and mobile antennas, allowing pit crews to communicate with their drivers from the pit area. (Photo by Chuck Gysi, N2DUP)

could cross-reference what I heard as to whether I had heard anything else on the channel previously. For instance, if I heard a race crew on 463.2125, I would make a note of that on that line in the notebook and add any additional notes that might help identify who was using the channel.

The next trick after you start finding race car channels is to try and identify who is using the frequency. This isn't as hard as it sounds. Before going to the race, check a daily newspaper's sports section for a list of the drivers qualifying for the race. The list should list the drivers' name, the type of car they are driving, their nationality (if not American), and their qualifying speeds.

The strange thing about these lists is that usually most drivers don't have the same first name. For instance, in a recent Indy car race of 27 drivers, there were two Dannys and three Toms; everyone else had different first names. Most of the drivers' first names are heard over the air: "Al Jr." is Al Unser Jr., "J.R." is Johnny Rutherford, and "Gordy" is Gordon Johncock. Accents in speech also can help; an Australian or British accent might help identify a particular driver.

The frequencies teams use for races are licensed through the Federal Communications Commission and the information can be obtained from its license files—if you know the drivers' sponsors. Programs sold during the races often detail each driver's sponsor and entrant. Some sponsors, such as Kraco, which sponsors Michael Andretti and Kevin Cogan, hold the license for the race crews' radio systems. In some instances, the entrant, such as the Penske Racing Team (which has Danny Sullivan, Rick Mears, and Al Unser driving for it), holds the radio license. Knowing this information will help you scan FCC records for team frequencies.

Race teams change drivers and sponsors on a regular basis, so you have to keep in the

know to track down frequencies with this method. If a driver isn't winning races, the sponsor may very well drop him from the racing team.

While you're monitoring the crews, you can also calculate speed with a pocket calculator and a stop watch. The formula is: track length times 3,600 divided by the lap time equals the speed in miles per hour. For instance, if the track is 2.5 miles long, multiply that by 3,600 (standard figure for any track) and you get 9,000. Divide that by the laps time, say 46.5 seconds, and you get the speed—193.548 mph.

While tracking down drivers' frequencies can be the most fun at a race, figuring out the usage of administrative channels adds to the challenge. Three frequencies guaranteed to be in use at almost any major race include the three primary itinerant business band channels: 151.625, 464.500, and 464.550. During one recent major race, one user of 151.625 was heard telling a fellow staffer that so many people were using the channel that he may have to holler "Break, break!" to get through. Sometimes 151.625 can become the CB of business band with all the users who can pop up on the channel.

Organizations that sanction the various races, such as Championship Auto Racing Teams (CART), the National Association of Stock Car Auto Racing (NASCAR), and the United States Auto Club (USAC), use radios to coordinate the events. The organizations use the radios for emergency crews, medical units, safety teams, officials, timers, spotters, observers, track crews, pace cars, registration, and operations. The track itself may be using various business band channels for security and maintenance, medical teams, parking, operations, administration, and ticket sales.

The news media that cover the races also use two-way radios to coordinate their



This Midland UHF business band radio is mounted in a pace car. (Photo by Chuck Gysi, N2DUP)

coverage of the event. TV and radio crews can be using broadcast relay channels in the 161.450, and 455 MHz bands for coordination, cueing, reporters, talent, open microphones, camera crews, and audio feeds. Don't neglect to check business band and general mobile radio service channels for news operations, because that's where you'll find cable TV broadcasters such as ESPN.

During the Domino's Pizza Pocono 500 race at Pocono International Raceway in Long Pond, Pennsylvania in August 1985, Al Unser Jr., who finished second, had to rely on ESPN analyst Larry Nuber to relay messages from the driver's crew chief to the car. Unser was miked for comment by ESPN during the race, however, his own radio went on the blink on the 20th lap and he was unable to hear his crew, even though they could hear him. Although the procedure in which ESPN stepped in to help out Unser has since drawn some questions and concern, the future of live microphones on drivers during races is expected to be studied before a rule is set down by the sanctioning group and the networks.

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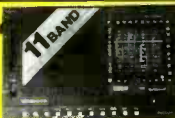
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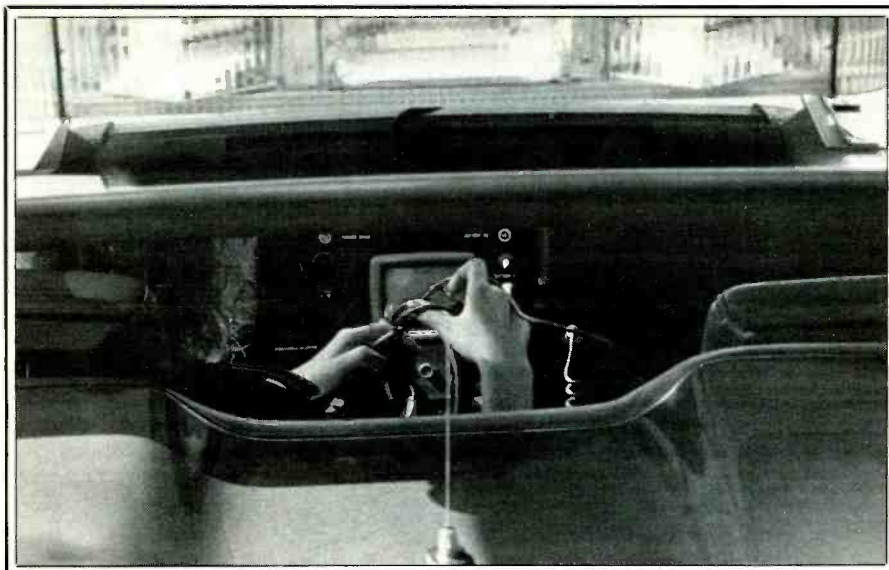


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A pace car driver adjusts her radio headset in a Chevrolet Corvette. The UHF whip antenna is mounted behind the rear window. (Photo by Chuck Gysi, N2DUP)

aces. Some channels might be used by radio communications crews (someone has to set up all those repeaters and hand-helds), food concessions, drivers' escorts, major race sponsors, and emergency teams. Local police, fire, and ambulance units may also be in action, so check their frequencies for any perimeter action.

Keep a list of your "finds" and compare them with other scanner users you may see in the grandstands. How many scanner buffs would be unwilling to share Al Unser's frequency or the channel being used by

ABC-TV to broadcast the race? During one recent race I attended, I heard two units talking on one channel sharing frequencies they heard various race crews using. You never know who you'll hear on the air at a race.

We're interested in hearing about what channels you may uncover at races. While the information in the accompanying charts will help you track down some frequencies, the information is subject to change all the time. Write to us here at POP'COMM and we'll share your information in an upcoming follow-up article.



For quick base station communications for security and other operations, base station antennas are attached to this racetrack sign in the infield at Pocono International Raceway in Long Pond, Pennsylvania. (Photo by Chuck Gysi, N2DUP)



The man who waves the checkered flag adjusts his radio headset at the Domino's Pizza Pocono 500. (Photo by Chuck Gysi, N2DUP)

Listening In At The Races

Frequencies heard at the Domino's Pizza Pocono 500 in Long Pond, Pennsylvania in August 1985

464.625	CART F-1—track crews, spotters, observers, pit control
464.750	CART F-2—Pace cars, registration
464.550	CART F-3—safety team, officials, timing
464.500	CART F-4—operations, emergency crews, medical teams
151.625	Pocono International Raceway security, maintenance, medical, administrative, parking
154.570	Operations, ticket sales
154.570	Nilon Bros. food concessions F-1
467.750	Communications
461.1125	Food concessions (input 469.500)
464.3375	Drivers' escorts and Domino's Pizza pizza operations (input 468.850)
464.425	T-shirts sales
154.600	Medical spotters, helicopters coordination
154.600	Marlboro cigarettes sampling teams
154.600	Nilon Bros. food concessions F-2 primary
462.650	ESPN talent (relayed audio of 464.500); (also licensed on 462.550, 462.575, 462.625)
467.325	ESPN RF-1—broadcast audio, cueing
467.250	ESPN RF-2—camera
152.960	ESPN microphone on drivers' cars
455.750	CART Indy Car Radio Network broadcast, talent
450.350	CART Indy Car Radio Network reporters (input to 455.750)

155.475	Police coordination
154.755	Pennsylvania State Police (car to car) traffic and copter

* Drivers

461.575	Michael Andretti	467.750	Bobby Rahal
462.375	Michael Andretti	464.2625	Bobby Rahal
462.2625	Geoff Brabham	463.500	Johnny Rutherford
461.650	Kevin Cogan	461.025	Tom Sneva
467.1375	Rick Mears	462.375	Danny Sullivan

* Other possible frequencies used by drivers and teams

151.625	
460.9375	
461.0375	
461.850	
463.7125	
463.8125	
464.2625	(teams' frequencies were given out here)
464.775	(input 469.775)
466.0625	
466.6125	(speeds given to driver here)
466.650	
467.7875	
469.0125	

Primary frequencies to search at a race

151.625 to 151.955	462.550 to 462.9125
154.515 to 154.600	463.200 to 464.9875
457.5125 to 457.6125	465.6625 to 467.1875
460.6625 to 460.6875	467.550 to 467.9125
460.9125 to 462.1875	468.200 to 469.9875

***Quick search**

- 151.625
- 154.570 (2 watts)
- 154.600 (2 watts)
- 457.525 to 457.600 (2 watts)
- 461 to 465
- 466 to 470 (especially 467.750 to 467.925—2 watts)

***News media**

- 152.870 to 153.020—Radio and film crews
- 161.640 to 161.760—TV and radio
- 173.225 to 173.375—Newspapers and film crews
- 450 to 451—TV and radio
- 455 to 456—TV and radio

Conversion table for times on 2.5-mile track

Seconds	MPH		
54.0	166.667	48.5	185.567
53.5	168.224	48.0	187.110
53.0	169.811	47.5	189.474
52.5	171.429	47.0	191.489
52.0	173.077	46.5	193.548
51.5	174.757	46.0	195.652
51.0	176.471	45.5	197.802
50.5	178.218	45.0	200.000
50.0	180.000	44.5	202.247
49.5	181.818	44.0	204.545
49.0	183.673	43.5	206.897
		43.0	209.302

Sanctioning groups and clubs

- 464.500 All-Pro Racing Association
- 151.625 American Motor Sports Association
- 469.500 American Speed Association
- 154.570 Auto Race Promotions
- 464.625 Championship Auto Racing Teams F-1
- 464.750 Championship Auto Racing Teams F-2
- 464.550 Championship Auto Racing Teams F-3
- 464.500 Championship Auto Racing Teams F-4
- 151.625 International Dragbike Association
- 154.570 International Motor Sports Association
- 464.500 National Association of Stock Car Auto Racing (NASCAR)
- 151.625 National Hot Rod Association
- 154.570 National Hot Rod Association
- 154.600 National Hot Rod Association
- 151.625 National Off-Road Vehicle Association
- 151.925 National Off-Road Vehicle Association
- 151.625 North American Car Club
- 151.625 Professional Auto Racing Teams Inc.
- 151.625 Race Communications Association
- 151.625 Race Track Security
- 151.625 Sports Car Club of America (SCCA) Alamo Region
- 151.625 SCCA Arkansas Region
- 151.625 SCCA Central Carolina Region
- 151.625 SCCA Chicago Region
- 464.500 SCCA Corning (NY) Region
- 151.625 SCCA Dallas Region
- 464.500 SCCA Glen Region
- 151.625 SCCA Houston Region
- 151.625 SCCA Land-O-Lakes Region
- 151.625 SCCA Missouri Region
- 151.625 SCCA North Carolina Region
- 151.625 SCCA Northeastern PA Region
- 151.625 SCCA Northwest Region
- 154.570 SCCA Northwest Region
- 154.600 SCCA Northwest Region
- 462.725 SCCA Oregon Region
- 151.625 SCCA Pennsylvania Region
- 151.625 SCCA San Francisco Region
- 151.625 SCCA South Carolina Region
- 151.625 SCCA Southwest Louisiana Region

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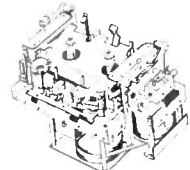
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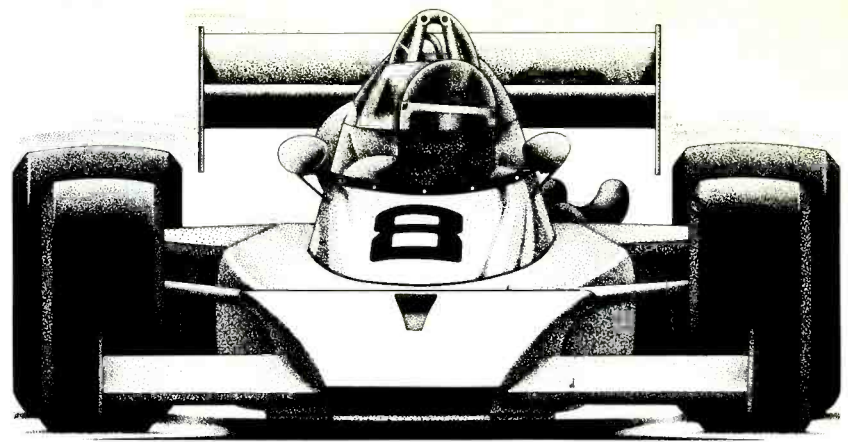
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- 151.955 Sports Car Racing Association
- 463.925 Sports Car Racing Association
- 151.625 United Racing Club Inc.
- 151.625 United States Auto Club
- 151.655 United States Auto Club
- 151.745 United States Auto Club

Racing teams

- 151.625 B&B Racing
- 464.325 Bon Temps Racing
- 42.98 Brinks Racing Team
- 463.350 Chaparel Racing Team
- 151.625 Circle Bar Auto Racing
- 154.570 Cooper Spur Race Team
- 463.775 Ellington Racing
- 464.725 Fletcher Racing
- 461.425 Forsythe Racing
- 461.150 Gelhausen Racing
- 464.700 Gelhausen Racing
- 463.550 Gilmore Racing Team
- 463.325 Gohr Racing
- 464.450 Johnny Hayes Racing
- 464.500 JRS Racing
- 464.550 James Tool Racing
- 464.500 Kelly Services Inc. Racing Team
- 461.025 Kent Racing
- 464.750 Kent and Bagly Racing
- 461.575 Kraco Racing
- 461.650 Kraco Racing
- 464.800 Kyle Racing



- 467.900 Kyle Racing
- 464.500 Laughlin Racing Team
- 154.515 Mach 1 Racing
- 464.525 Mach 1 Racing
- 151.625 Dick Miller Racing
- 464.825 Buddy Parrott Racing
- 464.500 Patrick Racing Team
- 464.550 Patrick Racing Team
- 464.700 Patrick Racing Team
- 464.750 Patrick Racing Team
- 463.825 Penske Racing Team
- 463.875 Penske Racing Team
- 464.575 Provimi Racing
- 461.7875 R&S Racing
- 463.800 Rose Racing
- 464.425 Skoal Bandit Racing
- 463.450 Rick Wilson Racing Team
- 154.570 Wrangler Racing Team
- 154.600 Wrangler Racing Team

Miscellaneous drivers' frequencies

- | | | | |
|----------|-----------------|----------|-----------------|
| 461.050 | Lenny Pond | 463.700 | Bobby Allison |
| 461.875 | Terry Labonte | 463.900 | Tim Richmond |
| 462.175 | Darrell Waltrip | 464.600 | Ron Bouchard |
| 463.1875 | A. J. Foyt | 464.800 | Richard Petty |
| 463.4625 | Kyle Petty | 466.6125 | Neil Bonnett |
| 463.4875 | Kyle Petty | 466.8125 | Sterling Marlin |
| 463.700 | Cale Yarborough | 467.750 | Buddy Arrington |
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- 151.625 Race Track Security
- 151.625 Long Beach Grand Prix (California)
- 151.625 Raceway Promotions
- 151.625 Pocono International Raceway, Long Pond, Pennsylvania—security
- 151.685 Pocono International Raceway F-2 (may no longer be used)
- 151.685 Indianapolis Motor Speedway (Indianapolis)
- 151.745 Raceway Promotions
- 151.775 Indianapolis Motor Speedway
- 154.515 International Speedway, Daytona Beach, Florida
- 154.540 International Speedway, Daytona Beach, Florida
- 154.570 Long Beach Grand Prix (California)
- 154.600 Long Beach Grand Prix
- 154.600 Indianapolis Motor Speedway
- 155.295 Watkins Glen Race Medics (New York)
- 155.340 Watkins Glen Race Medics (New York)
- 462.550 Charlotte Motor Speedway, Harrisburg, North Carolina
- 462.650 Charlotte Motor Speedway, Harrisburg, North Carolina
- 464.775 International Speedway, Daytona Beach, Florida
- 464.775 International Speedway, Darlington, South Carolina
- 464.900 International Speedway, Daytona Beach, Florida
- 464.900 International Speedway, Darlington, South Carolina

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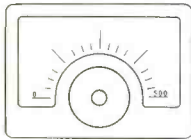
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THE WORLD

BELOW

500 KILOHERTZ

AN INTRODUCTION TO THE LONGWAVE SPECTRUM



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Life At The Bottom

The World Below 500 KiloHertz is the name of a new, 64-page book by L. Peter Carron, Jr., W3DKV. Conceived as an introduction to the longwave portion of the radio spectrum, it covers virtually every type of signal one might expect to confront between 0 and 500 kHz. This includes mystery sounds, GWEN, LORAN, OMEGA, standard time/frequency broadcasts, "lowfers," beacons, maritime CW, foreign broadcasting stations, cosmic and natural signals, etc.

The author also discusses receiving equipment, techniques, accessories, clubs, periodicals, propagation conditions, and other assorted things that will be useful to anybody tuning these interesting frequencies or thinking about getting started there.

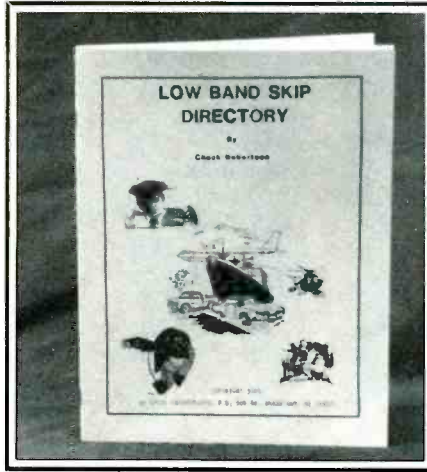
There are some illustrations included; there is also some station and frequency information (although it is not a frequency directory, per se). Mostly, it is an overview of the nature of the beast, written in a rather easy-to-follow style that is informative without trying to overpower and impress the reader with the author's familiarity with four-syllable technical terms.

We think this would be a worthwhile addition to a DX library, offering the reader a handy reference guide to delving into this long-neglected but nonetheless fascinating region of the communications spectrum. What with the many newly-discovered military and other strategic applications of these frequencies, a basic knowledge of what they're all about will keep you up to date on this aspect of the spectrum.

The World Below 500 KiloHertz is available at \$4.75 plus 75 cents postage from L.P. Carron Publishers, 205 Ridgewood Rd., Easton, PA 18042.

The Excitement Of Low Band VHF Monitoring

Who says scanner owners are limited to hearing only local communications? The fact is that the 30 to 50 MHz "VHF low band" (covered by almost all scanners) at times can be a real treasure trove of DX from stations hundreds and even thousands of



miles away! The trick is knowing when, where, and how to listen at those times when propagation conditions cause the DX signals to come pouring in over you like hot fudge on a banana split.

One person well qualified to tell you how to do this is Chuck Robertson, a fellow who has been honing his expertise in such matters for a number of years. This large format (8½" x 11") book is called *Low Band Skip Directory*; it contains Chuck's personal "skip" DX files, hints and kinks on stations that can and have been monitored from distant areas of North, Central, and South America, the Caribbean, and other areas—military, paramilitary, police, mobile telephones, commercial two-way, bookies, taxi dispatchers, even smugglers and more!

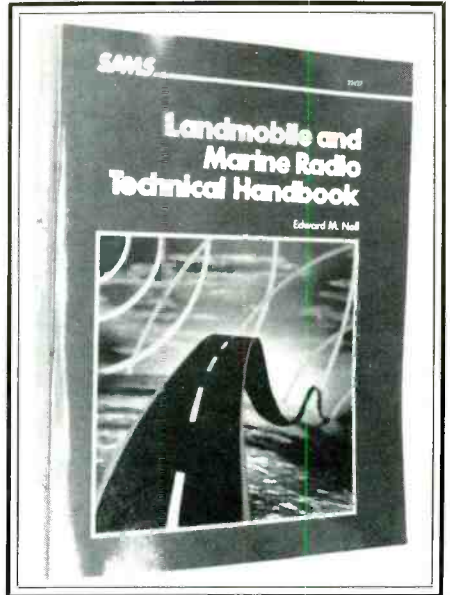
Hundreds upon hundreds of specific 30 to 50 MHz band frequencies are examined and discussed in detail, with information on stations to look for. Chuck also provides a handy frequency cross-reference index. Lots of hard-to-get data on the frequencies being used by various combatants in the Central American battlegrounds is included.

Here's a really gung-ho frequency directory and monitoring guide for the hairy-chested armchair adventurer, a book to add that sharp edge of excitement to scanner monitoring! Maybe you didn't realize that your scanner was capable of reeling in these distant stations, or you knew that others were doing it but you couldn't figure out how. The *Low Band Skip Directory* will let you in on all of the tricks those scanner DX-perts know.

The *Low Band Skip Directory* is \$4.95 per copy, plus \$1 postage/handling to USA/

Canada/APO/FPO addresses. Order it from CRB Research, P.O. Box 56, Com-mack, NY 11725.

This book can greatly boost the excitement and enjoyment of using your scanner, as well as increase its value to you.



Landmobile/Marine Radio Handbook

POP'COMM's "Better Signals" columnist, Ed Noll (W3FQJ), has just written a mammoth (575 page) book—*Landmobile and Marine Radio Technical Handbook*.

It's a complete atlas of the commercial two-way radio field, covering landmobile (industrial, public safety, and land transportation), marine (radiotelephone and radiotelegraph), and personal radio services. Actually, it is a massive updating of material from two previous books, the *General Radiotelephone License Handbook* and the *Marine Radiotelegraph License Handbook*, as well as all new material.

The book contains radio fundamentals, equipment circuit details, installation and maintenance data, test equipment and its usage. Cellular, radar, and navigation systems are also discussed in depth, as well as antennas, digital/microprocessor, modulation techniques, repeater and trunked systems, direction finding, and even FCC licensing data.

This is a very practical and useful book intended to be an all-encompassing guide to the communications technician. It easily attains its goal and, weighing in at well over 2 lbs., it's a heavyweight book in more ways than one. We think you'll like it.

Landmobile and Marine Radio Technical Handbook is available from its author—Ed Noll, Box 75, Chalfont, PA 18914. The cost of the book is \$24.95 plus \$2 postage/handling.

PC

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

Simple Mobile Scan-Tennas

On-the-road scanner listening has become a popular facet of radio activity. It is easy to contrive a simple and low-cost antenna—one that is versatile, too. Start with a luggage rack or gutter mount. At a sacrifice in versatility, you can go with an FM mobile antenna and its permanent cowl, fender, or roof mount. Some of these telescope, especially for those meant for combined FM/VHF/UHF application. Their length can be adjusted to match a quarter wavelength on a particular band. However, they are short in terms of reception on the 30-50 MHz band.

Dimensions for one-quarter and three-quarter wavelength vertical antennas are given in Table 1 for the various bands. Of course, a vertical dipole would consist of 2 one quarter-wave segments with transmission line attached to the center. Also given are dimensions for special segments, such as aviation, marine, and ham allocations.

Most of us use the same scanner in our radiator room and auto. For mobile operation, the scanner usually sits on the front seat and power is derived with an appropriate plug and cable that can be inserted into the dashboard lighter. A short length of transmission line links the antenna to the scanner by way

Band	Land Mobile		
	Center	$\lambda/4$ in.	$3/4\lambda$ in.
30-50	40	69 $\frac{1}{4}$	215
144-174	160	17 $\frac{2}{3}$	53 $\frac{2}{3}$
450-470	460	6	18 $\frac{1}{2}$
470-512	490	5 $\frac{1}{2}$	17 $\frac{1}{2}$
800-950	875	3 $\frac{1}{8}$	9 $\frac{1}{8}$
	Marine		
156-162	160	17 $\frac{2}{3}$	53 $\frac{2}{3}$
	Aviation		
108-136	122	22 $\frac{2}{3}$	70 $\frac{2}{3}$
	U.S. Gov't.		
138-144	140	19 $\frac{1}{4}$	61 $\frac{1}{4}$
	Ham Radio		
29.3-29.7	29.5	94	282
50-54	52	53	165
144-148	146	19	59
220-225	232	12	37
420-450	435	6 $\frac{1}{2}$	19 $\frac{1}{2}$

Table 1: Scanner antenna dimension chart.

of the common F-connector. An older station wagon is my radio car because various antenna mounts can be attached to its luggage rack. All sorts of antenna components can be carried, including mast sections. My preference for on-the-road listening is in the

parked condition (more enjoyable and safer), so I can go with a more elaborate or higher antenna when useful. The site is often one of higher elevation, too. If you plan to listen, choose a favorable location.

A helpful antenna was a telescoping AM/FM type designed as a gutter mount for a truck (Radio Shack 12-1324). It fits the crossbar of my luggage rack and can be positioned right above the rear door (Figure 1). A short transmission line has an easy entrance and can then be draped over the front seat. Look it over and make certain you will have a point of attachment to your auto. If not, look over other types of mounts to find the one most suitable. Antenna length extends to almost 30" and its telescoping feature permits you to adjust it to a variety of the lengths for the various bands as given in Table 1. It is a bit short for the 30-50 MHz band, but when extended fully, it provides some pick-up. It does very well on the marine and aviation bands. Furthermore, if you adjust it to 17-18", it performs well on the 150 and 450 MHz bands. On the higher frequency band, the antenna functions as a three-quarter wavelength vertical with good results.

A second versatile antenna mount is one

Figure 1: Antenna mounted on front crossbar of luggage rack.

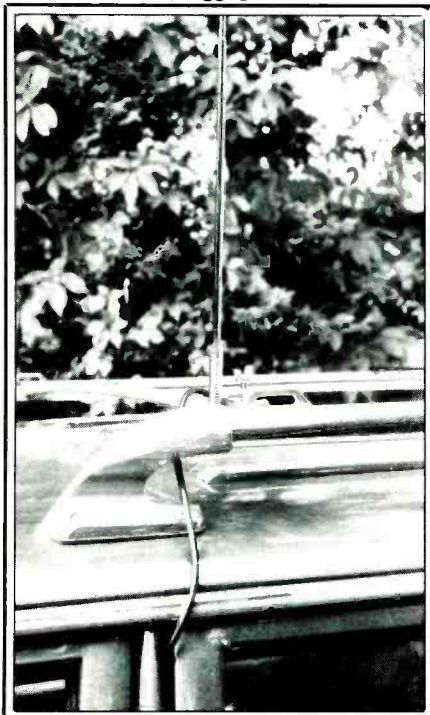


Figure 2: Luggage rack mount with 30-50 MHz vertical.

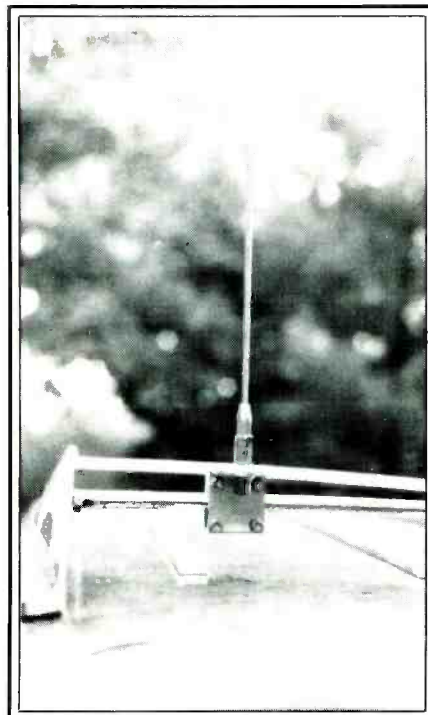
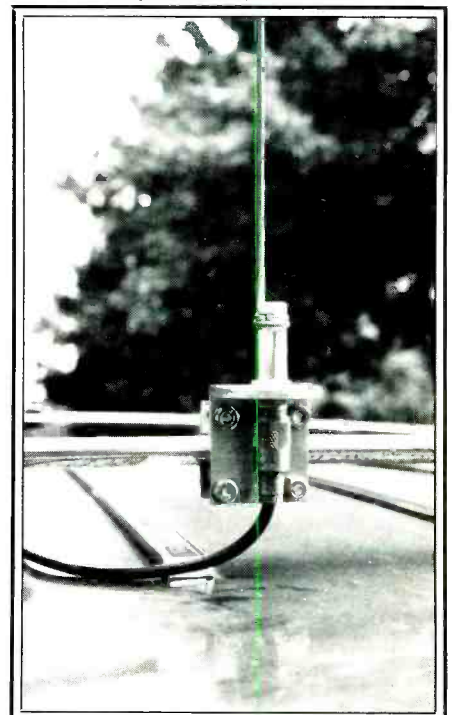


Figure 3: 18". 150 MHz vertical showing bolt with $3/8$ " thread, lockwasher, and small loop at base of antenna.



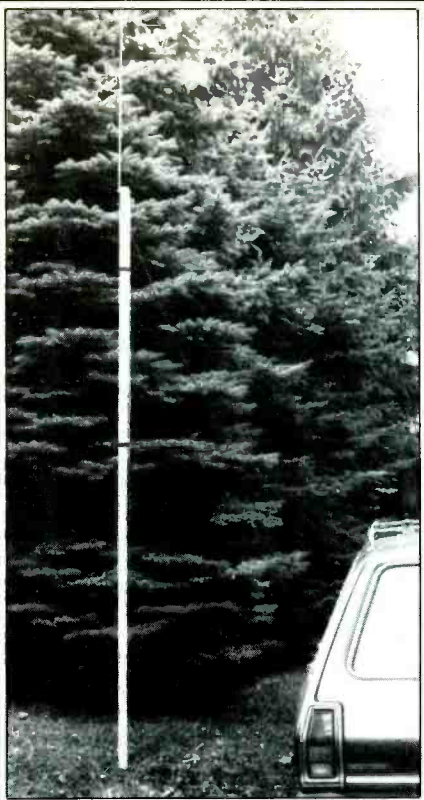


Figure 4: Portable antenna comprised of 30-50 MHz vertical dipole and PVC pipe held upright with ground stake.

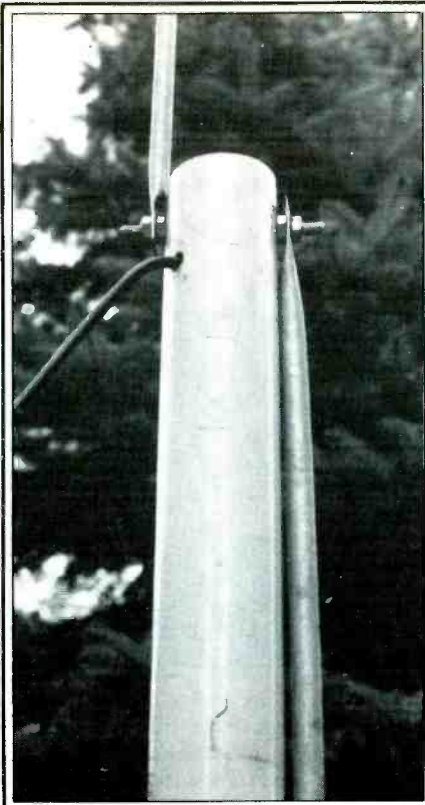
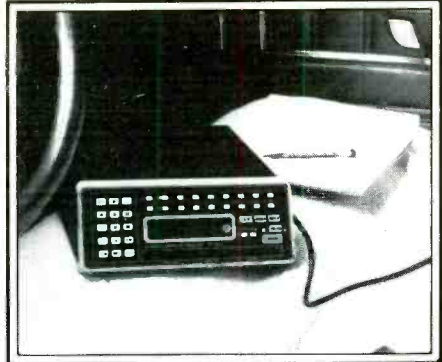
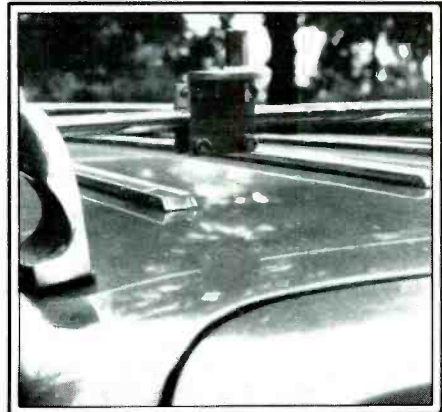


Figure 5: Dipole assembly at top of PVC mast.



Scanner, ready to go in station wagon.



Luggage rack mount attached to crossbar.

designed for luggage rack mounting (Radio Shack 21-937). Basically, it is a CB antenna mount designed for whips or other CB antenna types with a $\frac{3}{8}$ " thread that will screw into the mount. It can be seen mounted on the rear cross bar of the luggage rack in Figure 2. A good scanner antenna can be obtained by chopping off the whip to obtain a total whip length of 69". Note from Table 1 that the length corresponds to a quarter wavelength on 40 MHz. If your interest is aviation radio, this antenna also performs well as a three-quarter wavelength vertical on the band. Refer again to Table 1. Pick-up is good on other frequencies, too.

If you like, you can go down to about 54" and still have acceptable performance on the 30-50 MHz bands. This shorter dimension provides a three-quarter wavelength cut at the center of the landmobile and marine bands. Remember that its length is such that it can reach up into some tree branches when you drive. Your best bet is to stop at a good spot, screw it in, and listen.

Another possibility when you have no particular interest in 30-50 MHz listening in the auto is to form your own vertical from a rod, stiff wire, or tubing. Example of Figure 3 shows a stiff rod that was shaped into a small loop at one end. A $\frac{3}{8}$ " large-head screw was purchased at the hardware store which, along with a lock washer, completed a good mobile antenna for marine band scanning and general 150 MHz band reception. The length of the antenna was 18", which also provided good results on the 450 MHz band as well.

The ultimate scanner portable is shown in Figures 4 and 5. Pick up a 10' length of PVC piping. If necessary, cut it back to a length that will fit snugly in your auto or ride safely strapped to its roof. You can obtain additional height if you wish by taking along two pipes you can telescope and bolt. Don't forget a 5' metal fence post that will hold the mast upright.

The antenna construction is shown in Figure 5. It is a half-wave dipole. One end of each segment or $\lambda/4$ element of aluminum tubing is flattened. A hole is drilled large enough so it can be held down by nut and lock washer to the two screw antenna terminals at the top of the mast. A transmission line is fed through a hole drilled in the pipe. Its ends are dressed and soldered to two ring

lugs. These are slipped over the screw antenna terminals before screws are fed through their individual piping holes. The solder rings are held fast to the inside of the piping by the screw heads when the external terminal nuts are tightened. A second pair of nuts holds down the antenna elements. One antenna element is taped to the mast. The second one, which is connected to the inner conductor of the coaxial line, extends above the mast. Use 69" elements for a quarter-wave on the 30-50 MHz band or cut each element back to length of 54" if you want to peak on 160 MHz as a $3/2$ wavelength center-fed vertical.

If you have wheels, you can scan on the road or do some portable operation from a high site. Good scanning!

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SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Frequencies that you'll probably hear more life-threatening situations on are allocated to the special emergency radio service. These frequencies—in the VHF low, VHF high, UHF, and 800 MHz bands—are busy pretty much around the clock.

When there's an accident on a congested city freeway, an airplane crashes into a residential development, a shooting in an inner-city bar, or your neighbor suffers a heart attack, you'll hear about it on the special emergency channels used by emergency medical services personnel in ambulances and rescue trucks.

Frequencies in the special emergency radio service can be used for a variety of purposes, depending on the user. Those eligible to hold licenses in the special emergency service include hospitals, clinics, public health facilities, ambulance companies, rescue squads, physicians, medical schools, oral surgeons, government entities such as towns and counties, veterinarians, disaster relief organizations, beach patrols, and school bus operators. Special emergency channels can also be used to allow isolated areas to establish contact with centers of population when no public communications facilities are available. The frequencies can also be used as communications stand-by facilities by communications common carriers to operate essential communications circuits and for the emergency repair of communications facilities by communications common carriers.

The frequencies in the special emergency service can be used for a variety of purposes, including dispatching, paging, relaying medical information, and even for hospital security operations. Don't be surprised to find aircraft operating on the special emergency channels when they are providing emergency medical services such as the transportation of patients to trauma and burn centers.

Typically, the type of communications you'll hear on the special emergency channels will be ambulance and rescue squads responding to accidents and emergency calls. After emergency crews arrive on the scene, they may establish contact with doctors or nurses at a hospital on another frequency either to receive information on the administration of care or medications or to advise the hospital of the patient's condition.

Another use of the special emergency frequencies is the relaying of telemetry data (such as electrocardiograms from the patient) to the hospital. The 463 MHz MED channels have been set aside primarily for this purpose. The ambulance transmits to the hospital on a frequency 5 MHz higher in the 468 MHz band and the hospital talks back to the emergency medical crew in the



The MedEvac helicopter at Lehigh Valley Hospital Center in Allentown, Pennsylvania uses 155.220 MHz to contact its "trauma center" while in flight over eastern Pennsylvania and New Jersey. The copter also uses 128.950 in the aero band to contact the hospital when 155.220 isn't clear. The copter also can contact other rescue squads, such as on 154.965 in Hunterdon County, New Jersey, where this photo was taken. The 154.965 channel in Hunterdon County also is used for police and rescue coordination and the county prosecutor's office. (Photo by Chuck Gysi, N2DUP)

field on the 463 MHz channels. Usually this is a system where you have to monitor both the base and mobile channels to hear both sides of the conversations, however, in some metropolitan areas, repeaters may be placed on the air so that you can hear both sides of the conversation on the 463 MHz band. The 462.950 and 462.975 MHz channels are usually used for dispatching of emergency medical units, however, don't be surprised if you hear paid ambulance companies using the channels for routine communications in some areas. When communications from the vehicle are not practicable, portable transceivers transmitting on the 458 MHz band relay communications and telemetry from the hand-carried unit to the ambulance, which retransmits the communications by a vehicular repeater onto the 468 MHz band to the hospital. The four 458 MHz channels are limited to 1 watt of power, but if crews are nearby, you'll be able to hear both sides of the communications on these channels.

When the UHF MED channels are not used by mobile intensive care units and paramedics, chances are there will be a dedicated frequency in your area for ambulance crews to contact hospital emergency rooms. In many areas, the frequency of 155.340 MHz is used for this purpose. The frequencies 155.355, 155.385, and 155.400 MHz are also set aside primarily for hospital-to-ambulance communications. In addition, the frequencies of 150.775 and 150.790 MHz are allocated for 2.5 watts maximum output for portable hand-held transceivers to relay communications from a scene via a

vehicular repeater on the dispatch frequency. In other words, rescue crews using the hand-held radios on the above two frequencies would transmit to the ambulance on 150.775 or 150.790, and an on-board vehicular repeater on the rescue truck would relay the communications over the squad's routine channel.

The following list of special emergency radio service frequencies details usage:

33.02 (shared with highway maintenance), 33.04, 33.06 (shared with highway), 33.08, 33.10 (shared with highway), 35.64 (paging only), 35.68 (paging only), 37.90 (shared with highway), 37.94 (shared with highway), 37.98 (shared with highway), 43.64 (paging only), 43.68 (paging only), 45.92, 45.96, 46.00, 46.04, 47.42 (nationwide frequency for exclusive use of the American National Red Cross), 47.46, 47.50, 47.54, 47.58, 47.62, 47.66, 150.775 (2.5 watts), 150.790 (2.5 watts), 152.0075 (paging only), 155.160, 155.175, 155.205, 155.235, 155.265, 155.280, 155.295, 155.325, 155.340 (for delivery of medical services and intersystem mutual aid), 155.355 (hospital-to-ambulance), 155.385 (hospital-to-ambulance), 155.400 (hospital-to-ambulance), 157.450 (paging only), 162.6625 (paging only), 163.250 (paging only), 453.0125 (2 watts, shared with local government), 453.025 (paging only), 453.075 (paging only), 453.125 (paging only), 453.175 (paging only), 458.0125 (2 watts), 458.025 (1 watt, for relay to MED channels), 458.075 (1 watt, MED relay), 458.125 (1 watt, MED relay), 458.175 (1 watt, MED relay),

462.9375 (2 watts), 462.950 (MED 9 dispatch), 462.9625 (2 watts), 462.975 (MED 10 dispatch), 462.9875 (2 watts), 463.000 (MED 1), 463.0125 (2 watts), 463.025 (MED 2), 463.0375 (2 watts), 463.050 (MED 3), 463.0625 (2 watts), 463.075 (MED 4), 463.0875 (2 watts), 463.100 (MED 5), 463.1125 (2 watts), 463.125 (MED 6), 463.1375 (2 watts), 463.150 (MED 7), 463.1625 (2 watts), 463.175 (MED 8), 463.1875 (2 watts), 465.5125 (2 watts, shared with police and fire), 465.5375 (2 watts, shared with police and fire), 465.5625 (2 watts, shared with police and fire), 467.9375 (2 watts), 467.950 (MED 9 mobile), 467.9625 (2 watts), 467.975 (MED 10 mobile), 467.9875 (2 watts), 468.000 (MED 1 mobile), 468.0125 (2 watts), 468.025 (MED 2 mobile), 468.0375 (2 watts), 468.050 (MED 3 mobile), 468.0625 (2 watts), 468.075 (MED 4 mobile), 468.0875 (2 watts), 468.100 (MED 5 mobile), 468.1125 (2 watts), 468.125 (MED 6 mobile), 468.1375 (2 watts), 468.150 (MED 7 mobile), 468.1625 (2 watts), 468.175 (MED 8 mobile), 468.1875 (2 watts).

Future Beeps

Will radio paging become obsolete in the not-so-distant future? Teloc Inc. of Van Nuys, California has developed an in-house paging system that uses an infrared locator system. Up to 65,000 two-way electronic badges can be located in buildings and complexes with a series of wall- or ceiling-mounted sensors wired to a central computer.

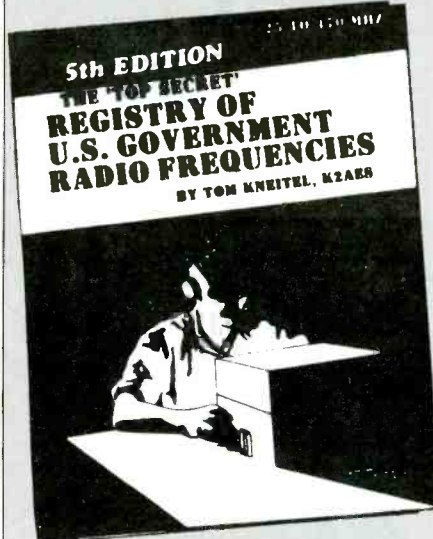
One way in which the system works is if a telephone call comes in for a person away from his or her desk, the computer can locate the person and route the call to the nearest telephone. The system also can serve as a security system for restricted building areas and can locate portable equipment or products on an assembly line.

Mailbag

Edward W.K. Pfeifer of Philip, South Dakota, writes in to say that he is unable to enter high band frequencies, such as 163.5125, into his Regency HX1000. He says that the frequency such as 163.5125 is rounded off to 163.5100 when it is entered. It's not really a problem to worry about. The .0005 MHz difference isn't going to matter for your monitoring purposes. You might want to check out to see whether reception is better on 163.515, however, as it probably is. You'll still hear everything loud and clear. Edward also passes along some interesting frequencies used in his area for U.S. Air Force Strategic Air Command missile bases. The frequencies are 148.095, 148.245, 148.455, and 148.485 MHz.

We'd like to hear from you here at POP'COMM. We invite your listening tips, frequency lists, and photographs of radio or monitoring installations. We also invite your questions and comments. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. **PC**

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PIRATES DEN

BY DARREN LENO, WDØEWJ

FOCUS ON FREE RADIO BROADCASTING

The British government has chartered a surveillance vessel to keep an eye on two radio stations—Radio Caroline and Laser 558—that are broadcasting from ships. Caroline's vessel, the *MV Imagine*, and Laser's *Communicator* are anchored just outside British territory in international waters. Both stations have attracted a large share of the radio market from the British Broadcasting Corporation and independent broadcasters. Now they are at the focus of an intense campaign to rid England of radio pirates.

The surveillance ship, a 99-foot launch named *Dioptric Surveyor*, is equipped with high-tech monitoring equipment and powerful search lights. It is watching and waiting for supply ships to venture out to the pirates. The *Dioptric Surveyor* is enforcing the Marine Offenses Act, which makes it illegal for ships operating out of British ports to aid floating pirates. According to the Associated Press, it has charged at least a dozen ships with violating this law.

Meanwhile, British taxpayers are footing the \$70,000 bill each month to keep the *Dioptric Surveyor* afloat. Helicopters are also being used in the surveillance effort.

By cutting supply lines, the government is hoping to starve the pirates off the sea.

Laser responded to this crisis by repeatedly playing the song "Who's Afraid of the Big Bad Wolf."

On the British mainland, pirates are not so defiant. A Department of Trade crackdown on land based stations has led to the prosecution of more than 65 offenders. Over 155 raids have taken place against pirates. *The Times of London* estimated that 140 pirates were operating in England before the raids began. That number has been reduced to "a handful" today.

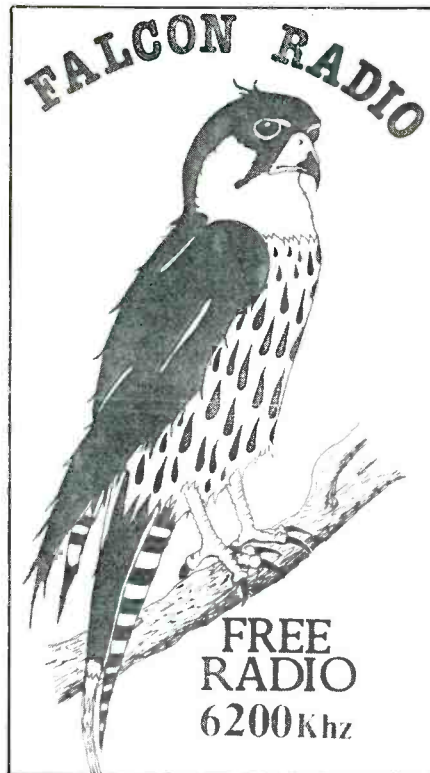
There is some good news for British radio listeners; the government is planning to license 21 new community stations to increase diversity in programming. These stations will operate under state control.

John Catlett, Laser's general manager, commented on the situation in *The Times*. "The costs of producing radio programs are so low and so many frequencies are available," he said, "that there is no reason to deprive the public of as many different radio services as creative minds can devise."

Across The Dial

KROK David Homan writes us from Pennsylvania to report KROK on 7419 kHz at 2344 GMT. KROK signs on with the theme song from the movie *Close Encounters of the Third Kind*. A DJ known as "The Fox" hosted the show.

Radio Clandestine Michael Marshall in Indiana reports hearing Radio Clandestine, his first pirate station, on 9470 kHz on a Fri-



As of this writing, Falcon Radio is one of a handful of British pirates still active. Over 155 government raids against pirates have taken their toll.

tion reports can be sent in care of PO Box 982, Battle Creek, MI 49016.

Radio Sound Wave Pirate "mail drops" was the topic of discussion on 7427 kHz USB after 0300 GMT. David Homan of Pennsylvania heard this one.

Secret Mountain Laboratory Tom Aldrich of Iowa listened through lightning static crashes and Spanish sideband stations on 7435 kHz to hear this pirate from 0230-0255 GMT. SML announced itself as a "Free Radio Relay Station," and gave listeners advice on where and when to search the airwaves for pirates.

Voice of Laryngitis Robert Ross of Ontario discovered the VOL on 7425 kHz at 0205 GMT. Readers who follow the antics of this pirate realize that members of the Huxley family regularly make appearances on this pirate. This night it was Rev. Billy Bob Huxley. "Put a little laryngitis into your life" was the catchy jingle of the evening.

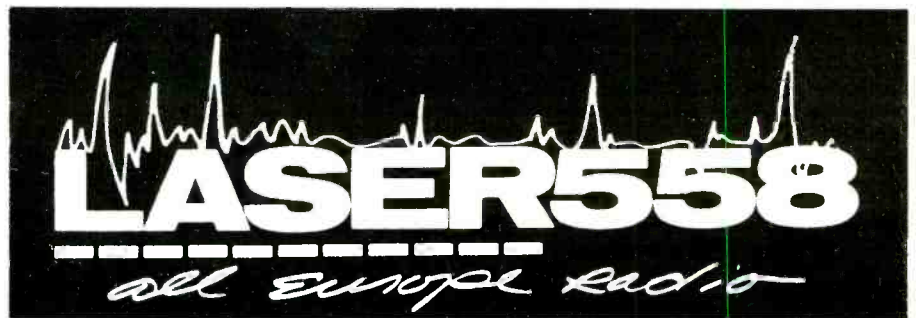
Voice of Lester A pirate-accented DJ was playing "semi-big band style" music on this new pirate broadcaster, according to John Friberg, Jr., of New Hampshire. Listeners were encouraged to mail reception reports to shortwave club bulletins. The station signed off at 0130 GMT on 7427 kHz.

WKUE Jim Muznoff of Ohio heard WKUE on 7438 kHz after 0330 GMT as they played music and asked that reception reports (includes 3 First Class stamps) be sent to PO

day evening at 2200 GMT. Programming included a game show where the contestant must catch the prize. One man tried to win a refrigerator. Send your reception reports, and the reason you want to be a contestant on their game show, to Radio Clandestine, c/o PO Box 982, Battle Creek, MI 49016.

Radio Deadman Claiming to have the most powerful transmitter in the world, the DJ's echoic voice made it sound as if his station was located in a castle's dungeon. Ken Evans of South Carolina and John Friberg, Jr. of New Hampshire, both found this pirate on 7425 kHz after 0200 GMT. Announcements were aired for the Radio Deadman School of Big Time Pirate Radio Operators, and MFJ products. It's unlikely that MFJ agreed to these free plugs! Recep-

This North Sea pirate churns out many different collectables for its fans, including key chains, T-shirts, and this bumper sticker. (Courtesy of David Kerr, Iowa)





S Lieb
 This is to verify your reception report of Radio Nova.
 Date: June 13, 1985
 Time: 2400-2430 GMT.
 Frequency: 11.0 kHz in the 51 metre band.
 You were tuned to our:
 ● North America Service
 ○ European Service: relay station
 ○ International Service
 The staff of Radio Nova thanks you for your reception report and hope that you will tune in again.
 Sigh! for Free Radio!
 Mandy Pytko

This American land-based pirate probably wishes he had a ship in the North Sea, too, as indicated by his QSL card.

Box 5074, Hilo, HI 90762. After WKUE signed off, "The Fox" from KROK came on frequency and commented that there had been a "stream" of pirates that night. Another person then came on the air and told Fox that there was "someone on the channel calling" him. Following this, yet another pirate came on urging others to "fire up" on that frequency.

Mail Box

"Dear Darren,
 "Hi. We're Radio 2010, the Clandestine Broadcast Service of the University of Southern Mississippi at Hattiesburg. We just wanted to let you and your readers know that we're on the air at 2010 kHz most weekend evenings after 0300 GMT.

"We play Top-40 music, and use a dipole antenna that is concealed in the attic of one of the buildings on campus. Our studios are located in that same building. All of our equipment is homemade. Our transmitter puts out ten watts of power. We will be happy to send QSL cards to listeners. Our address will be announced on the air. 73's, and GO EAGLES!"
 "Signed, the 2010 Staff."

"Hello Darren
 "I enjoy hunting for the typical pirate that you talk about each month in *Popular Communications*, but why isn't there any mention of pirates operating on 11 meters (CB band)?

"Many 11 meter pirates have expensive equipment, some with 1000 watt linear amplifiers. When skip conditions are good, you can hear them from all over North America.

"The best times to look for illegal 11 meter operators is from 1500 to 1900 GMT, and 0000 to 0400 GMT. Frequencies between 27.405 and 27.755 MHz in SSB or 26.965 down to 26.755 MHz on AM seem the best places to look.

"Here is one I recently heard: "The Bob and Bob Show." This late night pirate can be heard between 0800 and 1000 GMT on 26.965 MHz with rock music and good comedy between the two Bobs.

"Sincerely, Waldo Nemo, PA"

TV Pirate In Florida

John Santosuosso in Florida saw WRAT-TV recently on TV Channel 4 from 2329 until 0013 GMT. John says the station was programming "some sort of taped documentary on the history of rock and roll, plus a brief excerpt from a James Bond movie." There were no video identifications, but several were transmitted on audio. In addition to the "WRAT-TV" ID, one was heard for "King Rat TV." The station claimed to be broadcasting from "way down South in Dixie."

In Conclusion

Pirate activity seems to be down as I write this. Recent FCC raids seem to have taken their toll. The pirates I have heard from have expressed concern toward the FCC's current active campaign against pirates, which included publicizing a list of 15 cities from where the Commission has determined pirates are operating today (see last month's Pirates Den).

Correction: Last month I noted that KBBR had been closed by the FCC immediately after a broadcast in which uncomplimentary comments about FCC agents were made. The operator has informed me that agents arrived two days after that broadcast took place. I hope to have more information on KBBR by next month.

The Association of Clandestine radio Enthusiasts is an organization specifically for people interested in monitoring pirate, spy, and clandestine radio broadcasts. For more information and a membership application, write A*C*E, Dept. PC-2, PO Box 452, Moorhead, MN 56560.

Readers with home computers and telephone modems can call the A*C*E computer message system (300/1200 baud) at 913-677-1288

Thank you to all our contributors this month, and special thanks to Skip Christenbury of South Carolina, and David Kerr of Iowa for contributing to the opening story this month.

Remember that most pirates operate weekend evenings. Use the times and frequencies mentioned this month as a guide to where pirate transmissions may occur. There are no assurances that a Friday or Saturday evening spent listening to static will yield a pirate. But then again, there are no assurances that it won't. Just ask the Federal Communications Commission.

You're invited to participate in this column. Send your contributions of loggings, tips, comments, reproductions of pirate QSL's, experiences, etc., to The Pirates Den, c/o Popular Communications, 76 North Broadway, Hicksville, NY 11801. **PC**




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House Power From A Battery

When setting up a temporary or remote operating position for communications, the necessity for 110 volts AC house power may be present. But all you have is 12 volt car batteries and solar charging cells.

A well-equipped field radio command post might be called upon to power the following AC appliances:

- Electric drills and saws
- Soldering iron for repairs
- Electronic test equipment, including an oscilloscope and vacuum tube voltmeter
- A personal computer and printer
- Small portable refrigerator
- AC-only CB or ham radio
- Vacuum cleaner
- Coffee maker
- Video recorder
- Electric shaver or knife
- Electric typewriter
- Sewing machine

Most of these appliances may only run on house power. That's what you're going to need at your remote operating site, and there's not a power line around. The solution? The modern power converter.

Inverters vs Generators

The gasoline or diesel-powered generator will always have a place aboard boats and motorhomes. It takes this type of generator system to power marine and mobile home air conditioners, microwave ovens, and other continuous large loads that may draw several thousand watts of power for a few hours. The modern diesel or gas generator normally costs \$1 an hour to operate, plus approximately \$100 a year for upkeep, adjustments, lubricating, and routine maintenance.

The good generator runs quietly, but not silently, and there is always some vibration associated with a generator system. However, once the generator is started from your 12 volt storage battery and begins pulling away, it will require no further 12 volts and will run as long as it has a source of gasoline or diesel fuel.

Inverters, on the other hand, run directly off of your 12 volt battery. However, the converter runs silently and with no vibration. The modern converter will rarely require maintenance, and its very compact size allows the inverter to be placed almost anywhere near your 12 volt battery system.

Inverters For Small Uses

Since we qualified the gas or diesel generator for large constant uses of air conditioning, microwave ovens, hair dryers, and washer/dryers, let's take a look and see what a small usage inverter might power.

Let's start off with a system that has two fresh 12-volt deep cycle batteries—automotive type batteries.

An inverter would nicely run a VCR set-up for about five hours before dramatically using up a single auto 12-volt battery source. A homestyle VCR and small color TV set might consume as much as 150 watts of power at 110 volts AC. You can usually find the wattage rating on the back of the AC appliance by the AC power cord.

One hundred and fifty watts of AC can be mathematically calculated to draw approximately 12 amps at 12 volts DC plus an additional 1 amp because inverters are not 100 percent efficient. Simply divide your battery voltage into the number of watts listed on the

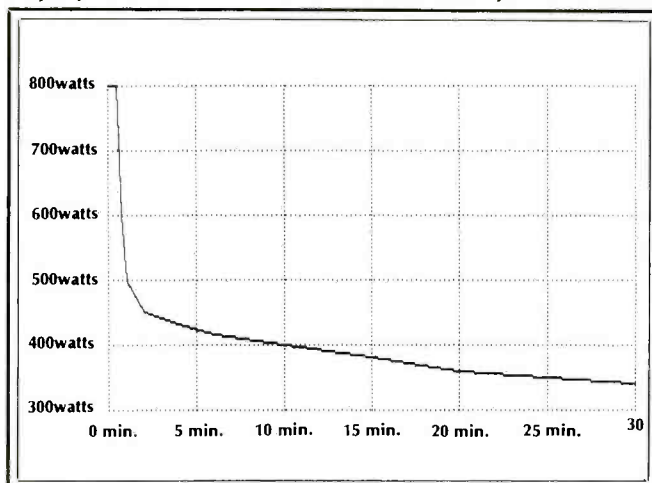
back of your AC appliance to roughly calculate the amount of current that the inverter will draw when everything is hooked up and turned on. (Ohm's Law—current is equal to appliance power wattage divided by ship's battery voltage.)

If your single battery is rated at 100 ampere hours, you could conceivably get almost 8 hours of play out of that battery on your inverter and VCR set-up before the battery would give up the ghost. This is why it's essential that the inverter have its own separate battery in case you get carried away with watching a shore power TV from your 12 volt battery system.

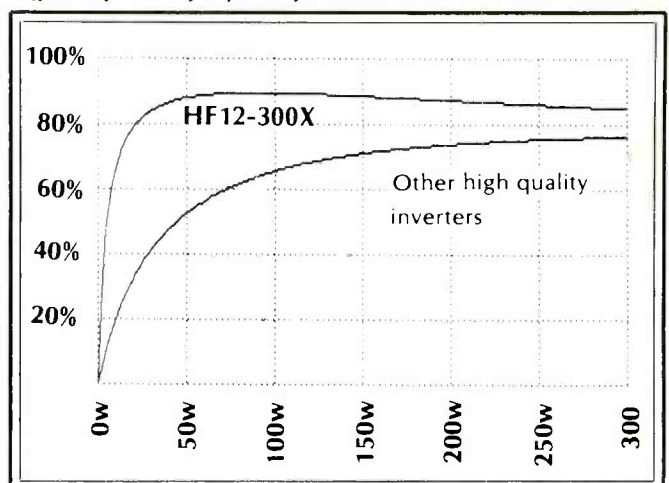
The more popular use of an inverter is for short-time usages of a household appliance. Let's say you need to drill some holes with your home drill or cut out some wood with a small AC saw; these appliances may consume up to 300 watts when running. Three hundred watts is going to draw more than 25 amps out of your 12 volt battery, but this will only be over a short period of time while you are drilling or sawing. Short periods of 25 amp uses from a single automobile battery will give you at least a good full weekend of playing shop.

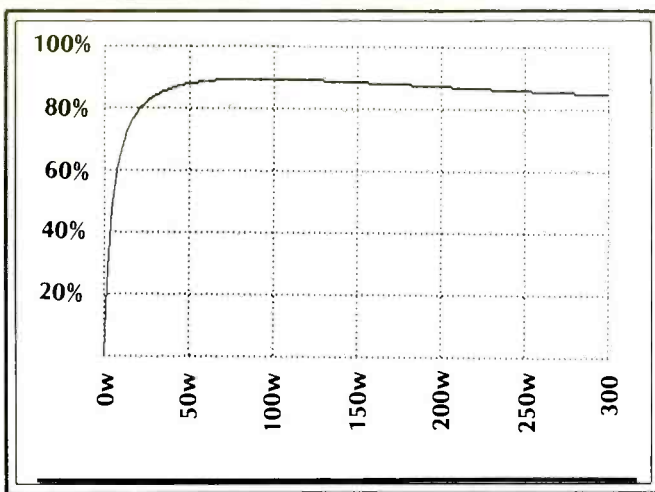
Now let's take the use of a toaster, electric frypan, or microwave oven for a short period of time. These devices are normally rated at around 1700 watts at 110 volts AC. Down at 12 volts, that microwave or toaster will draw close to 140 amps—the same amount of current that your starter motor is going to pull to turn over a large V-8 engine. I would give your battery approximately 10 minutes life before it's going to be severely drained when running a power inverter and

Output power vs time until automatic shut down for HF12-300X.

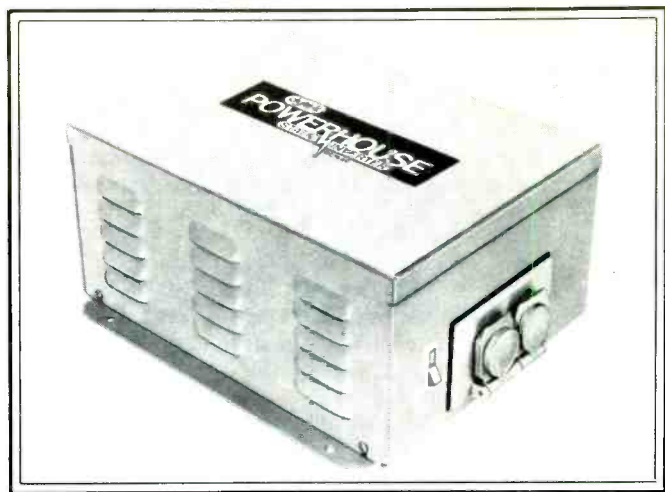


Efficiency vs. output power for HF12-300X and other inverters.





Efficiency vs. output power for HF12-300X inverters.



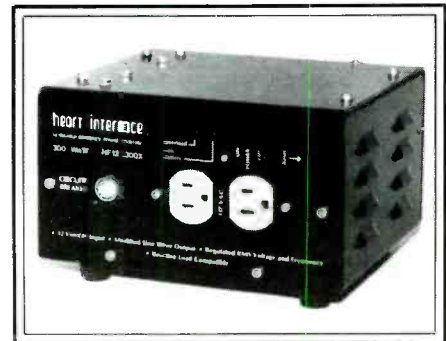
This is the Dytek Lab's "power house" DC to AC inverter.

a microwave oven to heat up that tuna fish sandwich.

As you can see, power inverters are obviously suited for smaller home appliances and those that you don't run for hours on end. Any new power inverter should also be run from a minimum of a single 12 volt deep cycle battery, and the better bet would be to run the power inverter off of two 6 volt 200 amp "D" marine batteries hooked in series. This would give you plenty of voltage and current (which equals power) to operate your inverter and household appliance all weekend long.

Inverters use transistors and transformers that are solid state devices with no moving parts. The incoming 12 volts direct current is first converted to 12 volts alternating current. Through a "switcher" circuit or from a transformer, the 12 volts alternating current is then transformed up to 117 volts AC. The alternating current frequency is exactly 60 cycles per second to match our United States 60 cycle AC standard.

If you were to look at the output wave form on an oscilloscope, you would see each wave of alternating current more likely resembling a pyramid of building blocks as



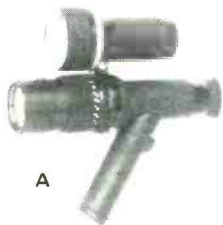
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B

A) InfraRed Scopes. We have several IR scopes available. Pictured is one of our long range scopes shown w/ optional IR source. It features an 18mm tube, 10X eyepiece, 135mm f 2.8 lens w/ an internal nicad battery. It is a very versatile, compact instrument weighing only 24 oz.. It requires an external IR source for night vision. We offer 2 IR sources. A medium range, clamp on unit w/ internal batteries (approx 75 ft. range) and a handheld unit w/ an output of 200,000 candlepower for max. IR viewing which requires an external 12v battery pac (gel pac or equivalent).

Long Range IR scope	SPL-133B-41	\$425.00
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opposed to smooth, round waves that the electric company generates. This wave form is the nature of the output voltage from converters, and your home appliances won't know the difference. In fact, most home appliances and certainly all computers have special voltage input circuits that filter out any irregularities and spikes that accompany the normal 60 cycle wave form.

Many converters also double as battery chargers, reversing this whole process. One hundred ten volts AC is applied in the opposite direction, and 12 volts DC comes out of the battery end to charge your battery. This is just one more feature built into today's very efficient solid state converter.

Converters come in many power ratings, and choosing the right inverter for a particular appliance is strongly recommended. If you're going to run nothing but small little drills, soldering irons, and color home television sets, a 200 watt inverter should do you just fine.

However, if you're going to run slightly larger home equipment that might draw up to 400 watts, better consider a 500 watt output inverter. Again, just look on the back of your household appliance to see what its wattage rating is.

If you think that now and then you're going to run something that may draw more than 1500 watts, such as a microwave, then choose a power inverter that will give you 1500 watts of continuous output.

Yes, the higher the wattage capacity, the more you're going to spend. You usually pay about \$1 per watt in a power inverter.

Many home appliances create a power surge when first turned on. This surge is seen easily at home when the lights dim as you first start up the mixmaster, electric drill, or hit the TV "on" button. Today's modern inverter will momentarily give up to three times its average rated output to take care of these quick power surges. This is another nice feature that manufacturers have devel-

oped so their inverters won't blow a fuse when you hit the television or power drill "on" button.

The typical efficiency curve of an inverter peaks when you run the inverter at at least one-third, one-half, or to its maximum rate of output. The efficiency is better than 90 percent, which is just great. It would be impractical to buy a 1500 watt inverter to run a 25 watt leather burning iron; it would be much better to run this small tool off a 100 watt inverter where the efficiency of the entire system would be higher. Look at the chart and see how efficiency dramatically increases as you approach a minimum of one-third of the inverter's output power rating.

Installation

In order to minimize voltage drops on the DC cable that feeds an inverter, it's best to place the inverter close to the battery source. Use car starter cables as the size of battery lead-in cables to the inverter; anything less will simply waste power as heat.

Most modern inverters may feature an automatic circuit that switches the inverter on when it senses an appliance turned on at the other end. Some inverters may use an "off/on" switch that may be remotely mounted, so when the inverter is not needed, it draws little or no current at all.

Regular household wires will easily handle the 110 volts AC. Extension cords, while hazardous, may be just fine to extend your regular line cord on the appliance to the inverter. Remember, inverters change low voltage 12 volts to high voltage 110 volts, so don't get your fingers across an inverter's output.

If you are driving and your alternator is in good shape, you can expect approximately 40 amps of positive charge into your battery system to offset the amount of amps being pulled from the inverter. A good alternator at normal speeds will "float" your single 12 volt battery system by your power household appliances up to 400 watts output. This means that, when driving, you can run your inverter on most home appliances without any draw from your battery system at all. However, as your alternator puts out more current, it will demand more horsepower from your engine, and your fuel consumption will go up when you are drawing a lot of current. You don't get something for nothing!

Your most important consideration is watts, amps, and volts. You don't want to run something that consumes a lot of watts and will pull a lot of amps out of your battery system and ultimately give you not enough volts for other 12-volt or 110-volt equipment. If you have enough battery capacity, a charging source of either solar or hydro, and judiciously use your inverter only when necessary, you'll have plenty of power for those important AC-style pieces of equipment that only run off of regular house power. For more inverter information, write: PACS, c/o GTO Electronics, 430 Ritt Street, St. Peter, MN 56082, and Heart Interface, 1626 S. 341st Place, Federal Way, WA 98003.



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WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

New Experimental Stations

The Commission, by its Office of Science and Technology, Frequency Liaison Branch, took the following actions:

KA2XBL, *Minnesota Power And Light Company, Within Continental U.S.* Station to operate on 928-928.85 MHz and 952-952.85 MHz bands to demonstrate equipment for sales purposes.

KA2XBM *Offshore Navigation, Inc., Harahan, Louisiana, Coastal and offshore areas.* Station to operate on 4160.6, 6238.6, and 8326 kHz to field test data transmitting equipment over HF channels looking for higher quality characteristics.

KA2XBN, *Sperry Corp., Bloomfield, Connecticut.* Station to operate on 2710, 2865, 2970 MHz to develop radar as required by U.S. Government contract.

KA2XBO, *M/A-COM Land Mobile Communications, Inc., Continental U.S., Hawaii and Alaska.* Station to make field strength surveys or equipment demonstrations for sales purposes on frequencies specified in Part(s) 21, 74, and 95 after prior approval of FCC requesting each such survey or demonstration.

KA2XBR, *AMTECH CORP., Los Alamos, New Mexico and mobile in vicinity.*

KA2XBS, *AMTECH CORP., mobile in Galatia, Illinois.* Stations to operate on 902-928 MHz band to develop, demonstrate, and field test an electronic identification system.

KA2XBU, *Westinghouse Communication Services, Inc., Anne Arundel County, Maryland.* Station to operate on 2700-2800, 2830-2880, 2890-2900 MHz bands to evaluate and test radars on various frequencies within bands as required by U.S. Government contract.

KA2XBV, *Sperry Corporation, Glendale, Arizona and airborne within fixed area.* Station to operate in increments of 25 kHz between 118.000-137 MHz (limited to channels and in accordance with Part 87 of Rules) for design and development of an aircraft VHF communications transceiver.

KA2XBW, *Desert Research Institute, Washoe County, Nevada.* Station to operate on 153.480 MHz to provide remote control of cloud seeding generators as well as providing communication in weather modification experiments.

KA2XBY, *GEMTEC, Inc., Twin Falls, Idaho and mobile 50 mile radius.* Station to operate on various frequency bands authorized under Parts 22, 74, 81, 90, and 95 for development of equipment to be licensed under these Rules.

KA2XBZ, *Regency Land Mobile, Inc., Las Vegas, Nevada and mobile within 15 mile radius.* Station to operate on 818.0125

and 863.0125 MHz to develop hardware and software to provide communication between two or more radios, point-to-point, or through a repeater or between radios and telephone systems and vice versa by utilizing at users discretion, conventional communication techniques, a unique and proprietary signalling format, telephone interconnect or any combination of above. The technique will allow maximum versatility, multi-format signalling within the same radio.

KA2XCD, *Electro-Sport, Inc., Costa Mesa, California and mobile within 15 mile radius.* Station to operate on 461.000 and 461.100 MHz to investigate and develop a radio data link in lieu of land-line for use with on-line lottery equipment.

KA2XCE/**KA3XC**F, *Fidelco Communications Corp., Carnegie, Pennsylvania and San Ysidro, California and mobile within Continental U.S.* To operate on various discrete frequencies between 816.3625 and 865.3625 MHz to improve audio characteristics of receiver and transmitter of system with telephone interface.

KA2XCG, *RCA Corp., Mount Laurel, New Jersey and mobile within 1/2 mile radius of base.* Station to operate on 1711-1791; 1796-1811; 19530-21095; 19530-19550 MHz bands to develop equipment available for export.

KA2XCI, *Vertex Communications Corp., Kilgore, Texas.* Station to operate on 3400-4200; 4500-4800; 5850-7075; 7250-7750; 7900-8400; 10700-13250; 14000-14800; 17300-21200 MHz bands to be used as an antenna test range.

KA2XCJ / **KA2XC**K / **KA2XC**L / **KA2XC**M, *Motorola, Inc., Cupertino, California; Schaumburg, Illinois; Plantation, Florida; Canton, Massachusetts.* Stations to operate on 1705.0 MHz for propagation studies and measurements.

KA2XCN, *Grumman Aerospace Corp., Calverton, New York and airborne within 100 nautical mile radius of base.* Station to operate on 960-1215 MHz band for development of equipment as required by U.S. Government contract.

KA2XCO, *Northrop Radio Services, Inc., Mobile within Continental U.S.* Station to operate on 314.6 and 382.6 MHz for communications as required by U.S. Government contract.

KA2XCP, *Electronic Devices, Inc., Chesapeake, Virginia and mobile along the Atlantic coastal states.* Station to operate on 150-160 and 163-173 MHz bands for research and development of frequency hopping repeater system.

KA2XCR, *Sperry Corporation, Phoenix, Arizona.* Station to operate on 9345 ± 2 MHz, 9375 ± 5 MHz, to evaluate the make

design improvements and demonstrate airborne weather radar.

KA2XCS, *Norand Corp., Cedar Rapids, Iowa.* Station to operate on 851-866 MHz and 806-821 MHz bands to develop equipment capable of handling large number of subscribers simultaneously trying to access a single channel to provide data to and from central dispatch to delivery trucks.

KA2XCT, *Norand Corp., Cedar Rapids, Iowa.* Station to operate on 457.5375, 457.5875, 468.2125, and 469.9625 MHz. Purpose as shown above.

KA2XCU, *Pacific Celltech International, Inc., mobile within San Francisco Bay Area, California.* Station to operate on 825-845 MHz to field test transportable cellular phones which can also operate in mobile mode through vehicle adapter.

KA2XCV, *U.S. Telecommunications Suppliers Association, Fixed and mobile within Las Vegas, Nevada.* Station to operate on 825-845 and 870-890 MHz to set up a standard cellular system at convention center to assist show authorities with immediate communications during set-up, to provide exhibitors a shorter period of time in which they may have spot communications and to provide immediate communications for various types of emergency situations.

KA2XCW, *Telocator Science & Education Foundation, Within Continental U.S.* Station to operate on 151.625 MHz to demonstrate equipment and techniques for educational purposes.

KA2XCX, *Kelsey-Hayes Company, Mobile within 10 mile radius Green Cove Springs, Florida.* Station to operate on various discrete frequencies between 3.5 and 800 MHz to test anti-lock braking system.

KA2XCY, *PDS Technologies, Inc., Temporary fixed locations within Continental U.S.* Station to operate on 928.3875 to demonstrate and monitor transmission and distribution components to power utility companies.

KE2XPW/**KE2XP**X, *State Of California, Comptche and Boonville, California.* Stations to operate on 401.7895 MHz for the collection of data via GOES satellite.

Reinstated the following Experimental Stations:

KM2XNM, *Codes Communications Corp., San Marcos, California and 20 mile radius.*

KE2XML, *State Of California, Tuolumme Meadows, California (GOES).*

KE2XMP, *State Of California, Lone Pine, California (GOES).*

KE2XMQ, *State Of California, Lee Vining, California (GOES).*

KE2XMR, *State Of California, Lee Vining, California (GOES).*

KF2XBJ, State Of California, State of California and vicinity.

KM2XCC, Litton Resources Systems, Alvin, Texas and 10 mile radius.

Uphold Forfeiture Imposed On The Thelma Dale III

The Commission upheld forfeitures imposed on Harry Dale Parsons, owner of the vessel *Thelma Dale III*, and Kasmir Yakimowicz, its master, for violating the listening watch requirements of Section 83.202(c) of the Rules.

That rule requires such a vessel to maintain a listening watch on 156.8 MHz whenever its radio is not otherwise in use. The forfeitures of \$250 and \$50, respectively, imposed on Parsons and Yakimowicz were originally levied by the Commission's Baltimore Field Office when one of its engineers observed that the *Thelma Dale III*, a charter salt-water fishing boat, was not maintaining a listening watch on 156.8 MHz.

In upholding the forfeiture, the Commission emphasized that the listening watch on 156.8 MHz is an essential part of the marine safety system because it creates a network of vessels which are able to come to the aid of vessels in distress and to relay distress messages.

FCC Proposes Allocating 18168-18780 kHz Band To Mobile Service On Secondary Basis

The Commission proposed allowing mobile operations in the 18168-18780 kHz band on a secondary basis to primary fixed operations.

The action came in response to a request from the U.S. Coast Guard which needs spectrum in this band to meet its mobile communication needs. The allocation would be for both government and non government users.

Pool Of Private Carrier Paging Channels

The FCC doubled the number of channels available for private carrier paging (PCP) systems by dividing the 929-930 MHz band into two 20-channel pools, one for PCP operations and the other for non commercial private paging.

The action changes channel distribution in the 929-930 MHz band by transferring 10 of the original 30 non-commercial channels to the PCP pool of 10 channels. It also amends the rules to permit inter-pool sharing after January 1, 1987. These changes had been proposed in a rulemaking notice adopted April 1, 1985.

The Commission initiated this proceeding on its own motion because the demand for PCP licenses has been much greater than that for non-commercial paging licenses. Since the 929-930 MHz band was first allocated for private paging services in 1982, the Private Radio Bureau has issued more

than 600 PCP licenses and less than 30 non commercial paging licenses. The new channel distribution and inter-pool sharing provisions were adopted to help correct this imbalance in spectrum usage.

Relaxation Of Restrictions Proposed

The Commission proposed relaxing its restrictions on certain Business Radio Service frequencies in the UHF band.

In urban areas of 200,000 or more (as defined in the 1960 census) 10 pairs of frequencies are reserved for ground support activities of entities engaged in furnishing commercial air transportation services. Currently, other Business Radio Service eligibles may use these frequencies 75 or more miles outside the airports serving those areas.

In response to the National Association of Business and Educational Radio, the Commission proposed amending its rules concerning use of the 10 frequency pairs. Under the proposal, the area where operations are currently limited would be reduced from 75 miles to 50 miles from the airport. To prevent co-channel interference to commercial air transportation entities, new operations resulting from this proposed rule change would be limited to 300 watts effective radiated power. Furthermore, these operations would be authorized on a non-interference basis to co-channel facilities of commercial air transportation carriers located on or near the designated airports.

The frequency pairs subject to these rule changes are: 460.650/465.650, 460.675/465.675, 460.700/465.700, 460.725/465.725, 460.750/465.750, 460.775/465.775, 460.800/465.800, 460.825/465.825, 460.850/465.850, 460.875/465.875 MHz.

Relaxation of the restrictions would affect the availability of these frequencies in 87 urban markets.

Limited Preemption Of State And Local Regulations Concerning Amateur Radio Facilities

The Commission has declared a limited preemption over state and local regulations concerning amateur radio facilities holding that there is a strong federal interest in promoting amateur communications.

The American Radio Relay League, Inc. (ARRL) asked the FCC to issue a declaratory ruling preempting all local ordinances which probably preclude or significantly inhibit effective, reliable amateur communications. The ARRL conceded that the local authority could enact ordinances designed to ensure the safety and health of persons in the community, but argued that such regulations could not preclude effective amateur communications.

While recognizing that there are certain general state and local interests which may legitimately affect amateur radio facilities,

the FCC said that state and local regulations which preclude amateur communications are in direct conflict with federal objectives and must be preempted.

The Commission declared that local regulations which involve placement, screening, or height of antennas based on health, safety, or aesthetic considerations must reasonably accommodate amateur communications and represent the minimum practicable regulation to accomplish the purpose of the local authority.

Rules Concerning Amateur Operator Examinations Administered By Volunteers

The Commission has amended the Amateur Rules to eliminate the 30-day wait before an applicant for an amateur examination can retake the same or higher examination element which the applicant failed.

The FCC said there was no persuasive evidence that an applicant who waited 30 days between tests would be better prepared for the next test than an applicant who waited a shorter period.

Responding to comments that the Volunteer Examiner Coordinators (VECs) would be burdened by eliminating the waiting period, the Commission noted that VECs are not obligated to give examinations on demand or in any way to alter their present procedures. The FCC said VECs are already required to maximize the number of different exams in use and to change the questions used frequently.

The Commission said it would continue to require public announcements of all examinations. Since the number of candidates at any one exam session may be limited, the FCC emphasized that the announced should alert the public to any such limitation.

Amateurs Gain 902-928 MHz; Lose 420-430 MHz North Of Line A

The Commission has added amateur operations in the 902-928 MHz frequency band on a secondary, non-interference basis for use by all amateur radio operators above the Novice class. A wide range of emissions has been authorized for the new band.

The band is part of the new spectrum allocated for the Amateur Radio Service pursuant to the Final Acts of the World Administrative Radio Conference, Geneva, 1979.

The Commission also removed the 420-430 MHz band from the Amateur Radio Service north of Line A. (Line A begins at Aberdeen, Washington, runs through the southernmost point of Duluth, Minnesota, continues through the southernmost point of Bangor, Maine, and terminates at the southernmost point of Searsport, Maine.) This action was required by a U.S./Canada Arrangement entered into force April 7, 1982.

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



The Newest In Electronic Servants

At the sound of your voice, *Butler in a Box* does your bidding—controls lights, appliances, TV's, radios, stereos, and other home entertainment systems. It makes phone calls. Detects intruders. And talks back to you—in the politest way, of course!

Butler in a Box, the ultimate appliance by Master Voice™, is the most technically advanced electronic home control system available, made possible by a unique software program called A.I.R. —Artificial Intelligent Recognizer.

This highly sophisticated software enables *Butler in a Box* to remotely control the lamps and appliances in your home without the need for special wiring. Referred to fondly as "Sidney," short for Sound Induced Directional Non-Electronic Yelling, he is activated and controlled entirely by human voice.

Butler in a Box can understand anyone's voice in any language, from 15 to 20 feet away, and respond in any language you wish. Even with an accent. He can also speak to you in either a male or female voice, call you by name, and answer you "intelligently," with a variety of random responses. And he has a noise cancellation feature that overrides TV and radio sound so he works effectively in a normal household environment.

That's just for starters!

Butler in a Box gives you control over time. He can operate lamps and appliances at predetermined times for your security, convenience, or energy management needs. For example, he can have your coffee hot in the morning and turn the air conditioner on before you come home so your house is cool when you arrive. And to help keep you on time, he comes with a unique built-in digital alarm clock and wake-up system that speaks to you and won't give up until you tell him to be quiet in a clear, awake voice.

And that's not all. *Butler in a Box* gives you touch control, too! Lamps and appli-

ances can be operated at the touch of a button on the hidden control panel, which drops down for use when you need it.

Intruders beware! This amazing appliance can operate lamps and other appliances with his built-in passive infrared sensor. And his intrusion detection system will alert you to uninvited guests.

Finally, at your verbal command, *Butler in a Box* will dial your phone, or answer an incoming call, and enable you to carry on a two-way conversation through his built-in speaker phone without ever touching him.

He is also easy to install. No special wiring is required. *Butler in a Box* works on carrier current through the electrical wiring system already existing in your home. All you need to do is plug your lamps or appliances into the special modules, which are then plugged into any standard wall outlet in your home. Two modules, one for an appliance and one for a lamp, are provided with your unit to get you started. Additional modules may be ordered, and *Butler in a Box* is compatible with most other carrier current control systems and their modules.

Butler in a Box is ideal for the handicapped, computer buffs, and people who want the latest in state-of-the-art technology. As with any butler, you must spend time with him in the beginning to teach him to respond to your demands in the manner you desire. A training cassette and manual are included with the unit to help you do this.

For more information contact Master Voice *Butler in a Box*, 5067 Cumberland Drive, Cypress, CA 90630, or circle number 106 on the reader service card.

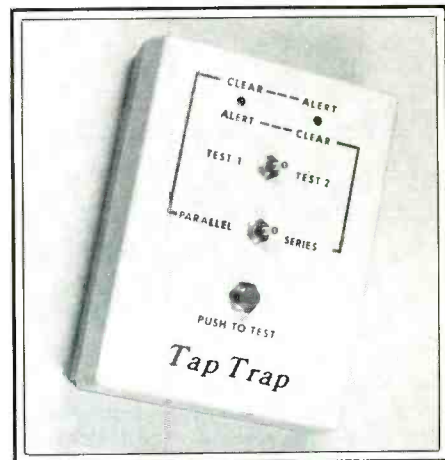


VHF Amplifier Needs No Tuning

A new RF power amplifier designed to cover the 150-174 MHz VHF range without tuning is now in production at the Antenna Specialists Co. Supplementing its extensive line of amplifiers covering virtually every professional FM land mobile application, the new model ASA-3102-25 employs state-of-the-art micro-strip matching and filtering, and an extremely efficient heat sink design resulting in superior reliability and long life.

RF input range is 5-35 watts, which provides output range of 50-115 watts, $\pm 5\%$ (150-162 MHz) and $\pm 10\%$ (162-174 MHz).

The new amplifier incorporates a low-loss relay T/R switch and is fully protected for dc polarity reversal and high VSWR. Voltage range is 9-16 volts dc; ambient temperature range is -30 degrees to $+100$ degrees C. The unit has been type-accepted under FCC Parts 81 and 90. For complete specifications, contact: The Antenna Specialists Co., P.O. Box 12370, Cleveland, Ohio 44112-0370, or circle number 104 on the reader service card.



TAP TRAP™ Wiretap Detector

For those who are concerned that their telephone may be tapped or bugged, Capri Electronics introduces the TT-07 TAP TRAP (wiretap detector). Using the TAP TRAP, a telephone line can be quickly and easily checked for on-premises series and parallel bugs and wiretaps. The telephone instrument itself can also be checked for the most common types of hookswitch bypasses, which can turn it into an efficient room monitor.

With the Series test, the TAP TRAP detects series devices (such as RF transmitters) that have a resistance of 61 ohms or more. In the Parallel test, it detects parallel devices (such as telephone recording controls) of 38 megohms or less. It also detects capacitively coupled wiretaps and various hookswitch bypasses.

The TAP TRAP weighs 7 oz. and is furnished in a high-impact case that measures $4\frac{1}{4} \times 3\frac{1}{4} \times 1\frac{1}{2}$ ". Priced at \$95, the unit comes complete with all necessary plugs, cords, and adapters, along with a battery and instruction manual.

For information, write Capri Electronics, Route 1, Canon, GA 30520, or circle number 105 on the reader service card. **PC**

SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS



Top-Of-The-Line Earth Station Receiver

With the introduction of the ESR 424 earth station receiver, R. L. Drake Company unveils a new level of sophistication in satellite reception technology.

Available in single (ESR 424) or block (ESR 424B) conversion models, this state-of-the-art receiver combines high-quality workmanship, an assortment of deluxe features, and a sleek, scaled-down design in one unit.

At the head of its long list of features is the receiver's full, infrared remote control for the convenience of armchair viewing. The ESR 424 also offers audio seek tuning (to automatically locate favorite audio channels), easy-to-read fluorescent display, and a redesigned weatherproof downconverter.

In addition, this deluxe receiver provides descrambler compatibility through a bottom panel, clamped/unclamped video switch. And with its microprocessor design, the ESR 424 is guaranteed to perform reliably for many years to come.

The ESR 424B Block System adds multi-channel capability to the ESR 424 package. Utilizing a 950-1450 MHz IF output frequency, the block conversion model features dual input switching to eliminate the need for external relays or switching splitters. The ESR 424B is compatible with Drake's 85- and 100-degree LNB's or its BDC 24 block downconverter.

"The ESR 424/ESR 424B represents the best value currently available for the consumer who wants a top-quality, full-featured earth station receiver," stated Michael Brubaker, vice president of sales. "We're proud to be in the forefront of the satellite TV industry as it develops increasingly sophisticated products at reasonable prices."

Available for immediate delivery, the ESR 424 carries a suggested retail price of \$699, while the ESR 424B retails at \$759.

For more data, contact the R. L. Drake Company, P.O. Box 112, Miamisburg, OH 45342.

Remote Control Satellite Receiver Capable Of Tuning 24 Channels

The Panasonic Industrial Company, a division of the Matsushita Electric Corporation of America, is introducing a new entry into the C-band TVRO marketplace—a full-featured, easy-to-use satellite receiver.

The receiver, model C-2000, utilizes block downconversion and is fully compatible with all Panasonic C-band and Ku-band low noise block downconverters.

"The C-2000 satellite receiver brings Panasonic's electronics expertise and reliability to the consumer," said Tom Hajar, product manager for satellite technology. "The C-2000 is an attractive package and it fully represents a total commitment by Panasonic to the satellite marketplace."

The Panasonic satellite receiver features a wireless, 10-function infrared remote control for power, channel selection, volume setting, polarization, antenna control, and audio preset. The C-2000 has automatic 6.8 MHz audio selection, and is switchable to 6.2 MHz or auto seeking by remote control. Its baseband output is suitable for external decoders and is compatible with the Linkabit Videocipher System.

The unit includes a channel 3/4 switchable remodulator and ultra-stable tuning circuitry to eliminate all manual fine tuning adjustments under normal signal condition. A low cost, easily installed Terrestrial Interference Filter is available as an option.

The rear panel layout includes complete audio/video input/output terminals, polarization output terminals, IF input, TV 3/4 output, video scan, video polarity, and polarizer type switch.

For additional details, get in touch with Panasonic, 1 Panasonic Way, Secaucus, NJ 07094.

New Receivers

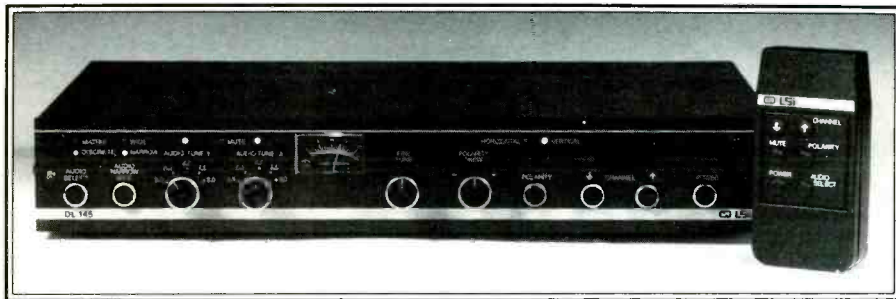
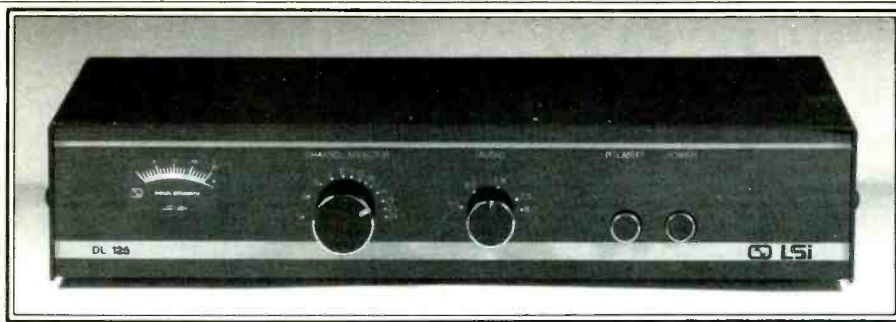
LSI Corporation has a new satellite television receiver that, like its two-and-one-half-year-old "little brother," requires no maintenance or lengthy set up time to tune. Where normal receivers require one to two hours for tuning and internal adjustments, LSI's receivers are virtually ready to go as soon as they are plugged in... explaining their slogan, "Right, Right Out of the Box."

Protected by an unusual two year warranty, the 27 MHz bandwidth receivers both are block conversion with stereo standard—synthesized stereo on the DL 125, and matrix and discrete stereo on the DL 145.

Both units also offer a unique meter circuit that measures actual signal quality, rather than just signal strength.

LSI's receiver technology, in their DL 125, has been rigorously tested, and used in residential and commercial situations for over two years, with a failure rate of less than 2 percent. In addition to their two year warranty, the products are guaranteed to be





"right, right out of the box," or they are replaced immediately.

The DL 125 also offers dish owners a block conversion receiver at single conversion prices.

The DL 145 is a more elaborate "big brother" to that proven unit, and comes with several obviously premium features, like infrared wireless remote control, automatic polarity switching, skew controls, plus a number of more subtle features that, according to LSI President Barry Seay, "are little things that wouldn't be factors in selecting the unit" — "Little things," like automatic audio mute when there is no video signal (meaning no screechy static between channels.)

LSI Corporation is one of the original six receiver manufacturers that started the industry. Since the beginning, LSI technology has meant quality, which is why the company did not release the DL 145 in its first generation, September, 1984. Instead, through field testing and further refinements, they "debugged" the system. LSI is only now, in the unit's third generation, ready to offer it to the public.

For more information, write to LSI Technologies, 340A West Trinity Lane, Nashville, TN 37207.

6-Foot Perforated Dish Provides Lower Wind Resistance, More Attractive Appearance

A perforated aluminum antenna, designed specifically for homeowners with limited mounting options, is now available, according to Channel Master Vice President Donald Berg.

The dish offers reduced wind resistance primarily because of its 28 square foot surface area, as compared with the 80 square foot surface area of a 10-foot diameter dish. This makes the 6-foot dish ideal for rooftop mounting.



Black was chosen as the color for the perforated dish because black absorbs light so well, while other colors reflect light. This is why the new dish blends into most environments so much better than other antennas do, according to Berg.

"Black seems a natural choice to us," Berg adds, "and yet I see so many see-through dishes with bright, metallic finishes. I wonder why appearance-minded consumers buy a see-through dish with a shiny, silver-metallic finish that's even more noticeable than a fiberglass dish. That's why our perforated dishes are matte black."

Berg said that the antenna is not intended to replace larger, high performance dishes. Dealers should offer it as an option to consumers who lack the look-angle or lawn space for large dishes.

"Small dishes do have a legitimate place in the home market," he said. "Many urban consumers may have the choice of putting this dish on their roof or having no earth station at all. This new 6-foot dish is an excellent compromise under these circumstances."

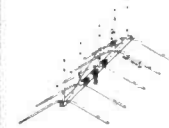
For more information, contact Channel Master, P.O. Box 1416, Smithfield, NC 27577. **PC**

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WIND SURVIVAL
100 MPH+
POWER MULTIPLICATION FACTOR
65
AUDIO GAIN
22 DB



Super Audio 6
SPECIFICATIONS:
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GAIN
20 DB
FRONT - BACK RATIO
55 DB
SIDE REJECTION
55 - 60 DB
BACK REJECTION
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BROADCAST TOPIX

BY MARK MANUCY, W3GMG

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

September and October, 1985 were certainly exciting months for BCB DXers and SWLs in general—several hurricanes, an earthquake in Mexico, and an international drama with a hijacked cruise ship in the Mediterranean Sea with the hijackers being hijacked themselves by U.S. Commandos! Wow! What a month of listening excitement.

Hurricanes always provide exciting listening on the BC band since some stations will be operating at night with their daytime facilities and can be heard way beyond the normal coverage of the station. This year, several storms, one after the other blowing into different areas of the country, provided a variety of DXing. This is where a good loop antenna will help out, making it possible to reduce some of the interference on the channel to which you're listening. I listened quite a bit to WTAR in Norfolk, Virginia on 790 kHz, which normally is not received here at night. They provided me with some advance reports on Hurricane Gloria as she made her way up the east coast.

The Mexican disaster was first told to the world by XEQ on 940 kHz. This station operates with 150 kW day and 50 kW at night. Most of the other stations were not able to operate. More on this in a minute.

The hijacking would have seen an SWL listening situation for those of us living in the States, although it would have been interesting to be around the Mediterranean Sea with an MW receiver during this time to hear the various reports on the different stations. That's a vast area stretching some 1500 miles from end to end.

Logs

Everyone has their own method of logging stations, depending on what project is being worked at the time. I do a lot of comparison using different receivers, antennas, or locations. In comparing loop antennas recently, I thought of the drudgery of making up a sheet showing the entire BC band from 530 to 1610 kHz with a number of columns to show the different readings collected using the different antennas. I decided the easy way would be to write a short program for my Commodore to make the sheets for me. Well, one thing led to another and the short program started getting longer and longer. If I was going to make sheets for AM, why not have the capability for FM as well? There have been many requests for the C-64 programs, so I thought this program would have been fun to put in the column. It could be used for a scratch log for making a run of the band over a weekend. Maybe you will be spending a weekend a couple of hundred miles away from home; this would be an excellent log to take along for notes and transcribed to the permanent log later.



The Baltimore Museum recently featured a collection of Juke Boxes dating from 1934. They have become very popular.

Figure 1: Program for computer.

```
10 REM **PGM TO MAKE COMPARISON SHEETS**
12 REM **OR LOG SHEETS FOR BAND SCANS.**
14 REM *FOR C-64 & GEMINI PRINTER SG-10*
16 REM *THE 10X AND COMMODORE PRINTERS*
18 REM * DESIGNED BY MARK MANUCY 9/85 *
20 :
22 GOSUB78
24 OPEN4,4:J=1:D=1:LFS=CHR$(10):CRS=CHR$(13):FFS=CHR$(12):US=CHR$(95)
26 PRINT#4," (13 spaces) TEST RUN FOR BROADCAST BAND FREQUENCIES.
ITEM:":LFS$
28 GOSUB74
30 IFX$="F"THENSO
32 B=530
34 FORB=BIT01610STEP10
36 PRINT#4,LFS$
38 PRINT#4,B;
40 FORN=11070:PRINT#4,US;:NEXT
42 J=J+1
44 IFJ=301THENGOSUB72
46 IFB=1610THEN68
48 NEXTB
50 B=B+1
52 FORB=BIT0107.9STEP.2:B=INT(B*100+.5)/100
54 PRINT#4,LFS$
56 PRINT#4,B;
58 FORN=11070:PRINT#4,US;:NEXT
60 J=J+1
62 IFJ=301THENGOSUB72
64 IFB=107.9THEN68
66 NEXTB
68 PRINT#4,CRS;"COLUMN HEADINGS":FORA=11012:PRINT#4,A;CRS;:NEXT
70 PRINT#4,FFS:CLOSE4:END
72 D=D+1:J=1:PRINT#4,FFS
74 PRINT#4,"(8 spaces)1 2 3 4 5 6 7 8
9 10 ";
76 PRINT#4," :NOTES PAGE ":D:FORN=11080:PRINT#4,US;:NEXT:RETURN
78 PRINT"(clr)(6 crsr dn)(7 crsr rt)LOG SHEETS FOR UTILITY USE"
80 PRINT"(2 crsr dn)(9 crsr rt)DESIGNED BY MARK MANUCY"
82 PRINT"(crsr dn)(6 crsr rt)FOR USE WITH BROADCAST TOPIX"
84 PRINT"(crsr dn)(6 crsr rt)PROJECTS AND BCB LOGGING RUNS"
86 PRINT"(4 crsr dn)(12 crsr rt) SEPT. 1985"
88 PRINT"(7 crsr dn)(9 crsr rt)PRINTING FOR (rvs on)A(rvsn off)M OR
(rvsn on)F(rvsn off)M?
90 GETXS:IFX$=""THEN90
92 IFX$<"A"ANDX$<"F"THEN88
94 RETURN
```

Abbreviations:
LFS= Line feed
CRS= Carriage return
FFS= Form feed

US= Underline
J = Line counter
D = Page counter
B = Frequency
clr= Shift CLR/HOME key
crsr=Cursor
dn= Cursor down
rt= Cursor right
rvs= Control, reverse key (on or off)
example - (4 crsr dn) means tap cursor down key four times.

NOTE: If you would like to have this program but don't want to type it in yourself then send me a disk or a tape and \$2.00 and I'll make a copy and return it to you.

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tabbings. The program opens by asking whether you want an AM or FM log and then prints what is requested. Have the printer ready to go (see Figure 1).

Mail Call

AIC Alan DesJardins sent me a program listing for the Armed Forces Korea Network and said the stations will respond to QSL requests. The stations are all low power, so any logging in the states would be very exciting. Those of you on duty in the Far East or in the Pacific might give it a try. AM power is 500 watts and the frequencies are (in kHz) 549, 576, 585, 783, 1044, 1152, 1161, 1197, 1359, 1440, and 1512. The FM power is 1 kW and the frequencies are 94.1, 96.1, 98.1, 99.3, 99.9, 101.5, and 102.7, all MHz. The TV power is also 1 kW and the channels are 2, 6, 12, 13, 49, 58, and 70. There are 31 TV stations sharing these channels, 17 AM and FM stations.

M.J. Williams is such an avid radio nut, he listens while working with his Sony SRF-A1. He has a problem though; it seems the boss won't allow a stereo headphone, so he uses a single ear piece and they only last a month or so before they "blow out." Maybe the volume is a bit high M.J.; we don't want your ear to be next. Almost all of the ear "plugs" that I have seen are of the same quality, so I can't be of much help... maybe another reader will let us know. You might try the separate stereo ear pieces only using one. They might be a bit more heavy duty. Watch the volume, though! Paul Crane sent a heavy duty shipment of bumper stickers and other promotion material, some of which is shown elsewhere. Paul, along with several others, has requested that call letter updates include the station's frequency. So, by popular demand (as they say), starting next month I'll change my C-64 program to include the frequency in the listing. Fair enough?

Dean Manley, a consultant in Hawaii, tells me the station with the largest geographical land coverage on the BC band is WNAX in Yankton, South Dakota, a 5 kW station on 570 kHz!

William Burke has a different problem. Seems he's hearing BC band in the SW range. Bill, I've been mulling over the problem for a month or so and still don't really have an answer, unless it happens to be a combination of having several of your receivers turned on at the same time. William has an impressive array of receivers—Hallcrafters S-120, Kenwood R-11, Lafayette HE-30, Panasonic RF-2200, and Sanyo M9903k.

DXing

February and March still allows time for really good DX on the broadcast band. The trouble with a lot of BC band DXing, unlike SW DXing, is it seems to require late hours. Well, this is not always the case. One of the best times for some serious DXing is around sunrise. Some of my most rewarding catches have been during these hours. If you are not a night owl and love getting up early, let me

WARM-FM is in Atlanta... owned by the same company! See call letter changes.

WSOS

105.5 FM ST. AUGUSTINE

It was only a matter of time before deregulation would allow formerly "sacred" letters to be used. Those who were there first got the best. See KSOS in this month's call changes.

Here's how it works: The frequencies are printed down the side of the paper starting at 530 (88.1), and right up the band we go to 1610 (107.9). Across the top are printed numbers, 1 through 10, with "notes" and a page number. Horizontal lines are drawn across the page at each frequency to separate them. On the last page, the numbers 1 through 10 are again printed so that the columns may be identified. These might be 1. Daytime at Harpers Ferry—2. Nighttime—

one might use dates or times. My first use was to list the different types of antennas I was comparing.

This program is set up to use pin fed paper and requires four sheets to print all of the frequencies for AM or FM. There are no fancy commands for the printer, so it should work with just about all combinations. I use the Gemini SG-10 with the Cardco + G interface. There are no tab functions. I know, for example, the 10X and SG-10 have different

Call Letter Changes

Location	Old	New			
AM Stations					
Valley Head, AL	new	WQRX	Stamford, CT	new	WEDW-FM
Unalakleet, AK	new	KNSA	Jacksonville, FL	WKTZ	WLCS
Sacramento, CA	KENZ	KSAC	Tampa, FL	WFLA-FM	WPDS
Aurora, CO	KLSZ	KLSC	Waynesboro, GA	WWGA	WYFA
Pine Castle, FL	WREM	KLSC	Atlanta, GA	WRMM	WARM-FM
Lake Mary, FL	new	WWLD	Boise, ID	KJOT	KOZO
Lake Placid, FL	new	WOLM	Leroy, IL	WMLA-FM	WTWN
Homestead, FL	WQDI	WLPF	Lebanon, IN	WNON	WBCI
Wichita, KS	KAKZ	WRBA	Fort Wayne, IN	WFWQ	WAJI
St. Johns, MI	WGZS	KRZZ	Derby, KS	KAKZ-FM	KRZZ-FM
St. Johns, MI	WKLH	WLNZ	Wamego, KS	new	KAWQ
Carthage, MS	WCEP	WSSI	Erlanger, KY	WHKK	WSAI
Cape Girardeau, MO	KGIR	KZIM	Golden Meadow, LA	KZZQ	KBAU
Xenia, OH	WBZI	WLGY	Brewster, MN	new	WQCB
Perry, OK	new	KRAD	St. Johns, MI	WLNZ	WLNZ-FM
Lake Oswego, OR	KLIQ	KMJK	North Muskegon, MI	WFMM	WAVX
Fayetteville, TN	WKZF	WIXC	St. Johns, MI	WKLH-FM	WLNZ
San Marcos, TX	KCNY	KSPL	Carthage, MS	WWYN	WSSI-FM
Newport, WA	KTMI	KZUN	Columbus, NE	KTTT-FM	KWMG
Clarksburg, WV	WPQZ	WKKW	Sparks, NV	KROY	KROI
Laramie, WY	KOJO	KLDI	Farmington, NM	new	KTRA
FM Stations					
Eufaula, AL	WKQK	WULA-FM	Albuquerque, NM	KZZX	KMGA
Marana, AZ	KOPO	KXMG	Oswego, NY	WWWT	WQWT
Payson, AZ	KKJJ	KJJJ	Asheboro, NC	WRLT	WKRR
Glendale, AZ	KJJJ-FM	KKFR	Sallisaw, OK	KAZZ	KKID-FM
Mountain Home, AR	KFKB	KKTZ	Newport, OR	KBKN	KNPT-FM
Ozark, AR	KZRK-FM	KDYN-FM	Warminster, PA	WCSD-FM	WRDV
Rohnert Park, CA	new	KRPQ	Easley, SC	WELP-FM	WTLT
Santa Barbara, CA	KKOO-FM	KHTY	Murfreesboro, TN	WZKS	WTMG
Salinas, CA	KDON-FM	KDON	Hooks, TX	KFFR	KLLI
Apple Valley, CA	KAPV	KAVR-FM	Freeport, TX	new	KGLF-FM
Sacramento, CA	KSAC	KROY	Laredo, TX	KFIX	KJBZ
Pueblo, CO	KRMX-FM	KUSN	Brigham City, UT	KFRZ-FM	KSOS
			Newport News, VA	WNSY	WRSR
			Huntington, WV	WHPW	WVWV
			Clarksburg, WV	WKKW	WKKW-FM
			Mayaguez, PR	WIOA	WIOB
			Mayaguez, PR	WIOB	WIOA

give some guidelines. This time is especially good for young people who are still in school. Getting a good DX catch before hiking off to school can make your day!

Generally speaking, looking west at sunrise would provide the best DX, and if you look far enough west, you will see the sunset. That's where the exciting things can happen—on the edge of the extremes. Plan ahead as to the stations that would be within an hour (+ and -) of sunset during the sunrise time where you live. With this time in mind, search the WRTVH for high power stations operating during the hours of sunset. Then listen.

Propagation is never the same two days in a row. Sometimes the skip is very short; then there are the days it is very long (oh, boy)! That's the one we want. When the really distant stations are coming through, then that's the time to dig the headphones out and do some serious listening. If you are still in school, these openings on the BC band will correspond to the days on which the mid-terms or finals are given! It honestly has nothing at all to do with the ionosphere; it is coordinated with the various school districts throughout the world to have the best DX available during exam time each year. Then, by the time you're gainfully employed, it's too hard to get up in the morning to catch the DX, so you have to wait until retirement to chase DX, and by then you



really don't care anymore. A little tongue in cheek, but not all fiction.

For domestic DX we can look up and down the sunrise line and around us for up to about 9:30 or 10 a.m. Things seem to stabilize after that. Once again, there is the need for a directional antenna. Turn the radio or the antenna to minimize (null) the station you have heard before and listen for a new one. We have a lot of new stations on formally clear channels that would lend themselves to being caught during this time of day. In the east, the one that comes to mind is WAGE in Leesburg, Virginia. This station has recently moved from 1290 to 1200 kHz, which is clear in the east.

Another good trick for any time of day is to "umbrella listen." This is a neat trick to pull with a loop antenna. The staff of the umbrella is the local stations in your area, whether they are full time or daytime. Under the umbrella are the stations on either side of

a local. If you have a meter on the radio or receiver, tune in the local and adjust the radio or loop for a minimum reading. Move slowly, as it may not be much of a dip. Then without touching the radio or antenna, tune the set to the next channel, either above or below the local and listen for stations you may not have heard before, touching up the position of the antenna slightly for the least noise from the local station. As with any DX, this may take some extended listening, because during heavy modulation, the DX will be obscured by the splatter of the local station. Just to show what can be heard, this past summer, while my son was fishing off a bridge near St. Augustine, Florida, I was "umbrella listening" under the local 1240 kHz station. I was only a mile from the station and could see the tower across the salt marsh from where I was. I placed the radio (my Sony SRF-A100) on the wide bridge rail and carefully nulled the 1240 station by tun-

Station Updates

Call	Location	Freq	Pwr	Ant
AM				
KDLG	Dillingham, AK	670	10/10	O
WUFF	Eastman, GA	710	2.5/0	O
WSON	Henderson, KY	860	.5/ .5	DA-N
KFJZ	Fort Worth, TX	870	1/0	DA-D
WPJM	Adamsville, TN	960	.5/0	O
WSKE	Everett, PA	1040	4/0	O
WBIS	Bristol, CT	1120	1/.5	DA-N
KANN	Roy, UT	1120	10/1	DA-N
WKSJ	Jamestown, NY	1340	1/1	O
WDNY	Dansville, NY	1400	1/1	DA-D
KRIZ	Renton, WA	1420	.5/ .5	DA-2
KGAY	Salem, OR	1430	5/5	DA-N
FM				
KHOY	Laredo, TX	88.1	1.8	348'
KSTX	San Antonio, TX	89.1	N/C	380'
WJSL	Houghton, NY	90.3	6	216'
WBCR	Beloit, WI	90.3	.13	N/C
WWLR	Lyndonville, VT	91.5	N/C	-75'
WKKB	Manitowoc, WI	92.1	1.69	419'
KIJN-FM	Farwell, TX	92.3	N/C	355'
WWYZ	Waterbury, CT	92.5	N/C	850'
WLYT	Haverhill, MA	92.5	20.4	711'
WQST	Forest, MS	92.5	96.7	984'
WYFL	Henderson, NC	92.5	100	1017'
WBOX-FM	Varnado, LA	92.7	3	328'
WMJS	Prince Frederick, MD	92.7	2.35	N/C
WBLX	Mobile, AL	92.9	N/C	1555'
WAKW	Cincinnati, OH	93.3	26	500'
WKOQ	Lexington, NC	94.1	100	485'
KIXQ	Webb City, MO	94.3	1.25	522'
WWWI	Eden, NC	94.5	N/C	982'
KPLO-FM	Reliance, SD	94.5	70.7	902'
WJZQ	Kenosha, WI	95.1	50	N/C
WQSF-FM	Williamsburg, VA	96.5	N/C	492'
KFMJ	Grants Pass, OR	96.9	74	426'
WLVK	Statesville, NC	96.9	N/C	1548'
KDEP	Durant, OK	97.7	2.15	350'
WKKR-FM	Auburn, AL	97.7	1.33	476'
WDFM	Defiance, OH	98.1	N/C	575'
WLNH-FM	Laconia, NH	98.3	1.9	N/C
WGNE-FM	Panama City, FL	98.5	N/C	1355'
WZKC	Rochester, NY	98.9	N/C	399'
KQPI-FM	Idaho Falls, ID	99.1	100	N/C
WFMI	Winchester, KY	100.1	1.4	N/C
WSBW	Sturgeon Bay, WI	100.1	.83	N/C
WGFG-FM	Lake City, SC	100.1	N/C	328'
WDIZ	Orlando, FL	100.3	N/C	1597'
WCMS-FM	Norfolk, VA	100.5	50	190'
WAVV	Marco, FL	101.1	100	982'
WPIT-FM	Pittsburgh, PA	101.5	47.5	N/C
KFTZ	Idaho Falls, ID	103.3	52	515'
WIZD	Atmore, AL	104.1	N/C	1555'
KWNS	Winnsboro, TX	104.9	N/C	282'
WHOD-FM	Jackson, AL	104.9	2	N/C
WFXE	Columbus, GA	104.9	3	N/C
WKQA	Pekin, IL	104.9	N/C	328'
KIVA	Santa Fe, NM	105.1	N/C	1968'
RB-FM	Frostburg, MD	105.3	N/C	958'
KXLK	Haysville, KS	105.3	N/C	993'
WDAR-FM	Darlington, SC	105.5	2.4	362'
WPXK-FM	Woodbridge, VA	105.9	28	648'
WELE-FM	Deland, FL	105.9	N/C	1601'
WYAY	Gainesville, GA	106.7	N/C	1400'
WENN-FM	Birmingham, AL	107.7	N/C	1036'
WJYO	Mt. Dora, FL	107.7	N/C	1613'

Key: D = Daytime N = Nighttime DA = Directional Antenna DA1 = Same Pattern Day & Night DA2 = Different Pattern/Power Day/Night O = Omni Antenna Day and/or Night * = Special Operation or Critical Hours N/C = No Change

ing slightly off to one side in order to detect the dip. I then carefully tuned for 1230 and logged WSBB in New Smyrna Beach from some 60 miles down the coast and WTMA in Charleston, South Carolina on 1250, over 150 miles up the coast. If the antenna and receiver are tuned very carefully, it is surprising what is hiding under the umbrella of the local! It doesn't take a fancy set up to do this, however, I would suggest being clear of surrounding large metallic objects.

Don't hesitate to experiment. The other trick I pulled in the above logging was placing the radio near a metal pole, which was used as a hand rail on the bridge; it was possible to get an even better null on WFOY, causing the reception of the "umbrella stations" to be even better. Fishing was lousy that day, except for DX.

These same tricks can apply to FM listening with portable radios, but it is much more tricky. As poor as the SRF-A100 is on FM, I was also able to log the two 100 kWers from Cocoa Beach (125 miles) while standing on that bridge. It is difficult to impossible to do this kind of logging without headphones. Yes, I got sunburned, but it was worth it!

Mexican Disaster

The media coverage of the Mexico City earthquake was complete, almost to the last rock. The quake, which occurred on September 19, had at least four TV networks broadcasting from an area that had no long distance telephone service! The 19th was on a Thursday and CNN had use of the Mexican TV Network Imevision from around noon on Thursday. CBS's Mexico City stringer flew tape into Texas for satellite transmission to New York for the Thursday evening newscasts. ABC and NBC used footage from Imevision and Televisa, the commercial Mexican TV network (Imevision is the government network). On Friday, NBC had a satellite feed and ABC was using tape flown out of Mexico. By Monday, all three networks were anchoring their news shows from Mexico City.

Here's what happened. Sunday, NBC had their portable Ku-band earth station operating from Mexico City. It was also used by CNN. ABC leased a C-band earth station. CBS apparently had an earth station setup on Saturday, but because of the sports broadcasting on Saturday, did not use it for live feeds until Monday. NBC also flew in two 3-foot dishes to provide telephone links to the rest of the world for all the radio and television networks. These were used through the Inmarsat global satellite system. No doubt an unusual few days for U. S. technicians who work for the networks. I wonder how much was heard directly by BCL's and SWL's. By the way, what do you call a satellite listener? Maybe an MWL for Micro Wave Listener!

Well, that runs the clock out for this month. Thanks for the mail. I enjoy talking with you each month. I listen to your comments via the mail. For info on loop antennas, see last month's column and address. Send all comments and mail to P.O. Box 5624, Baltimore, MD 21210. **PC**

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

RADAR Takes Action

RADAR (The Radio Association Defending Airwave Rights, Inc.), calls upon motorists to be alert for potential abuses in the use of police radar in their states. Arizona, Maryland, and Vermont are under heavy pressure from the Federal Government because of non-compliance with the 55 mile-per-hour speed limit. The Federal Highway Administration is currently threatening to withhold millions of dollars in badly needed highway funds unless the percentage of motorists who are speeding is reduced to the suggested compliance rate of 50 percent.

RADAR was organized to promote the common interests of the radar detection industry. The association consists of: Electro-lert, Inc., Controlonics Corporation, and Cincinnati Microwave. RADAR's primary activities include monitoring and communicating with legislatures on behalf of motorists and its members; monitoring and informing its members and the motoring public about government and private studies and developments in the courts and in regulatory agencies relating to radar and radar detectors; and preparing and distributing educational materials to the motoring public on police traffic radar and radar detectors.

Law enforcement agencies have found that radar can be an effective tool for enforcing speed limits but its use is subject to certain types of abuses. The training of the operator of police radar and the quality of the equipment goes a long way in determining the accuracy of the measurement of speed.

Law enforcement officials and police radar manufacturers would like the public to believe that the instruments are infallible, but in fact, poorly trained operators using cheap equipment make as many as 20 percent of their measurements of speed inaccurately.

If a motorist feels he or she is unjustly accused of speeding, he should challenge it in court. A surprising number of radar speeding citations have been successfully dismissed in recent years because of improper training of the officer or because of the fallibility of the radar equipment itself.

Motorists may request a pamphlet which will help them record pertinent facts when they are pulled over for a speeding ticket. Requests for the pamphlet should be mailed to the following address: RADAR/STRATEGY, The Radio Association Defending Airwave Rights, Inc., 4949 S. 25A, Tipp City, OH 45371. Other materials are also available to aid motorists in court when an unfair ticket has been issued.

Federal Court Case Filed Against Radar Manufacturers

Christopher M. Murphy is tired of waiting for his day in court. For over a year he's been

looking forward to putting police radar on trial. Unfortunately, neither the court nor the prosecutor in Elmira, New York, shares his enthusiasm. So far, Murphy's speeding case hasn't appeared on the court docket. Most New Yorkers would be delighted if their cases fell through the judicial cracks because a first offense speeding conviction carries a fine up to \$100 and 30 days in jail. But Christopher M. Murphy is so disappointed that he is suing for his right to a trial.

On May 12, 1984, Murphy received a radar-based speeding ticket from a state police officer in Elmira. On June 22, 1984, he entered a formal plea of not guilty. On July 23, 1984, Murphy requested a pre-trial hearing to evaluate police radar's reliability. Murphy viewed his case as a test case to establish police radar's unreliability. He wanted to change the fact that radar has received judicial notice in New York courts since 1958. Judicial notice means that not only is radar's reliability not challenged, but also no evidence is required to prove that a police radar unit is accurate. As a result the conviction rate on radar-based speeding tickets issued in that state is over 99 percent. Each year over a half million New York motorists are convicted of speeding by judges who never question police radar's reliability.

Murphy requested a pre-trial evidentiary hearing because of the overwhelming evidence today that police radar does make mistakes. This pre-trial hearing would have required substantial time and effort for the court and the prosecutor. Neither appears willing to defend the reliability of radar.

After a long wait, Murphy has filed suit in the United States District Court, Western District of New York, requesting a declaratory judgment to the effect that any trial and/or conviction of him in the state of New York would be violative of his federal constitutional rights. The first group of defendants were: the New York Attorney General, the Superintendent of the New York State Police, the District Attorney of Chemung County, and the Town Justice of Elmira.

The second group of defendants Murphy wants to take to court is composed of the nation's four principal manufacturers of police traffic radar devices: Kustom Electronics, Inc.; Decatur Electronics, Inc.; CMI, Inc.; and MPH Industries, Inc. Murphy charges that these police radar manufacturers have conspired to suppress and conceal known problems, errors, and defects in their devices. He further charges that they have deliberately and fraudulently concealed this information from their police agency customers, the courts, and the general public. Manufacturers have done this by misrepresenting their products while training police radar operators and by not mentioning product defects in operator's manuals.

Murphy also charges manufacturers with devising model testimony for operators. Using such testimony would cause a radar operator to testify to what should have happened, rather than to the actual facts of each case. In addition, Murphy charges that by citing federal copyright laws, manufacturers discourage agencies from providing operator's manuals or published materials to defendant-motorists. Such materials would assist defendants in putting together an informed, effective defense.

Murphy isn't suing for a multi-million dollar figure. He is asking one dollar in damages and payment of court costs by the defendants. Murphy is interested in changing the New York court's blanket endorsement of radar's reliability and in making police radar manufacturers more responsible corporate citizens.

Town Must Refund 1,765 Speeding Fines

A Waterford, New Jersey, municipal court judge has ruled that the township will have to refund fines for more than 1,700 speeding tickets issued there in 1983.

The decision to refund the fines—some attorneys say about \$160,000 worth—was announced recently by Judge Angelo J. DiCamillo.

DiCamillo became involved after the Camden County Prosecutor's office discovered that 1,765 tickets had been issued using radar equipment and patrol car speedometers that were not calibrated.

The court date was necessary so that the municipal judge could invalidate the previous convictions.

DiCamillo said the state Division of Motor Vehicles (DMV) should delete any points accrued by what later proved to be improper or illegal methods.

"It's about 90 percent of the speeding tickets issued (in 1983)," Assistant County Prosecutor Raymond Milavsky said.

The officer in charge of the equipment, Philip Mendel, was convicted in March of misconduct in office for this failure to calibrate the K-55 radar unit and for falsifying reports that he had. Mendel, who works as a chauffeur, received three years probation and must serve 100 hours of community service. His probation could be reduced to one year for good behavior.

Despite DiCamillo's ruling, there was some disagreement and confusion about exactly where the money to be returned would come from.

According to the ruling, the money will be returned through the municipal court clerk's office. DiCamillo said because the work involved will be far beyond the capacity of the two full-time employees in the court clerk's

office, it could take two years to return all the money.

But municipal solicitor Lee B. Laskin said it's not that simple. "The vast bulk of the funds went to the state and the county."

"A lawsuit pending will resolve that issue. It's a civil matter," he said, referring to a class action suit filed in federal court.

The suit was filed in April, 1985 by attorneys Philip Stephen Fuoco and Philip J. Japalucci on behalf of their client, Dennis Egan of Gibbstown.

Others who were caught speeding while the equipment was not legally inspected and certified would be brought under the umbrella of the suit, said Fuoco.

The civil suit seeks compensatory, punitive, and exemplary damages from Mendel, former state motor vehicle director Clifford W. Snedeker and former Camden County treasurer Nicholar Rudi.

"The county has the money and they're not entitled to it," Fuoco said.

"Why should these people wait two years? The municipality has known about this since April or May of 1984," Fuoco said.

Complicating the matter further are surcharges that convicted motorists were assessed by the DMV, higher rates that insurance companies may have charged those convicted of speeding, and license suspensions that may have resulted from the now-void convictions.

Also, the township discovered a \$309,000 budget deficit this year and was forced to nearly triple its local tax rate.

According to DiCamillo's decision, motorists who hear about the situation should contact the municipal court clerk, who will change the judgment from guilty to not guilty.

The request for a change and for the removal of points will then be sent to the DMV and, "depending on the availability of funds in the (Waterford) court's general account, the fines and costs imposed would then be returned to the individual defendant."

Letters will be mailed from the court clerk's office to the last known address of the defendants, according to the decision.

Committeeman Patrick Vitarelli, after hearing about the matter, said, "Another blotch on the town—it's a shame."

Truckers Who Drive 55 Reap Bonus

A trucking firm has equipped its 150 diesel trucks with on-road computers that monitor truckers' speed and stopovers. Drivers who observe the 55 mph speed limit receive a bonus; those who don't may lose their jobs.

The monitoring system used by Leprino Transportation Company of Denver, Colorado is part of a plan to save the company money in fuel bills, engine wear, and insurance premiums and to improve the company's safety record.

Jerry Sheehan, vice president for transportation, estimated that his fleet of trucks travel 18 million miles a year.

Before the system was installed three

years ago, on-the-road costs were between 25 and 26 cents per mile, mostly from fuel consumption. With the monitoring systems, that cost has dropped to 18 cents a mile.

Sheehan estimated the monitors, which cost \$1,000 each, save the company \$700,000 a year.

If the trucker obeys the 55 mph speed limit, he is rewarded with a 3-cent per mile bonus. If he doesn't he loses the bonus. If he continues to speed he loses his job, Sheehan said.

Drivers are told when they are hired that speeding is not tolerated.

FCC Approves Radar Device

A radar device that warns motorists when their cars or trucks get too close to other vehicles or pedestrians has won approval by the Federal Communications Commission.

The radar system was invented 40 years ago, but it was modern microcomputer chips that made it cost-effective and small enough to install in the cab of a truck or on the dashboard of a car.

Charlie Rashid, of Mt. Clemens, Michigan, said recently that the marketing of the system has already started.

The device, made by Vehicle Radar Safety Systems, Inc., emits a beep when a car or truck is closing too fast on another vehicle or if a person darts into the vehicle's path.

Tennessee Sheriff Says: Thou Shalt Not Use Radar On Sundays

Knox County Sheriff Joe Fowler, a devout Baptist, forbids his deputies to use radar to catch speeders on Sundays.

Fowler says he thinks using radar when "people are going to church or just out for a drive" is not necessary.

"I realize people get killed (on Sundays) just as any other day, but we haven't found it (not using radar) to be that big of a problem," he said.

"We found it (Sunday) wasn't a good time to use it, but the order is not set in concrete."

It doesn't mean speeders will not be arrested on Sundays, Fowler said.

A deputy, who wished not to be identified, said he thought it was unfair to use the units on every day but Sunday. He said the order is geared toward churchgoers and Fowler's interest in being re-elected. The deputy also said Sunday traffic can be heavy and speeding a problem.

Connecticut Drivers Still Speeding Despite Increased Tickets

State police in Connecticut have issued more than twice the usual number of speeding tickets since a crackdown began several months ago, but a spokesman says many motorists are still driving too fast.

State police have used overtime funds to add the equivalent of 18 troopers statewide on highways since Governor William A. O'Neill ordered a crackdown on speeding and other traffic violations last October.

State police spokesman Adam Berluti said the special squads have issued 37,600 tickets for speeding in addition to the 35,839 issued during the same period by regular speeding patrols.

"Generally, our feeling is that the crackdown and all the publicity has had a negative effect on average speeds," Berluti said. "However, there is still a lot of speeding going on out there."

Berluti said police hope the crackdown would scare motorists into obeying traffic laws, but added "Finally, the bottom line is voluntary compliance."

The crackdown took effect October 17, 1984, and troopers working the special duty had issued 43,116 tickets from the start of the stepped-up enforcement through May 31, 1985, Berluti said. Of the total, 37,600 were for speeding.

In addition, troopers on regular duty issued 43,456 tickets, including 35,839 for speeding.

Janice Lee is the Editor of Monday, A.M., the newsletter of Electrolert, Inc.

PC

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NEW AND EXCITING TELEPHONE TECHNOLOGY

Getting It Wholesale

There are, in the U.S., thousands of telephone companies. Some have as few as 300 subscribers. There are also several thousand companies installing business systems throughout the country. All of these companies have to buy their materials from somewhere. They buy from "distributors." You can buy from distributors, too. If you need a couple of telephone poles and a few thousand feet of wire to put an extension in the barn over on the back forty, these companies will have everything you need.

Distributors carry everything to do with telephones—from Mickey Mouse phones to large digital switching systems. They include: tools, test equipment, signs, cable and wire, phone booths, manhole covers, hard hats, pole climbing belts, test equipment, and every possible thing a telephone company would need to do business.

If you plan to do much work with phones, dealing with a distributor will save you money and enable you to obtain materials unavailable at the local electronics parts store. For those of you who would like to go into the telephone business, whether putting extension jacks in neighborhood homes or installing business systems for the local community, it makes economic sense to get a wholesale account. Tinkerers, experimenters, and handymen will find it convenient to get supplies from a distributor.

Distributors also carry spare parts for telephones: handsets, touch tone pads, plastic shells, ringers—every part you need to repair a standard phone or build one from scratch.

Most distributors will deal with small orders on a will call, prepay, or COD basis. If you live in a large metropolitan area, there is probably a warehouse near you. To find your local distributor in the *Yellow Pages*, look under the heading "Telephone Equipment and Systems—Wholesale and Manufacturers." Some distributors also deal in Cable TV equipment. If you need a thousand feet of coax and some splitters to put antenna outputs around the house, this is where to get the parts. When calling these companies to request a catalogue, ask for a "Credit Ap" (credit application) at the same time, even if you never intend to open an account. It will convince them that you intend to do business and they will send you the catalogue.

If you are only putting telephone equipment on private property, no permission is needed. The telephone company will bring

Table 1: Below is a partial listing of telephone equipment distributors. All will ship throughout the U.S. Check your local *Yellow Pages* under the heading "Telephone Equipment and Systems—Wholesale and Manufacturers" for local distributors.

Centel Supply Company
770 North Cotner Boulevard
Lincoln, Nebraska 68505
Phone: (800) 228-4598

Regional distribution centers throughout U.S.

North Supply
600 Industrial Parkway
Industrial Airport, Kansas 66031
Phone: (800) 255-6888; (913) 791-7000

Regional distribution centers throughout U.S.

ATI Supply, Inc.
5717 Corsa Avenue
Westlake Village, California 91362
Phone: (800) 468-6278; (818) 889-9236

Graybar Electric Co., Inc.
34 North Meramec
St. Louis, Missouri 63105
Phone: (314) 727-3900

180 locations nationwide.

Lincoln Telephone Service and Supply Co.
4900 Superior
Lincoln, Nebraska 68504
Phone: (800) 228-0062; (402) 466-8337

Anixter
4711 Golf Road
Skokie, Illinois 60076
Phone: (312) 677-2600

Regional distribution centers throughout U.S.

AllTel Supply
6575 Carners Parkway
Suite 200
Norcross, Georgia 30092
Phone: (404) 447-8410

7 regional centers throughout the U.S.

their lines in to where you specify and the rest is up to you. But if you cross streets or public land, permission needs to be obtained from various authorities, such as the city and the Public Utilities Commission. Crossing another's private property needs the permission of the owner.

If you do intend to install a long cable run, consider that it does not have to go between poles. You can string wire along fences or buy underground cable and bury it. Tool rental companies rent out "trenchers," usually referred to by the manufacturers name "Ditch Witch." These devices will dig a trench through anything but solid rock in record time. They move along at about the same speed as a roto-tiller.

When stringing in wire, bear in mind that it is cheaper to put in more "pairs" than you need during the installation than to come back later to put in more wire. Telephone cable is specified in "pairs." A pair is two wires. The standard wire used by telephone companies is called "two pair;" it has four wires in it—red and green the primary pair and yellow and black the secondary pair. You can order cable with up to 100 pairs.

Standard interior telephone cable, the stuff that carries the phone line around the house, usually has a PVC jacket that is not suitable for outdoor use. The ultra violet rays in the sunlight will destroy it in a few years. The phone company usually installs "beige"

Table 2: Publications carrying advertisements for surplus and used equipment.

Telecom Gear
12 West 21 Street
New York, New York 10010
Phone: (800) 542-7279; (212) 691-8215
Modem line (1200/300 baud)
(212) 989-4675

This is a free monthly sheet of used/surplus telephone equipment

Telephone Engineer and Management
P.O. Box 6088
Duluth, Minnesota 55802
Phone: (312) 232-1400

This is a bi-monthly trade magazine. Subscription rate is \$24 per year U.S., \$55 per year for overseas subscribers. Back pages carry surplus/used ads.

interior cable. There are other colors available, such as grey, silver, and black.

There is a large market for used and surplus telephone equipment. Everything you can think of is for sale—either used, as is, or refurbished. These parts are advertised in trade publications like *Telephone Engineer and Management*. There is a "Hot Sheet" called *Telecom Gear*. This is available free; all you have to do is call them and ask to be

put on the mailing list. Every month you will receive an 8 1/2" x 11" tabloid crammed with bargains, from new 2500 sets for \$31 to massive PBXs with thousands of lines.

One of the things you can get from distributors that are hard to buy anywhere else are "Butt Sets." These are correctly called a "lineman's test set." They come in several styles and price ranges—from simple sets that only have a rotary dial on them which cost about \$30 to fancy models with LEDs to indicate the polarity of a line and built in tone/pulse switchable dialers. The fancy models can cost over \$150.

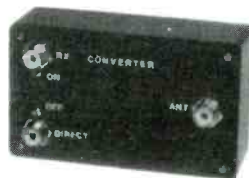
Butt sets are used to get onto a line for testing. The action of doing this is called "butting on" to a line. They can be used as telephones and telephones can be used as butt sets. A butt set is more convenient for testing as it is a one piece phone with alligator clips on the line cord and a belt clip. This makes it easy to carry around and always have at hand. When wiring in extensions, a butt set enables you to identify the right pair of wires and then make sure your wiring up to the jack is good. Besides, if you turn up to do a telephone job and arrive with a butt set, they will know they are dealing with "the phone man."

Some "Interconnects"—phone installation companies—may be conducive to selling private individuals phone equipment from their inventory. You can find these companies in the *Yellow Pages* under the heading "Telephone Equipment and Systems—Dealers."

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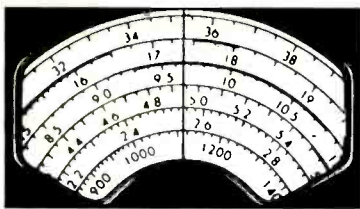
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COMMUNICATIONS CONFIDENTIAL

BY MIKE CHABAK

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

CommCo reader Al Quaglieri has taken on a really ambitious and herculean project. Al intends to assemble a master list of all publications that contain information of a utility nature. This would include books, magazines, and lists, obtainable from the private and commercial sector, plus unclassified material from government agencies.

We are not just talking about frequency, station ident, call letters, and other items directly linked to monitoring. Take the aeronautical aspect, for example. In addition to the above information, you'd probably want to know the names of airports and military air bases, along with their ICAO idents. En-route fans would profit by knowing the airway route indicators and the compulsory 5-letter position reporting points. One would naturally be somewhat curious about the aircraft themselves, so basic aircraft specs data would be quite useful to have. To better grasp air/ground comms, a knowledge of common aero abbreviations and terminology would be an asset, just as much as knowing the names of airline companies. These and other related items then serve to give you a very broad and diversified data base, which you can tap into whenever the situation requires.

A master list of utility information sources is something that is long overdue, yet the sheer magnitude of such an undertaking will task any single individual. As such, Al needs your assistance. He would like for you to send him a rundown of any books, magazines, and lists that you've found offers usable information in the realm of utility monitoring—specifically, the title of the publication, what it basically offers/covers, and where it can be obtained. In some respects, certain publications are readily available from bookstores and magazine racks, or via subscription. Others, and these include government sources and privately generated material, can be of great benefit, if only we know about their existence and where one would get a copy.

It is a big project, so why not help Al out. Once Al has gathered sufficient data, he will assemble it into a master listing and offer it to any interested parties. If you have publication info, you should send it to: Al Quaglieri, P.O. Box 888, Albany, NY 12201-0888.

BAS Antarctic

Just a reminder. Late winter through spring offers the best time to check out the British Antarctic Survey operations. If you

haven't heard this net so far, check around 2300 GMT on 9106 kHz USB.

RAAF/RNZAF

The winter season offers ample opportunity to more easily monitor bases and aircraft of the Royal Australian Air Force (RAAF) and the Royal New Zealand Air Force (RNZAF). All ground stations use "AIR FORCE . . . (followed by base name)" as their voice ident, and although air activity is well below the volume of the American military, Australian and New Zealand bases plus their aircraft can more or less be routinely heard.

As far as it is known, RAAF transport aircraft do not utilize a static type callsign, but the RNZAF does. Their C-130H Hercules use the familiar "Kiwi" callsign (#40 Squadron based at Whenuapai).

QSLing RAAF/RNZAF bases is not an easy matter. New Zealand rarely does, and the Australians go through phases of verifying or not even answering at all. Successfully QSLing their aircraft will be tougher to say the least.

Nevertheless, for the military Air Force buffs, monitoring these stations and aircraft will provide an interesting change of pace from U.S. military activity. Those of you who tune into commercial aeronautical comms will recognize a familiar procedure. RAAF and RNZAF ground stations often

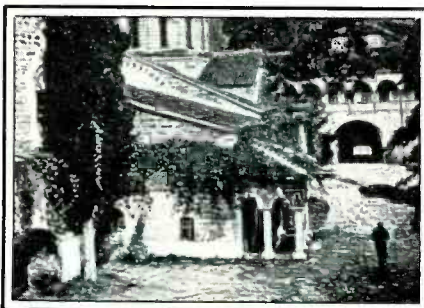
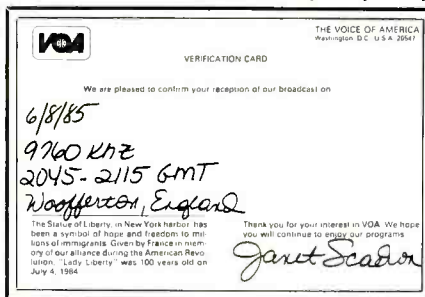


Here is a view of the listening post of contributor Mike Chinakos, Washington. His equipment consists of Yaesu FRG-7, Drake 2-C, JIL SX-100, Realistic TRG-490 Sideband, Grove Skywire Antenna, and a multi-band dipole in the attic. He also has a Commodore 64 computer, which is on a side desk not in the picture.

transmit a multi-tone SELCAL just prior to initiating voice comms.

The following is a list of their most active voice frequencies. Remember the time differential when you check out a certain frequency. If it is night down there, don't expect comms to show up on their higher HF channels. Also note that some frequencies are the same as (or just a few clicks off) USAF GCCS stations. Best monitoring time lines for North American monitors is from local evenings until dawn. Interestingly

Thanks to Ed Pierce of Maryland for this impressive assortment of QSL's.



NAR

KEY WEST NAVAL BASE, KEY WEST, FLORIDA, USA

THIS WILL CONFIRM: Rob Gerardi HEARD RADIO STATION
NAR ON 5870 kHz AT 1127 PWT ON 4 June 19 84
POWER: 2K WATTS ANTENNA: OMNI
REMARKS: check manual

SIGNED: Rob Gerardi

Rob Gerardi, Benton, Illinois, came up a winner with this prepared reply QSL card from USN station NAR at Key West, Florida. Reception was on 5870 kHz.

CONFIRMING YOUR RECEPTION OF:

ROYAL AIR FORCE VOLMET

8 JULY 1984 -- 00:44 to 01:59 GMT/UTC

11,200.0 kHz - Upper Sideband

Signed: Gerald Brumm RATCC
20.7.84

Gerald Brumm, Chicago, Illinois, read in POP'COMM about an RAF Volmet broadcast on 11200 kHz. That led to his eventually receiving a QSL from this station. The QSL was accompanied by a 16-page booklet explaining the UK's National Air Traffic Services. The QSL was mailed from Uxbridge, Middlesex. Nice going, Gerry!

enough, 13-11-8 MHz frequencies are equally active beyond local midnight; afterwards there is the tendency to use 8 MHz. The frequency 8975 kHz is a 24 hour frequency and, when not QRMed by RTTY, often has a fair amount of activity all night.

One thing is sure; even when they show up on a USAF frequency, the distinctive "down under" accent will make them stand out from the crowd.

3032—RAAF
5688—RAAF
5695—RAAF
5718—RAAF
6760—RNZAF
8975—RAAF/RNZAF
8992—RNZAF
9014—RAAF
11214—RAAF
11224—RNZAF
11235—RAAF
11239—RAAF
11247—RAAF/RNZAF
13205—RAAF/RNZAF
13211—RNZAF
17982—RAAF/RNZAF
18003—RAAF
18023—RAAF

The following is a list of bases.

Royal Australian Air Force
AXD—Laverton, VIC
AXF—Sydney, NSW
AXH—Townsville, QLD
AXI—Darwin, NT

AXJ—Perth, WA
AXK—Sale, NSW
AXS—Learmouth, WA
AXT—Edinburgh, SA
MRX—Buttersworth, Malaysia

Royal New Zealand Air Force
ZKW—Christchurch (Wigram Air Field)
ZKX—Auckland (RNZAF Headquarters—includes the Hobsonville and Whenuapai Air Fields)
ZK—Woodbourne
ZK—Ohakea
----Tengah, Singapore

The so-called tactical callign "ADELPHI" is believed to be RNZAF Whenuapai. In fact, phonetically, Whenuapai may actually sound alot like Adelphi.

8294.2 kHz USB Voice

The frequency 8294.2 kHz is a worldwide maritime simplex frequency for ship/shore and ship/ship comms. A virtual grab bag of primarily small ship commercial maritime traffic can be heard on this frequency, ranging from tuna boats to tugs and barges, to oil rig support vessels and so on operating off the coasts, inshore, or plying the major rivers.

Although this ship/ship and ship/shore traffic can produce quite a bit of comms activity, there is nothing spectacular about the vessels, shore stations, and the routine tasks they are performing. As such, this frequency (and its sister on 8291.1 kHz) are often of the type that you check out when you have nothing better to do. Of course, if you're a small ship buff, it's a venerable happy hunting ground.

When conditions are right, such as during our winter season, more intriguing comms can show up. Over the past several years, maritime monitors have noted two interesting types.

1) Great Britain often has one or more of its research vessels operating in Antarctic waters. The frequency 8294.2 kHz has been used by these vessels in "duplex" comms with the B.A.S. shore stations (shore side uses 9106 kHz). Monitoring time lines are normally in the 2200-0100 GMT period.

2) The Royal Australian Navy also uses 8294.2 kHz for ship/shore comms. These shore facilities use the base name (or tactical call) followed by the word "Control." Apparently this frequency is for RAN harbor and coastal usage.

The Royal Australian Navy has seven major bases. They are: Brisbane, Cairns, Cockburn Sound, Darwin, Jervis Bay, Melbourne, and Sydney. The best timelines are late evening to dawn, your local time.

These comms will be catch-as-catch-can, but with a little luck and patience, you could come up with some real gems.

Frequency Sweeps

Frequency sweeping is basically a steady carrier signal sent via what some refer to as a galloping transmitter. The purpose is to determine the best frequency area for comms

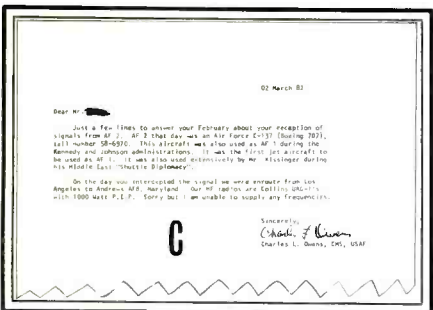
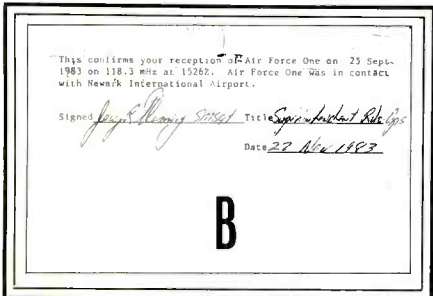
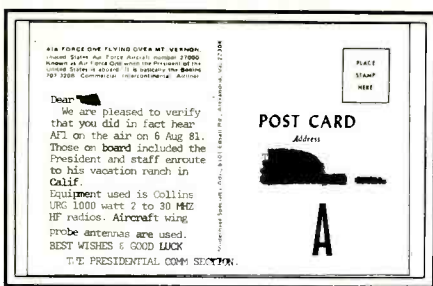
between two distant stations, and is accomplished by a transmitter that tunes from 2 to 30 MHz at a steady progressive rate of speed. A letter from a CommCo reader, who wishes to remain anonymous, will involve us in this topic.

At an open house at McClellan AFB, California, this individual had the opportunity to check out a point-to-point HF hookup between McClellan and USN Norfolk, Virginia. In the array of equipment were two "black boxes." One was a standard frequency spectrum analyzer. This is utilized to determine the electronic characteristics of a given transmitted signal. The other apparatus was an intriguing item that contained a CRT display showing a series of dots. As it was explained, USN Norfolk transmitted a carrier signal, sweeping from 2 to 30 MHz, taking 4 minutes and 15 seconds to run the 28 MHz spread. The black box CRT dot display unit would track and analyze the incoming signal, with the dots then congregating around the frequency area, producing the best HF propagation for that time frame. Although the reader did not indicate, apparently the CRT screen had a plot grid to denote frequency divisions.

Frequency sweeping is very common and often heard, yet not perceived by some for what it actually was. For example, some assume it was a momentary keying of a transmitter, or even a harmonic signal produced by radar. A frequency sweep sounds like "TWIT," it being a tone that rapidly goes from a lower to higher and back to lower tone as it passes by the frequency you are monitoring. The tone is of a single frequency pitch and does not vary. The "alteration" in pitch is due to its rapid movement by the stationary frequency you are monitoring. This is called an audio doppler shift. If you ever heard a car or train pass you by while they were blowing their horn, you've witnessed the phenomenon called doppler shift. In the case of a frequency sweep, the passage is as fast as you can say "TWIT" . . . and it is just not an isolated occurrence. Once you tune your ears for it, you'll note that it occurs at regular intervals, and can go on and on for hours at a time.

I'm quite accustomed to these frequency sweeps, and often during pre-dawn monitoring sessions the "TWIT" serves a somewhat different purpose for me. Sometimes I squat on a specific frequency, patiently waiting to ambush traffic. As can happen, maybe there is nothing but the background atmospheric QRN humming in the earphones, and after a while I have the tendency to doze off. The sudden appearance of a TWIT kind of snaps me back to full consciousness. Anyway, I was intrigued by the data in the letter, so I decided to run some experiments.

That particular morning I was tuned to 3786.1 kHz, waiting to bushwack the USCG NW Pacific Loran-C net. Thunderstorm QRN and QRM from LSB mode AROs wasn't making the task any easier. When Yokota Monitor did show up, it was weak, and if Yokota is weak, the other stations in the net often won't be readable at all.



Illustrations A, B, and C.

But during this time interval, I noted "TWITs."

They appeared exactly 120 seconds apart, and were running a definite pattern. If we look at it from a one hour standpoint, the TWITs appeared at 02-04-06 and 08 minutes. There was nothing at +10 minutes. TWITs came back at 12-14-16 and 18 minutes, with nothing at +20. So the pattern was 2-2-2-2-4-2-2-2-2-4, etc. In other words, 4 sweeps every 10 minutes, 24 sweeps per hour.

Now this is not a set pattern. On other days and times, you can hear them each and every two minutes. But their interval could likewise vary (monitoring period wise) from 60 to 150 seconds per pass by, and the pass by intervals themselves could range from 1, 5, 10, 15, 30 or even more every 60 minutes. All of this indicated that there is more than one specific station designated to transmit a frequency sweep, and that sweep rate intervals are varied according to a specific requirement.

For this particular morning I decided to use the reader's info and converted the Norfolk sweep time into seconds, and divided it by the 28 MHz spread figure. That broke down to just under an 11 kHz per second (10.98 kHz actual) carrier progression rate. To work with this more easily, I divided 255 seconds in half, that sum in half, and halved it again. This left me with a 3500 kHz progression rate, taking roughly 32 seconds

(31.875 seconds actual) to complete. Into my ICOM I key punched in four frequencies, 3500 kHz apart. They were: 2405, 5905, 9405, and 12905 kHz. When the "TWIT" appeared on 2405 kHz, I started the stop watch and switched to 5905 kHz. Roughly 32 seconds later, the TWIT appeared. Roughly 64 elapsed seconds later, the TWIT appeared on 9405 kHz. Nothing showed up on 12905 kHz after an elapsed time of 96 seconds. This indicated that the maximum propagatable frequency was somewhere between 9 and 12 MHz, between my QTH and wherever the transmitting station was located.

You can also be more precise and determine exactly what the frequency range of reception will be at your QTH. This is very useful when you are trying to DX a specific station or net.

For this you need a rig that can manually tune in one MegaHertz divisions, although you can accomplish this with a memory loadable receiver, too. Simply pick the lowest HF frequency you think will be receivable at your QTH. If it is pre-dawn, you can start with a 2 MHz frequency.

From observations, I've found that seemingly irregardless of what time interval the TWIT appears on frequency, the progression rate is about the same. This is roughly a 9.5 second progression rate every 1000 kHz (one MHz). So, we set up on, say, 2405 kHz, and when we hear the TWIT, tune to 3405 kHz and just about 10 seconds later, the TWIT zips by. You do this for 4405, 5405, 6405, 7405, 8405, 9405 and so on until the TWIT fails to appear (let's say 10405 kHz). Now you know that at this time of the morning, you can expect to be able to hear long range at your QTH of signals being transmitted within a frequency spread of 2405 to just beyond 9405 kHz, and if you pay attention to the audio strength of each TWIT you can also determine the best propagatable frequency area.

As such, with simple methods you can use these point-to-point frequency sweeps for your own benefit. Other than that, it could merely be a fun diversion thing to do, during a most boring monitoring session.

Gov't/Military QSLs

Last month I ventured into this subject, directing the discussion to those in the government and military that handle reception reports. In this column I will illustrate the problem, with three QSLs, labeled A, B, and C. (For various reasons I will not ID the individuals who sent me these QSLs.)

Illustration A is a typed verbi on the back of a picture postcard. The reverse side shows SAM 27000 (Air Force One) flying over the countryside. This QSL lacks authenticity. There is no signature or name of the preparer. Neither is there any kind of official seal or stamp. By the way, the card has no stamp or cancellation for, as I recall, it was mailed in an envelope. The lack of authentication leaves illustration A wide open for forgery. I can vouch for the honesty and integrity of the ute who sent me this QSL

copy. This is what he received, yet I can easily purchase a picture postcard of SAM 27000/AF1 from a local establishment that sells military and commercial aircraft cards. Then, if I were one of those disreputable characters, I could type out a similarly worded text, and go around claiming that I, too, received a veri from Air Force One. In the case of illustration A, only the reputation of the ute who received it gives it any validity. All in all, from a totally objective standpoint, card A is worthless in regards to being an acceptable verification.

Illustration B is a homemade PFC with the reverse side depicting the ute's name and address. It is a QSL of a VHF transmission from Air Force One, and does contain hard data, along with a signature. Few could really argue with it, yet it would have been more conclusive had it also been affixed with some sort of official rubber stamp. Nevertheless, most would not doubt its validity.

Illustration C is the top portion of a letter reply (the bottom being blank) concerning Air Force Two. This is a letter, yet was not typed out on official USAF or White House stationary. Again a stamp/seal is not present. This letter is an example of the obtuse reply technique. If you read it carefully, it does not verify reception, it just implies it.

Many a ute has received similar type replies that give out incidental information and are vague as to verification.

Public relations has much to do with this situation. The 89th MAW (the USAF MAC unit that flies and maintains the VIP fleet) receives many reception reports, but Air Force and White House ComSec policy does not allow them to verify. To simply trash all reception reports would not be a good way for the White House to promote a public image, so at random, some reports are answered with the obtuse reply. On very rare occasions, the reply does verify.

Now let's not start a stampede and bombard the 89th MAW with reception reports. All along it has been the policy to verify reception reports. Why, on rare occasions, they do at least answer, let alone verify, is one of the mysteries of life.

I'm not criticizing the preparers of these QSLs. They must follow ComSec regs and therefore circumstances demand this type of reply. But from a public image and practical point of view, I don't understand why the 89th MAW cannot be allowed to verify with a no data reply. Surely the security of the United States won't be compromised by issuing an official QSL card with the insignia of the 89th and the Presidential seal, along with a statement saying that "we are pleased to confirm your radio monitoring of Air Force One (or Two)." No date, time, frequency, transmission mode or location would be given, just that statement followed by something cordial and polite that would serve to round out the reply.

I fail to see the harm in such a practice of issuing an official QSL containing no data, but with a direct statement of verification. The very nature and mystique of Air Force One is a very strong incentive for utes to

THIS CONFIRMS RECEPTION

CALL SIGN _____

LOCATION _____

FREQ. _____ TIME _____ DATE _____

ANT. _____ MODE _____ POWER _____

SIGNATURE _____

AGENCY _____

THIS CONFIRMS RECEPTION BY _____
of Station: _____

(station name) _____ (location) _____

CALL LETTERS _____ FREQUENCY _____ kHz

ANTENNA _____ DISH NO. _____

DATE _____ TIME _____ QRP _____

OUTPUT POWER _____ (signature) _____

Two examples of homebrewed PFCs from Ed Bair and Mike Chabak.

send in reception reports. And many will do so regardless of the fact that *AF1* will not issue a valid verification. This means for those who handle the reception reports, decisions must be made as to which report to trash and which to honor with any type of reply. So for both sides, it is far from an ideal situation. If the White House really wants to project a positive public image (at least among the ranks of utility monitors), then why not adopt a policy of no data verifications via an official QSL card? ComSec would not be violated, while at the same time they would be giving radio buffs what they want—a valid verification. For those handling the reports, it would relieve the pick-and-choose burdens and having to draft those obtuse literary masterpieces.

Of course, it must be acknowledged that there is a broad segment of certain governmental and military comms that, for very good reasons, cannot be verified. But in the case of *Air Force One/Two* they are very much in the public eye. If the President flies to his summer retreat, or makes an official visit to a foreign nation, anyone who has access to a newspaper, TV, or radio knows about it well before it happens. Granted, certain comms coming/going to *AF1* should, by their nature, not be privy to the general public. But the bulk of reception reports sent in to *AF1* merely concern comm exchanges involving circuit checks and airborne movement activities of an aircraft that is very much in the public spotlight. So why is it so outrageous to suggest that these types of routine comms cannot be verified with an official no data reply?

PFC/PFL

While I'm on the subject of QSLs, utes know that many utility stations have no QSL card/letter, and therefore the monitor must supply a homebrewed form, if for no other reason than to acquire the data that they seek. Homebrewed QSLs take on many forms, ranging from the hand written to the more sophisticated types he or she has printed up. I'd like to show off your PFC/

PFL blanks in this column. They would serve to illustrate formats, configurations, and typical information being requested. This, in turn, would give others ideas on how to set up their own forms.

To start the ball rolling, I've shown two PFCs. Both were run off by a print shop and are designed to be sent to land stations. The top PFC is from Ed Bair of Audubon, New Jersey. The lower PFC is from your editor.

I hope all of your homebrew QSLers will join in and send me samples of your blank forms so I can show them off in this column.

NOAO Comms

As a ute, I enjoy latching onto comms that are often not of the run of the mill variety. One of these areas involves HF comms between astrophysical observatories. We're accustomed to visualizing astronomers as people who peer through telescopes, take fantastic photographs of the heavens, or analyze data coming in from a radio telescope array.

Observatories do communicate on HF frequencies, passing scientific data and other items related to the everyday goings on at their facilities. These comms can be in voice or RTTY modes.

Of the several astrophysical nets in operation, one has more or less been regularly encountered, especially by those who live west of the Mississippi. Here, we will take a look at this net.

The NSF (National Science Foundation) sponsors AURA, the Association of Universities for Research in Astronomy. AURA in turn operates NOAO, the National Optical Astronomy Observatories. There are only two stations in this net—the Kitt Peak National Observatory, located SW of Tucson, Arizona, and the Cerro Tololo Inter-American Observatory, located in central Chile. The transmitting facility for Kitt Peak is adjacent to the University of Arizona campus and uses the call letters KFK-92. Cerro Tololo has its transmitter at La Serena, with the call letters of XQ8AF1. Both utilize multi-element yagi antennas with a power output of 1 kW for simplex operations.

Frequency 20876 kHz is the primary day frequency, although it is a ballpark frequency, for depending on the transmission mode (USB, LSB, ASCII 110/850), comms can appear from 20875 to 20878.5 kHz. The time frame of operations normally follows the 9 to 5, Monday through Friday routine.

The net is casual in that a variety of voice idents can be heard. Kitt Peak can ID as KFK-92, Kitt Peak, or even Tucson, Cerro Tololo as XQ8AF1, La Serena, or Cerro Tololo. The comm net is an open type, meaning the transmitter is always up and one merely presses the mike to initiate contact. As I said, much of the comms involve technical topics, and where required, both sites can provide phone patches to scientists not at the transmitter facility. At other times, comms are of a more down-to-earth nature, such as setting up travel arrangements for visiting scientists. There is no need to know Spanish, for all voice comms are in English.

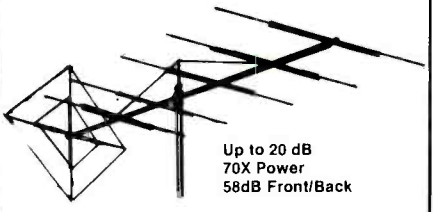
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4091 Viscount Memphis, TN 38118 901/794-9494



Barry Breitenbach of Glendale, Arizona monitors from this attractive station.

One fly in the ointment is that it is apparent that radio logs are not kept.

The frequency of 10190 kHz is also listed for this net, but has rarely been heard. Presumably, this is a nighttime frequency for use when required. Neither has a QSL card, so it would be wise to send along a PFC. Be sure to include 2 IRCs to Cerro Tololo. XQ8AF1 is known to verify, but the policy for KFK-92 is uncertain. The mailing addresses are: Asociacion de Universidades para Investigaciones en Astromomia, Observatorio Interamericano de Cerro Tololo—XQ8AF1, Casilla 603, La Serena, CHILE, and NOAA/AURA, Kitt Peak Transmitter KFK-92, CTIO Support Office, 1715 East 2nd Street, Tucson, AZ 85719.

If any of you have solid information on the other astrophysical nets (frequencies, modes, operating times, station idents, and mailing addresses), please send it along so I can share this data with other readers.

Mailing Addresses

Here are some more addresses for a variety of ute stations:

Mataveri Aero—CAI7E
Casa #3
Recinto Fach
Isla de Pascua (Easter Island)
CHILE

San Francisco Marine Radio—KPH
RCA Global Communications
17400 Sir Francis Drake Blvd.
Point Reyes Station, CA 94956

Grenge! Metro—DHN37
Amt Fur Wehrgeophysik
Beratungszentrale—T3
5000 Koln 90
FEDERAL REPUBLIC OF GERMANY

Bull Harbour Coast Guard Radio—VAG
Transport Canada, PO Box 7000
Port Hardy, BC V0N 2P0
CANADA

Saint Anthony Coast Guard Radio—VCM
PO Box 157
Saint Anthony, NFLD A0K 4S0
CANADA

Observatoire de Paris—FTN 87
61 Avenue de L'Observatoire
75014 Paris, FRANCE

Royal New Zealand Naval Radio
HMNZS Irirangi
Military Camp
Waiouru, NEW ZEALAND

Australian NAVCOMMSTA Canberra
HMAS Harman
Canberra ACT 2600 AUSTRALIA

Honolulu Marine Radio—WLX
Dillingham Tug & Barge Corp.
711 Nimitz Highway
Honolulu, HI 96817

Gander Aeradio—VFG
Flight Services Area Supervisor
Transport Canada
89 Edinburgh Avenue
Gander, NFLD A1V 1C9
CANADA

USCG COMMSTA Kodiak—NOJ
PO Box 17
Kodiak, AK 99619

USCG Radio Miami—NMA
16001 SW 117th Avenue
Miami, FL 33177

USCG COMMSTA Boston—NMF
Marshfield, MA 02050

USCG COMMSTA San Francisco—NMC
PO Box 560
Point Reyes Station, CA 94956

USCG COMMSTA Honolulu—NMO
FPO San Francisco, CA 96613

USCG RADSTA Guam—NRV
PO Box 149 NAVCOMMSTA
FPO San Francisco, CA 96630

USNAVCOMMSTA AOK
FPO New York, NY 09539

USNAVCOMMSTA Norfolk—NAM
Aera Master Station LANT
Norfolk, VA 23511

USNAVCOMMSTA Balboa—NBA
FPO New York, NY 09580

Metro Station WBR-70
FAA Overseas Sector Field Office
14715 SW 128th Street
Miami, FL 33196

My thanks to Mike Hardester, Julian Harris, and George Zeller for these addresses.

Intercepts Section BY DON SCHIMMEL

Reader Tom Borawski, Pennsylvania has reported on a CW transmission that appears to be a training broadcast or is masked to resemble a training function. The frequency was 7704 kHz at 0455Z and the message heading was: BT -R- 030200Z APR 85 - GR 100 BT and was followed by a text of 5L groups. Each element in the heading was repeated twice. This type traffic is identical to some I heard on 4622.5 kHz during a time frame of 0300-0400Z and all such messages also had APR 85 after the DTG. Upon completion of a message, it would be repeated and then on to the next message. No callsigns were recovered.

Tom also forwarded information on a Belgian Army CW activity that is related to SHAPE (Supreme Headquarters of the Allied Powers in Europe). The message was passed from ONY26/27 Rouveroy, Bel-

gium to ONY24 (Unlocated) at 2155Z. The heading was HZ 001 273 -Z- GRNC BT and was followed by a cipher text of a string of 21 letters, then BT AR. There is a similarity between the above and a text logged by Steve Johnston, Florida on 4780 kHz at 0423Z, which was previously reported in Communications Confidential.

Another interesting activity reported by Tom was his coverage of some INTERPOL CW transmissions on 15739 kHz at 2050Z. French and English texts were sent and callsigns noted were: WWA-USA, HK3M-Bogota, Colombia, ZPZ-Asuncion, Paraguay, LUK-Argentina, XQA5G-Chile.

In answer to queries from several readers, the addresses of contributors are not retained. Selected loggings are identified by the person's name and their state, and once the item has been typed up, the letters and cards are discarded. The volume of items received precludes retaining all of these materials. One source of names and addresses of SWL enthusiasts is the *DXer's Directory*, which was compiled by Fred Osterman. It is available from Universal Shortwave Radio Research, 1280 Aida Drive, Reynoldsburg, Ohio 43068. The book lists SWLers by location and by name, and also contains information on SWL clubs. The cost is \$4.95 plus \$1.05 for shipping/handling. If you are interested in contacting a fellow SWLer, this is a handy reference book for you to have.

Several requests have been received asking for information on the communications of suspected drug smugglers and Customs/DEA networks. There are three very good references I know of: September 1982 *POP'COMM* page 19; December 1983 *POP'COMM* page 8; and Grove's *SW Directory* (second edition) page 140.

In addition to these, INTERPOL stations sometimes carry information about drug matters. A rather complete rundown on INTERPOL frequencies and callsigns appeared in the June 1985 *POP'COMM* on page 9.

An informative letter was received from Jerry Starr of radio broadcast station WHOT in Youngstown, Ohio. Here is what he had to say:

"Although I am not really a shortwave listener (except when I have the need to set my clock), I do scan down through the shortwave articles in *POP'COMM*.

"In the September 1985 issue, you reported propagation experiments on 3500 kHz, located at the transmitter site of WLW in Cincinnati.

"I have been to the WLW site as recently as three weeks ago, and there are no unusual antennas in evidence there. However, just a few thousand feet down the same road from WLW in Mason, Ohio is the huge VOA antenna farm, so perhaps if some experiments are being made I would suggest that they are coming from the VOA installation, not WLW's transmitter.

"This VOA plant is largely decommissioned and inactive, so it is possible that some of the unused gear might be put to use experimentally.

"I don't know where your reporter got this information, but I think that the above may help clear the confusion. WLW's transmitter and the VOA facility are literally a stone's throw from each other."

Thanks, Jerry for the clarification.

350: ME Chicago O'Hare Int'l. Airport CW beacon at 0140. Station broadcasts WX for midwest cities (S. Lieb, IL) My records show this beacon as Chicago O'Hare Airport although reader Lieb reported it as Chicago Midway--Ed.

388: NXX Willow Grove PA, MCW beacon at Willow Grove NAS at 2125. (Thomas Borawski PA)

530: KNID798 TIS station, Stapleton Airport, Denver CO, 24-hr. parking info. (Griffith CO). This station previously reported on 540 kHz--Ed.

2182: NMC Cape May NJ USCG in USB with WX BC at 0111; also VCK Sept. Iles PQ CG calling all stations at 0252 (Robert Ross, ON)

2582: VCM St. Anthony NF CG in USB calling un-ID station at 0732 (Ross, ON)

2598: VCS Halifax NS CG WX in USB at 0203 (Ross, ON) Also VCP St. Lawrence NF WX at 0442.

2670: NMG New Orleans LA USCG USB WX BC at 0401 (Ross, ON) Also NMF Boston WX at 0445. NNN70 Chincoteague VA WX at 0233, NNN37 Atlantic Beach NC WX at 0103, NMC San Francisco calling USCGC BLACKHAW' at 0641. Don Edwards in CA reports NMB Charleston SC with Notice to Mariners in USB at 0420.

3330: CHU Time Signals, Ottawa ON in AM with ID on the minute at 0301. Ann. EE/FF (Pastrick, PA)

3933.7: K5CVD Houston LSB controlling Gulf Coast Hurricane Net in emergency session from 0530. WX, tornado warning, power outages, evacuation information, & attempts to contact Army MARS station in FL (A. Nonymous, TX)

4025: Army MARS station in SSB with net at 2216 (Pastrick, PA)

4118: WYN4109, an oil rig in Gulf of Mexico in USB at 0728 working WLO (R. Margolis, IL)

4125: Seattle CG Radio via Canadian CG Station Tofino in LSB with marine forecast at 0504. Good channel to listen for Alaskan marine traffic (Jeffrey Hall, WA)

4376: NMF Boston USCG with rescue traffic re disabled trawler, USB at 0450 (Edwards, CA)

4428.6: EE/YL high seas WX in SSB with N. Atlantic & Caribbean marine WX at 0401 (Pastrick, PA)

4513: 0A (Zero A) in CW with 5F groups at 0420 (Borawski, PA)

4575: Un-ID MCW station with 5F groups at 0410. All numbers sent full. Preamble just had GR56 (Borawski, PA)

4575: Canadian Nat'l. Forest Service, Campbell River BC in LSB of 0520. Duplex tfc from fire-fighters' base requesting additional personnel, supplies, payroll via supply helo MIKE GULF INDIA (Hall, WA)

4599.5: Rocky Mountain Div. CAP with net check-in for CO Wing at 0000 daily. Net control station is PIKES PEAK (Griffith, CO)

4639: GF6699 (barge) in USB at 0710, northbound on the Tennessee River (Borawski, PA)

5696: USCG tfc in USB at 1540. One station asking another for Lat/Long of hospital in Panama City FL (Lieb, IL)

5734:GG/YL with 5F groups, AM at 0345 (Borawski)

5810: SS/YL with 4F groups, AM at 0533 (Mike Chinakos, WA)

5975: MCW station with 5L groups at 0655. Preamble format like that on 4575 kHz (Borawski)

6210.4: 2 OM's in USB at 1117. One called BLONDIE asked for "200 brownies"(?). Drug smugglers? (Ross, ON)

6212.4: WGG St. Louis MO in USB, YL op working ships on inland waterways at 1122 (Ross, ON)

6337: IDQ Rome Naval Radio, CW call tape at 0321 (Lingenfield, VA)

6389: EBA Modrid Naval Radio, Spoin, CW call tape at 0145 (Lingenfield, VA)

6506.4: NNM USCG Commsta Portsmouth VA working USCGC DEPENDABLE (WMEC626) in USB at 0035. Mentioned unclassified RTTY freq of 7528 kHz. E. Coast sea/WX synopsis at 0410 then Caribbean at 0418 & Gulf of Mexico at 0411 (Griffith, CO)

6564.5: SS/OM in USB giving numbers 1 at a time at 0325. Ended with "grupo" then music & SS radio program (Lieb, IL)

6679: KVM70 Honolulu HI with WX in USB at 0631 (Ross, ON)

6761: USAF SAC "Quebec" channel with SKYKING BC in USB at 0451 (Pastrick, PA)

6770: "Atencion 444 67." SS/YL 5F groups, AM voice at 0700 (Borawski, PA)

6797: SS/YL 4F groups AM voice of 0508. Coll

up was 947 1-0, into CW tones at 0510 followed by "Grupo Dos Uno Siete" then 4F tfc (Hall WA)

6810: SS/YL with 4F groups, AM voice 0509 (Chinakos, WA)

6840: EE/YL with 5F groups, AM voice 2225 (Borawski, PA)

6893: SS/YL 5F groups, AM voice at 0507. YL may not have been Hispanic (Hall, WA)

7235.7: Space Shuttle audio, DISCOVERY and Mission Control from Flight 511, USB at 0800 (Allen Lieu, CA)

7660: UJY2 Kaliningrad USSR DE CLN78 Havana with CW callup at 0530 (Borawski, PA)

7848: SS/YL, AM voice 5F groups 0805 (Borawski)

7888: SS/YL, AM voice 5F groups 0740 (Borawski)

7906: "K" marker in FSK at 0055. Reportedly located in USSR (Borawski, PA)

7910: SS/YL, AM voice 5F groups 0810 (Borawski)

8291.1: KUZ523, Coordinated Caribbean Transit, Miami FL working STENA HISPANIA, a Maltese roll-on/roll-off cargo ship, USB at 1247. At 1254 Houston heard working tug VALIANT, and at 1302 3EYF3 CARIBBEAN VENTURE was working Miami FL (Margolis, IL)

8294.2: WCHF Barge FREELINE CONSUMER calling KEJ New Orleans LA, USB at 1422 (Margolis, IL)

8383: HBEZ, M/V CELERINA, a Swiss bulk carrier, CW traffic in EE & FF at 0440 (Margolis, IL)

8388: SYMD, M/V BULK TRADER, enroute Houston to Antwerp (Belgium) with CW traffic at 0517 (Margolis, IL)

8394: GBGQ, M/V FORT CALGARY, a British bulk carrier with CW Telex to London via Portishead at 0237 (Margolis, IL)

8420: SS/YL with 4F groups, AM voice 0403 (Margolis, IL)

8421: UNIL, M/V KAPITAN SVIRIDOV, a Soviet bulk carrier/container ship, CW telegams to UAT Moscow at 0521 (Margolis, IL)

8441.5: SXA36 Spata-Attikis Naval Radio, Greece with CW marker at 0220. A new frequency. (Margolis, IL)

8462: CUB Funchal, Madiera Islands, CW marker at 0201 (Lingenfield, VA)

8602: CWA Cerrito, Uruguay, CW marker 0204 (Lingenfield, VA)

8795: Radiotelefonico Publico, Tampico, Mexico, USB in SS with marine BC at 0300 (Hall, WA)

8796: WOO Ocean Gate NJ, USB WX followed by traffic for ships at 2100 (Lieb, IL)

8997: Christchurch NZ, USB at 0520 working US military aircraft XD-04 & XD-05. Requesting position rpts & WX info (Hall, WA)

9111.7: SS/YL with 5F groups, USB at 1334. Could not be monitored in usual AM mode (Margolis)

10132: RCV Moscow Naval Radio calling Soviet ships with callsigns EYNH & UAHY, CW at 2115 (Borawski, PA)

10853: Un-ID CW station, Russian characters noted with 5L groups at 2306 (Borawski, PA)

11067: CW #'s 494-1-6852 then into 5F groups at 2121 (Borawski, PA)

11243: USAF SAC comms, SKYKING to RACIPPON in USB discussing WX over Indiana at 1615 (Pastrick)

11545: GG/YL 5F groups USB at 0115-0117 (Margolis, IL)

11593: G6C(?) in CW with crypto message NR 14 that had phonetics in 1st few groups, at 0115 (Borawski, PA)

12421.3: WJBG, M/V OVERSEAS OHIO, working KHT Cedar Rapids IA, USB at 1426 (Margolis)

12429.2: KUF773, Sun Services, Marcus Hook PA working WSDX (M/V PRINCE WILLIAMS SOUND) & KLAC (M/V TROPIC SUN), USB 1700. At 1708, KSLG (un-ID ship) heard calling WRF. At 1815 KUX Western Ocean Products, San Diego CA called vessel SCORPIO (Margolis)

12434: WRT803500 (vessel) to KDS (un-ID shore station), USB at 1640. Vessel disabled, seeking tow (Borawski, PA)

12576: URK Soviet shore station from UHBK (Soviet ship), CW at 1940 (Borawski, PA)

12615: Arabesque music marker, AM mode 2112. (Margolis, IL)

12645: RJF Unlocated in USSR from Soviet ships RMEU, UHGO, UAQU. RIW Khiva Naval Radio, Uzbek SSR, from ship UXFZ. All in CW from 0000-0100 (John Witherspoon, CA)

12662: 7TA8 Algiers, Algeria, CW marker at 1730 (Lingenfield, VA)

12687: OGJ4 Helsinki, Finland, CW marker at 1740 (Lingenfield, VA)

12747: MIKE INDIA WHISKEY 2, EE/YL in AM voice repeating call 1917. Off at 1920. Believed to be Mossad (Israeli Intelligence agency). (Borawski)

12979: ICB Genoa, Italy, CW marker at 2025 (Lingenfield, VA)

13131.8: WOO Miami FL working WINDSPRINT and other craft, USB at 2010 (Tom Aldrich, IA)

13173.6: 174-174-174-1 repeated in CW 1341-1345. Then came 253-4T-253-4T followed by 5F groups with zero "cut" as T. Ran till 1348 (Margolis)

13282: Honolulu Radio HI with Volmer, USB at 0130 (Griffith, CO)

13390: COV851: Havana Naval Radio, Cuba, news in SS via CW to ships at 1316 (Margolis)

13630: KDM50, FAA at Hampton GA working KBU97, KSB53, KDM45, in USB at 1330 (Margolis)

14588: SS/YL in AM mode with 5F groups at 2105 (Borawski, PA)

15021: CAPE RADIO testing in USB at 2150. Calling 9-NOVEMBER and 9-ECHO and asking for some (TV?) test patterns (Aldrich, IA)

15048: US mil aircraft SAM502 working ROYAL CROWN via Andrews AFB in USB at 1807. Traffic re VIP requirements (Hall, WA)

16808: UVWI, unknown Soviet ship with encrypted WX in CW at 1737. Preamble was "TU FM KOMMUN-IST/UVWI" (Borawski, PA)

16812: UXH, unlocated Soviet shore station to ships UNWI and UNUV in CW at 1830. Used procedure signal GUHOR meaning "QSA 0" (Borawski)

16906: YIR Bastah, Iraq, CW marker at 1941 (Lingenfield, VA)

16944: YUR Rijeka, Yugoslavia, CW marker at 1730 (Borawski, PA)

17016: "C" marker in CW at 1947 (Lingenfield)

17068: OXZ lnygby, Denmark, CW marker at 1820 (Borawski, PA)

17185: SVB6, Athens, Greece, CW marker at 2025 (Lingenfield, VA)

17239: EE/OM in SSB announcing "National Weather Service, San Francisco," s/off at 1900 (Pastrick)

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Panamanian passenger ship Festivale is among 25,000 vessels worldwide that use RTTY or CW to send messages. (Photo courtesy Carnival Cruise Lines)

Response to this column has been stupendous, as is evident by the massiveness of this month's batch of RTTY loggings. Thanks to everyone who has given their support to the column. Your generosity in sharing your loggings with other people has encouraged some of them to take up this aspect of the shortwave radio monitoring hobby for the first time, as was expressed in their letters.

One thing surprising about RTTY monitoring was learned by this columnist: there are more utility station monitors interested in RTTY than was imagined. Out of every five persons who log utility stations, two of them use RTTY demodulators.

Since this is your column, of which this editor is just a curator and feature-article writer, feel free to share your monitoring skills with your comrades. Maybe you enjoy monitoring military RTTY, maritime RTTY, or governmental RTTY. Tell us why and share your innermost thoughts on some of the stations you may have monitored.

Let's try to convert other utility buffs to RTTY monitoring. The more we can convert, the more information will be available for the rest of us. Soon we might find that more than 50 percent have taken up RTTY viewing. Won't that be something?

Now, without further chattering, let's switch on the clattering RTTY machine and see why RTTY monitoring is so fascinating.

4174: The Soviet missile-tracking vessel KOSMONAUT YURI GAGARIN noted at 0159 sending telegrams to Odessa R., USSR, 170/66N. An hour earlier, GBQD, FORT COULONGE, a British tanker that had been chartered by Petroleos Mexicanos, sent Telexes in Spanish & English in ARQ mode (Editor's logging).

4499: AFA2MY sending telegrams to AGA8HI 170/45R at 0235. USAF MARS (Kneitel, NY).
4739: GYU, the Royal Navy Base at Gibraltar noted at 0434, 850/100. (Charles E. Blanchard, Aurora, IL) Welcome to this column, Charles!
4785.4: DHJ51, Gregel Meteo, W. Germany, w/telemetry data at 1200, 425/66N (SFC David G. Freed, KCA6LE, US Army, Frankfurt, W. Germany). Glad to have you join us, Sarge! You're sure lucky to be in the thick of all those juicy European, Asian & African RTTY stations, many of which are impossible for us to monitor from North America!
4950: LGAT, with an RYRY tape at 0251. Oddball shift about 600 Hz, 50 Baud (Tom Kneitel, NY).
5459.8: WWV45, Tangier, Morocco, w/financial news & feature stories in English, 425/100N at 1545 (Freed, W. Germany).
5737: 9GC, Accra Aero, Ghana, at 0621, 425/66 (Blanchard, IL).
6263.4: KWJE, LAY BARGE 29, sending a daily job report to WLO, Mobile R., AL, in ARQ mode at 0507 (Editor's logging).
6267: VRKE, SPLENDOR, a Cypriot tanker w/Telex to Hong Kong via unknown shore station, ARQ mode at 0415 (Editor's logging).
6357: 72JKL, Madrid Naval R., Spain, with RYRY & SSGS to 78EAL, another Spanish naval unit, 0430, 850/100R (Editor's logging).
6668.3: "K6W," a Peruvian military unit w/traffic, 850/66N, no time given (Fred Hetherington, Ormond Beach, FL).
6775.3: YOG37, Bucharest Meteo, Romania, 1601 w/weather data, 425/66N (Freed, W. Germany).
7327.9: JAE27, Jiji, Tokyo, Japan, w/news in Spanish to S. America at 1047, 850/66R (Hetherington, FL).
7605.3: FUG, La Regine Naval R., France, at 0023 w/encrypted traffic, 850/133N (Hetherington, FL).
7658: YZD, TANJUG, Belgrade, Yugoslavia, w/English news BC at 1700, 425/66N (Freed, W. Germany).
7682: GXQ, Royal Army, London, England, with foxes, 170/66R at 2220 (Hetherington, FL).
7796: "LMMM" testing w/Ry's at 0333, 425/66R (Dallas Williams, Sedgwick, CO). The ID is used by Luga Aeradio, Malta--Ed.
7810.3: VMA, Melbourne, Australia, w/foxes at 2140, 850/100R (Hetherington, FL).
7880.1: Y7K25, MFA, Berlin, E. Germany, testing its transmitter with Ry's at 0115, 425/66N. Y2H8 also of E. Berlin, used to occupy this freq. but haven't logged it lately (Hetherington, FL).
7962.3: MKF, Royal Air Force, Akrotiti, Cyprus,

w/test tape transmission of foxes & RYRY at 1530, 170/66N (Freed, W. Germany). Back home, we usually find MKD sending RYI's instead of RY's--Ed.

7980.3: Y3K7, Potsdam Meteo, E. Germany, weather data at 2155, 850/133R (Hetherington, FL).

8155: CLA220, PTT, Havana, Cuba, at 0545, 425/66 (Blanchard, IL).

8345: SQGF, WINETA, a Polish fish transport, sending a vessel report via KFS, San Francisco R., CA, to NON, USCG training facility in Alameda CA, at 0111 in ARQ (Editor's logging).

8347: Swedish container ship ATLANTIC SONG w/Telexes sent via SAB, Goteborg R., Sweden, ARQ at 0016 (Editor's logging).

8349.4: Amateur radio operator EA7YK from Spain on board un-ID Liberian ship w/callsign ELAC9 working NMF, USCG in Boston MA, ARQ at 2158. The op at NMF couldn't figure out if the ham was on official ship business or just trying to get a QSL from NMF! (Editor's logging).

8350: J4LJ, AMAZON, a Greek general dry cargo ship w/Telex to London via GKP, Portishead R., England, 2320 in ARQ (Editor's logging).

8350.5: UYDI, GALILEO GAILEI, a Soviet motor tanker w/telegrams to Navarossisk R., USSR at 2250, ARQ mode. This vessel was built in Italy & that's why it was named after the famed Italian astronomer (Editor's logging).

8354.4: "BAT ANTARKTIDA," some type of Soviet vessel, w/telegrams to Sevastopol R., USSR, 170/66N at 0525. Ship said it was in the process of transiting the "Panamaskij Kanal" (Editor's logging).

8356: HPFG, FESTIVALE, a Panamanian-flag luxury cruise ship (see photo), w/Telex via WLO, 0621 in ARQ (Editor's logging).

8464: 72JKL at 0439, 850/100 (Blanchard, IL).

8580: UQA4, un-ID Soviet station, at 0217, 170/66N (Blanchard, IL).

9155: "GVAC" testing w/RYRY, 850/66N at 0240 (Williams, CO). This may be a Canadian Forces unit. Anybody know for sure?--Ed.

9155: D4B, Pedre Lume Aero, Cape Verde, at 0554, 850/66 (Blanchard, IL).

9226: TJK, ASECNA, Douala, Cameroon, RYRY tape at 0245, 425/66N (Williams, CO).

9232: D4B, as on 9155 kHz, at 0521 (Blanchard, IL).

9429.8: ZAT, ATA, Tirana, Albania, w/news in English, heavy propaganda slant, at 1447, 425/66N (Freed, W. Germany). I once heard it said, "News is propaganda but propaganda is not news."--Ed.

10099: CLN281, PTT, Havana, Cuba, at 1344, 425/66 (Blanchard, IL).

10114: CLN281 observed here at 1358 (Blanchard, IL).

10137.1: TNL96/TNL97, Brazzaville, Congo, w/RYRY at 2227, 575/50N (Kneitel, NY).

10805: Buenos Aires, Argentina, relaying UPI news in Spanish at 0220, 850/66N (Williams, CO).

10972: Tangier, Morocco, news in English at 2245, 425/75N (Kneitel, NY).

11230: HMR56, Pyongyang, North Korea, news in French at 2255, unknown shift at 50 Baud (Kneitel, NY).

11496: SOL349, PAP, Warsaw, Poland, at 1358, 425/66 (Blanchard, IL).

12212.6: YZ07, TANJUG, Belgrade, Yugoslavia w/news in English, 425/66N at 1100 (Freed, W. Germany).

12494: Finnish cargo ship "ATLANTIC STREAM" at 2026 w/Telexes via SAB, ARQ mode (Editor's logging).

12497: PEVE, ICELANDIC, a Dutch refig cargo vessel working PCH, AQR mode at 1914 (Editor's logging).

12501.5: HJNY, CIUDAD DE BARRANCABERMEJA, a Colombian tanker w/Telex via WCC, 1448 in ARQ (Editor's logging).

12517: LDPS, NORDANGER, a Norwegian chemical tanker, and LFFG, HARDANGER, a Norwegian combo liquefied gas carrier & chemical tanker, both w/AMVERs to LGB at various times & on different days, ARQ (Editor's logging).

12517.5: DHAO, ADRIANO, a W. German bulk carrier enroute Canada to load wheat, w/Telex to Montreal via FFT6, ARQ at 2026 (Editor's logging).

12519: GOXX, CAVENDISH, a British liquefied gas carrying vessel w/weather report; EGWM, VITORIA, a Spanish tanker w/Telex; GBSA, AUTHOR,

a British container ship w/Telex; & AL AMIRAH, a Qatari cargo vessel w/Telex; all being sent to GKA, Ppourtishead R. in England, various times, ARQ mode (Editor's loggings).

12725: "THE VERY QUICK BROWN FOX..." repeated continuously w/o ID at 0207, 850/100R (Williams, CO). It's being sent by a USN unit as they commonly use this working in test tapes-- Ed.

12933: Plaintext & encrypted traffic from 78EAL to 72JKL, both units of Spanish Navy headquartered in Madrid, 850/100N at 1800 (Freed, W. Germany).

12992.9: Un-ID station sending what appeared to be telegrams in Russian or an E. European language at 1440, 850/66N. S/off 1500 (Freed, W. Germany).

13074.5: FFT61, St. Lys R., France, w/Telex to French oil tanker "BRISSAC" at 1608, ARQ (Editor's logging).

13090: WCC Chatham R., MA at 1734 w/Telex to 9VUE, MAERSK SELETAR, a Singaporean bulk carrier that was enroute from UK to US, in ARQ mode (Editor's logging).

13400: LZG3, BTA, Sofia, Bulgaria, w/news in English, 425/66R at 1341 (Editor's logging).

13435: Y7A53, MFA, Berlin E. Germany, at 1609, 425/55 (Blanchard, IL).

13440: YZJ5, TANJUG, Belgrade, Yugoslavia, at 1730 w/news in English, 425/66N (Freed, W. Germany).

13502: YWM1, Maracaibo Naval R., Venezuela, w/test tape "DESDE LA ESCUELA DE GUERRA" ("From the war school") & RYRY to NBA, USN at Balboa, Panama, at 1405, 850/66R (Editor's logging).

13520: SXP of INTERPOL, Athens, Greece, w/traffic in English, ARQ at 1625. This was only 2nd time in 2 years I've been able to monitor INTERPOL on this freq. Usually the USN occupies this frequency with encrypted RTTY that completely covers INTERPOL's transmissions & it's a rare moment when the Navy's RTTY machines are silent (Editor's logging).

13524.2: Y1071, INA, Baghdad, Iraq, w/English news re Iran/Iraq war, 170/66N at 1541 (Freed, W. Germany) Wanna bet that INA didn't claim Iran was winning the war?-- Ed.

13529: RVW53, Moscow Meeo, USSR, at 1350, 750/66 (Blanchard, IL).

13550.8: NPX, US Navy, Amundsen-Scott station, Antarctica, at 0240, 850/100N (Dominic Cana., unlisted address). Sorry, Dom, couldn't make out the remaining letters in your handwritten name, or any indication of where you live. But welcome to the column!-- Ed.

13975: NGB, US Navy, McMurdo Sound, Antarctica, w/"penguin" test, 170/100R at 0230 (Cana...)

14500: XJJ250, undetermined QTH, w/RYRY, 425/66R at 1450. I have nothing on this one (Williams, CO). Neither do I. Callsign comes from Canadian series, but whether this station is actually in Canada or is elsewhere isn't known. Can any reader add information?-- Ed.

14764: A9M70, GNA, Manama, Bahrain, w/news & weather in English, at 1505, 350/100R (Williams, CO).

14785: ATP65, INFOIND, New Delhi, India, w/news in English at 1500, 425/66N (Williams, CO).

14808: Y2V24, ADN, Berlin, East Germany, at 1313, 425/66 (Blanchard, IL).

14901: CLN451, TASS, Havana, Cuba, at 1327, 425/66. At 1759, CLN450, PL, Havana observed here (Blanchard, IL).

14938: 5UA, ASEUCA, Niamey, Niger, w/RYRY at 1944, 600/66R (Williams, CO).

16012: FDY, French Air Force, Orleans, France, at 1628, 425/66 (Blanchard, IL).

16164: D2J31, ANGOP, Luanda, Angola, w/news in Spanish, 200/66R at 1935 (Williams, CO).

16353: News in English from TASS at 1845, 425/50R (Kneitel, NY).

16448: Un-ID station calling itself "JMS." Same format & t/c as on 16682 kHz. Was 500/66R at 2230 (Williams, CO). See 16682 kHz listing for comments on this one-- Ed.

16682: Station using "KAC" as its ID w/4646 test tape at 2100, 500/66R. Followed by QTC list & single 5L groups message. S/off at 2100. "KAC is the callsign of NOAA at Woods Hole MA, however I am not convinced that this & the NOAA station are the same. A station using the same format & ID also logged on 14391 kHz, & in each case, all messages started w/number-group 11177." (Williams, CO). Whenever you hear a test tape running 4646's, it means the operator has forgotten to shift back to the "letters" mode so that it would read as RYRY's. Also, I have observed this same "KAC" format & have determined that it coming from Cuba. Your RTTY setting indication confirms this because Cuba is at that setting. The "11177" appears on all coded numbers messages from the E. German embassy in Havana, based upon my observations-- Ed.

16705: UQDW, the Soviet tug "MB-0004," w/5F grouped coded messages to Murmansk R., USSR, 170/66N at 1441. All "MB" designated vessels

are various types of tugs built in Finland (Editor's logging).

18526: CLN573, PTT, Havana, Cuba, at 1418, 425/66 (Blanchard, IL).

18700.4: DFN48HI, DPA, Hamburg, W. Germany, w/news in English, 425/66N at 1200 (Freed, W. Germany).

18736.6: 5TN244, PTT, Nouakchott, Mauretania, w/banking messages in French, at 1450, 60/66N (Hetherington, FL).

18965.3: FUM, French Naval R., Papeete, French Polynesia, testing at 1715, 850/133R (Hetherington, FL).

18985.1: OLD2, CETEKA, Prague, Czechoslovakia, w/news in English at 1200, 425/66R (Hetherington, FL).

Before bidding 73's to you this month, your column editor has two small favors to ask. First, if a personal response is required

in your correspondence with me, would you kindly include an SASE? (I have received a few letters wanting information but containing no return envelope.) Second, questions of a technical nature, such as evaluation of RTTY equipment and different brands of computers, should be directed to manufacturers, shops, or dealers who advertise in POP'COMM. These people work directly with them and have the expertise to handle your questions. I will gladly answer non-technical questions pertaining to RTTY monitoring, either within these pages or privately, whichever route you choose. Thanks!

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WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

For half a year shortwave listeners have been mystified by a strong broadcaster playing nothing but music during its two hour transmissions each morning and evening. Much of the music aired sounded like a Spanish version of the late Nat King Cole, and so the station was quickly dubbed "Radio Nat King Cole." Never were there any announcements and never was there a variation in the precise start and stop times of the transmission.

But midnight arrived for this station in late September. It was time to unmask and let us know who we'd been dancing with. Lo and behold it was a stranger who still won't give us anything more than his name. The station began regular programming, identifying as Radio Caiman (alligator). It is obviously a clandestine broadcaster, beaming a very laid-back message to Cuba. Broadcasts are on 9.960 and begin daily at 0000 and 1100 GMT, although they don't last for a specific amount of time any more. Sometimes the broadcasts run less than an hour, sometimes it's as long as an hour and a half. Programs feature a "Radorama" information block and "La Voz de Juventud" pop music youth show with song titles announced in both Spanish and English. There are no mentions of the station's backers or its location. But, thanks to members of the DX South Florida group and their contacts, we know that the transmitter seems to be located just north of Guatemala City.

From that same source comes information that the anti-Nicaraguan clandestine, Radio Monimbo (6.230), is apparently transmitting from a site near La Libertad, El Salvador. Both Radio Caiman and Radio Monimbo have a lot in common for clandestines: both are highly professional sounding, both maintain themselves on stable frequencies (as opposed to most Latin clandestines, which skip around a lot to avoid jamming), and neither announce any backers or location. Both keep their eyes on the clock. It sounds to us as if the CIA is knee-deep in clandestine broadcasting again!

From the name, you might think that Radio Lira International was an Italian pirate broadcaster, but it's about as far away from that as you can get. Radio Lira is an old time Costa Rican station that has just been purchased by Adventist World Radio. The religious group is adding a shortwave outlet to the existing medium wave facility and, according to their construction schedule, should be on the air by the time you read this. The new station will be located at Alajuela, near San Jose, and will air programs mostly in Spanish, although about 10% will be in English and they plan to add some Portuguese later on. Frequencies aren't known



James Morgan of Maine sends in this cardboard pennant from RAE in Argentina.

yet, but should be in the 25 and 49 meter bands. AWR already operates Union Radio on shortwave from Guatemala City.

Two more religious broadcasters are getting set to go on the air from the United States. KVOH, the High Adventure Ministries station at Rancho Simi, California was expecting to hit the airwaves around Thanksgiving, 1985. Times and frequencies remain to be set.

High Adventure operates the Voice of Hope/King of Hope stations in Southern Lebanon (6.215) and their latest fund appeal letter notes that the heavy fighting in the area has meant the soldiers guarding the station have had to be switched over to active fighting. Therefore, the station is seeking an additional \$1,900 per month to hire its own guards.

The second religious station in the U.S. is World Harvest Radio, to be operated by La-Sea Broadcasting from near Nobelsville, Indiana. The 100 kilowatt station will beam evangelical messages to Europe, the Middle

East, North Africa, the Caribbean, and South America. The station announced a Christmas, 1985 target date.

Three new regional stations in Australia were to come on the air, one per month for the remainder of 1985. The stations are to be used to provide relays of domestic broadcasts to listeners in the Australian outback. The first station, from Alice Springs, was to have started in October, running from 0830 to 2230 on 2.310 and 2230-0830 on 4.835. The other two—Tennant Creek on 2.325 and 4.910 and Katherine on 2.485 and 5.025—were to follow. They should prove to be challenging targets.

Along with a fascination for monster 500 kilowatt transmitters, more relay set-ups and, more recently, call-in shows, the international broadcasters seem to have picked up on a new fad—tagging the word "international" onto their names. In recent years its been done by France, Sweden, Finland, New Zealand, Switzerland, and even Moscow for its French service. Now Austrian Radio is no more. ORF has gotten with it and now wants to be called Radio Austria International.

Listening Post readers who speak French might want to check into the Club ondes courtes du Quebec, which publishes a monthly bulletin *L'Onde* in French. The club also produces a regular listing of French language broadcasts in shortwave. For more information, send three IRCs to Club ondes courtes du Quebec, C.P. 37, Succ. Youville, Montreal, Quebec H2P 2V2, Canada.

The year-old Capitol DX'ers are engaged in a membership drive. The club's bulletin, *Radio Log West*, focuses on loggings within a 150 mile radius of Sacramento, California, but membership is open to anyone with an interest in radio. Coverage includes shortwave, utilities, and medium wave. Dues are \$10 per year, payable to Philip D. Reefer, \$21 Wright St., #19, Sacramento, CA 95825. One dollar would probably bring you a sample bulletin.

In The Mailbag

The mail this month brings a schedule from the Ghana Broadcasting Corporation, forwarded by John Miller of Thomasville, Georgia. The schedule shows the GBC-1 service on 4.915 at 0530-0805 (Saturdays and Sundays 0530-2200) and 1245-2200 in local languages. GBC-2 in English is on 3.366 at 0530-0805 (Saturdays and Sundays to 0900) and 1730 to 2200, and on 7.295 from 1200-1415 (Saturday and Sunday 0900-1500).

Raymond K. Taylor, who recently moved from Indiana to California, is also just getting



Michelle Shute has logged 111 countries at her Pensacola, Florida listening post.



Charles R. Costa of New Paltz, New York has been licensed as W2SIF since 1946 and, in addition to hamming, monitors the shortwave bands from his well-equipped shack.

reacquainted with shortwave after five years away. He says technology has "hyperspace jumped" over the last half-decade. Raymond believes the new generation of shortwave receivers makes the need for super high-power transmitters unnecessary. We'd have to agree, but just try and stop it!

James Morgan of Bangor, Maine wants to know where he can get a cassette tape of the Ray Briem Show special on shortwave from December, 1984, which was aired over the ABC Radio talk network. One DX'er was offering to dub these earlier this year, but we aren't sure if the offer still holds. Send three 90 minute blank cassettes and enough postage to get them back to you, to Stewart MacKenzie, ASWLC, 16182 Ballard Lane, Huntington Beach, CA 92649. If the offer is still good, Stewart will forward your request.

James has also just purchased a Japan Radio Company NRD 515 receiver and says he'd like to hear from others who own this set. You can do better than that. James. You can join the 515 Club, described as an "association of NRD-515 owners." Send a letter about yourself and your interests, a #10 SASE, and \$1 to Richard M. Oddie, 817 Virginia Court, Sonoma, CA 95476. Each issue of the bulletin will be available for \$1 and an SASE.

Guy Marcotte of Gaspé, Quebec had his eyes opened by a report from Tom Marcotte of Duson, Louisiana in a recent issue. Related, maybe? Anyway, Guy would like to hear from you, Tom. His address is C.P. 267, Gaspé, Quebec G0C 1R0, Canada.

Donald and Caroline Eaton of Avon Park, Florida are a husband and wife DX'ing team, although Caroline says Don gets into

the utilities and Hams more than she does. They're both in the hunt for the Falkland Islands Broadcasting Service, but haven't been successful yet. FIBS has pulled one of their occasional frequency switches, moving from 3.958 to 2.380. That leaves them free of Ham interference, but now you have to worry about much trickier propagation.

Chris Sweitzer in Gainesville, Florida is a student just getting into real listening, although he has listened to sports on AFRTS and used WWV for time and storm checks for some time. He got into it more deeply this summer and is beginning to see the first QSLs in the mailbox. Welcome, Chris. Hope you'll stay with it... and us!

Allen Linville, VE6BEQ of Edmonton, Alberta says he spent the last six months up in the Canadian Arctic looking for gold (he doesn't tell us if he found any!). Allen is back at the radio now and looking to add a more portable rig, which he can take with him on the bush plane.

Chuck Vesei in Niles, Michigan recently spent some time in Hungary and got an opportunity to visit Radio Budapest. Unfortunately, he says his pictures didn't turn out. That's a real shame, Charles. Unfortunately, the picture of your shack you said you sent wasn't in your letter, either.

Freddie Moore in Detroit wants more information on the Woodpecker Project we mentioned recently. The Woodpecker monitoring effort will be over by the time you read this, so there's no point to repeating that info here. You can send a self-addressed, stamped envelope to The Woodpecker Project at 1634 15th Street NW, Washington, DC 20009. Just guessing, but they may feel a need to do additional monitoring. At any rate, you can probably get their latest "Backscatter" newsletter.

Nice to have another report from Evelyn Hampton in Chicago, and good to meet you again at ANARC. Evelyn was one of the feminine team that surprised Radio Canada International's Ian McFarland on his birthday, presenting him with a pizza-size, decorated cookie.

We're happy to bring you one of your regular reporters in photo form this month. Michelle Shute of Pensacola, Florida has been listening for six years and counts 111 countries in her log. She's using a Panasonic RF-2600, Realistic DX-200, and a Bearcat III scanner.

Let's hear from you next month. Letters, comments, questions, information, schedules, clippings, and, of course, loggings, are always welcome. Please use only one side of the paper on loggings, leave room between each station item, and place your name and state abbreviation after each. It helps a lot!

Listening Reports

Here's what's on. All times are in GMT.

ALBANIA R. Tirana on 7.300 at 0338 in English, talk of the people's fight against various "isms." (Hampton, IL) 7.120 at 0233 with discussion of drug trade (Eaton, FL). 11.845 at 0840 in English, poor sig (Morgan, DE)

ALGERIA R. Algiers, 17.745 at 2011 with news & music; 15.215 at 2000-2029 rock DJ (Hommalin, RI).

ANGOLA E. Regional de Huila, 4.820 at 0431, tentative with commentary in unk lang, poor sigs (Tarte, MI)

ANTIGUA DW Relay on 6.120 in English 0530-0550 s/off (Linville, AB). 6.040 at 0104 news in English (Sweitzer, FL). 6.085 at 0235 world news in German (Aldrich, IA).

BBC Relay 9.510 at 0450 w/stock report, sked, ID (Hampton, IL). 1215 w/jazz (Northrup, WI). 0100 in English w/news & "Outlook" (Sweitzer, FL).

ARGENTINA RAE on 15.345 at 1734 w/tango & accordion music (Morgan, ME). 6.055 w/news in English at 0450 (Linville, AB).

ASCENSION ISLAND BBC Relay 15.260 at 2100 w/news in English & "Network UK" (Sweitzer, FL). 15.105 at 1835 in French (Marcotte, PQ).

AUSTRALIA R. Australia, 5.995 in Neo-Melanesian (sounds like Pidgin English). 1055 s/off on 5.995, 6.080 & 9.760 to Papua New Guinea, Solomons, New Caledonia & Vanuatu. Into English 1100 (Turim, NY). 9.580 at 1645 music variety feature about Vietnam (Aldrich, IA). 15.395 w/easy listening music, news, features to W. Pacific, Asia, Papua New Guinea, 2230-0400 //17.750 (Tarte, MI). 6.060 at 0825 in English w/ID for Asia/Pacific service (Hampton, IL). 17.795 w/French to 0200, then English //15.395. Strongest is 15.320 in French at same time (Tarte, MI).

ABC's VLQ9 at Brisbane on 9.660 at 0653, domestic programs in English (Brown, CA).

VLW15 on 15.425 at 0435 w/English news, "Report From Asia" (Johnson, NE). VNG Lyndhurst time station on 12.000 at 0711, ID 0714 (Johnson, NE).

AUSTRIA Austrian R. on 6.000 in English at 0354 w/mailbag (Shute, FL). 5.945 at 0350 w/mention of new freqs (Eaton, FL). 0330 w/"Report From Austria" (Miller, GA).

BELGIUM BRT Brussels at 0122 on 5.910 w/sports talk in English (Shute, FL). 2359 in Spanish w/interval signal, ID, news (Hampton, IL). 0125 w/"Musicbox" (Eaton, FL). 2050 in English w/"Belgium Today" (Morgan, NE).

BENIN ORTB Cotonou, 4.870 in French w/western & African pops at 2251 (Tarte, MI).

Parakou, 5.025 at 2230 in French w/African pops (Tarte, MI).

BOTSWANA R. Botswana on 3.356 at 0431. Commentary on Setswana, knocked out by RTTY at 0440 (Tarte, MI).

BRAZIL Radiabras, 11.745 in Portuguese at 0118, English at 0200; news & Brazilian history (Linville, AB). 0225 in English, s/off w/sked & list of personnel (Turim, NY).

R. Aparecida, 9.635 at 0140 in Portuguese; ballads, operatic arias, several announcements at 0200 (Paszkiwicz, WI).

R. Caraja, 2.420 at 0805 in Portuguese; tentative as no ID heard (Ross, ON).

R. Brazil Central, 4.985 at 0550 w/Latin music (Johnson, NE).

R. Inconfidencia, Belo Horizonte, 15.190 in Portuguese w/rapid-talking announcer at 0119 (Tarte, MI).

R. Bandeirantes, Sao Paulo, 11.925 at 0230 in Portuguese w/commercials & disco (Tarte, MI).

R. de Amazonas, Manaus, 4.805 w/languid Latin pops (Tarte, MI) What time?-- Ed.

R. Ribeirao Preto, 3.205 in Portuguese at 0749, ID on the hour by man (Ross, ON).

BULGARIA R. Sofia, 7.205 in English at 0356 (Hampton, IL). 9.700 w/listeners' contest at 2045 (King, NE). 7.205 in English at 0307 (Sweitzer, FL). 9.700 at 1750 in English (Morgan, ME).

BURKINA FASO RTV Burkina on 4.815 at 2259 w/collage of African pop, ID "Burkina" in French (Tarte, MI).

CAMEROON Yaounde at 0515 on 4.850 in English & at 2250 w/soukous music. Very strong (Tarte, MI).

Douala, 4.795 at 2248 w/modern jazz (Tarte, MI).

Garoua, 5.010 at 0510 w/flute & drum music, female announcer (Tarte, MI).

Bafoussam, 4.000 at 0456 in French w/songs, xylophone music (Hampton, IL).

CANADA R. Canada International, 5.960 at 0000 in English w/news, sports, weather, "RCI Journal" (Sweitzer, FL). 15.325 at 1745-1800 in French w/African service (Morgan, ME). 15.260 at 1807 w/"Listeners' Notebook" (Aldrich, IA). 11.940 at 0200 in un-ID language, 9.650 w/news (Northrup, WI). 11.945 at 2120 in English w/"SWL Digest" (Hampton, IL).

CBC Northern Quebec Service, at 1436 in English (Hampton, IL).

CFRX Toronto, 6.070 at 0058 w/"Morning Train" show (Eaton, FL). 1240 w/"White Wine Taste-Off" (Hampton, IL).

CENTRAL AFRICAN REPUBLIC R. Centre-africain, Bangui, 5.035 at 0510 in French w/highlife music. Also 2259 w/athem & s/off (Tarte, MI).



If you log any of the Papua New Guinea regional stations and send a reception report, this is the QSL you'll probably receive. (Courtesy of Richard Rupp, Albuquerque, New Mexico)

CHAD R. Nationale Tchadienne, 4.9045 at 0515 commentary in vernaculars (Tarte, MI).
CHILE R. Nacional, 15.140 in Spanish, good at 1920 (Morgan, ME).
CHINA R. Beijing, 7.135 at 1213 w/drama in English. Also 1205 on 9.535/9.730 at 1330 (Northrup, WI). 11.970 at 0330 w/Chinese music (King, NE). English on 15.200 at 0000 w/news & sports (Eaton, FL). 11.860 at 0758 w/"Let's Speak Chinese" (Morgan, ME).
CLANDESTINE R. Caiman, 9.960 at 0110 to 0115 s/off & 1145 to 1215 s/off w/pop music, anti-Castro remarks. "La Hora de Juventud" at 1200 some days. Some commentary noted in English (Paszkievicz, WI).
R. Venceremos in Spanish on 6.561 at 0125 w/man & woman announcer. Woman mentioned FM broadcasts & played the "Venceremos Revolutionary Song" (Shute, FL).
COLOMBIA Ondas del Meta, 4.885 at 0808 in Spanish w/carnival music, ID, songs (Hampton, IL).
R. Macarena, 5.975 at 1058 in Spanish w/ID's, time checks, music (Paszkievicz, WI).
Caracol Neiva/Colosal on 4.945 w/soft Latin music (Johnson, NE).

CUBA R. Havana at 0130 in English on 6.095/6.140 (Chinakos, WA). 15.300 at 1645 w/news English (Morgan, ME). 10.5902 at 0401 in Spanish w/ID, talk, music (weak w/ute QRM-- what are they doing there?)(Paszkievicz, WI) (Dunno, Sheryl, what were you doing up there?-- Ed.) 9.740 at 0230 w/"From The Land Of Music." Also 11.725 at 0245, 11.815 at 0157 s/off in Spanish (Northrup, WI).
CZECHOSLOVAKIA R. Prague, 5.930 at 0337 w/Czech pop music & dedications (Eaton, FL).
DENMARK R. Denmark on 15.165 at 1258, interval signal, ID in English, into Danish (Hemmalin)
ECUADOR R. Rio Amazonas, Macuma on 4.870 at 0230 in Spanish, Andean vocals, balads, ID's to s/off at 0337 (Paszkievicz, WI).
R. Zaracay, Sta. Domingo de los Colorados, 3.395 w/charango-based pop (Tarte, MI).
Sistema de Emisora Atalaya, Guayaquil, 4.792 w/up-tempo Latin pop, commercials. Fighting it out w/R. Atlantida on 4.790 (Tarte, MI).
La Voz del Zamora, Zamora, 4.905 w/ID over Andean flutes at 0215 w/Beatles & dated American pops (Tarte, MI). Hadn't known this was active-- Ed.
R. Catolica Nacional, 0205 s/off w/athem on 5.055. QRM from TIFC (Costa Rica) on same freq (Tarte, MI). 0111 with ID & religious talk (Ross, ON).
R. Splendit, Cuenca, 5.025 at 0310 w/nightclub style Latin crooning (Tarte, MI).
HCB, 21.748 at 1900 w/"Saludos Amigos" program in English (Aldrich, IA). 9.745 w/news "Guide For Family Living" (Eaton, FL).
ENGLAND BBC on 6.100 at 0230 in English, drama set in 1920's England (Turim, NY). 17.880 at 1700 w/World Service "News of the African World" (Aldrich, IA).
EQUATORIAL GUINEA R. Nacional, Bata, 4.9253 at 2150 in Spanish, rock, ID's, anthem s/off 2202 (Paszkievicz, WI).
FALKLAND ISLANDS Falkland Islands BC at 0920-0942 on 3.958 w/pop music, BBC news (Hemmalin, RI) Now reported moved back to 2.380-- Ed.
FINLAND R. Finland International, 15.400 at 1334 in English w/opening of Nordic Arts Center (Hampton, IL). 1105 w/"Helsinki Calling" (Eaton, FL). 0857 w/IS, ID in English & "Northern Report" (Morgan, ME).
FRANCE R. France International, French at 0445 on 5.990, severe QRM (Shute, FL).

7.120 at 0315 in English w/news to 0330 (Turim, NY). 17.620 at 1653 w/list of freqs, address in Paris, trad French music (Aldrich, IA).
GABON Africa No. One, 15.475 at 1730-1800 in French (Buckholtz, MI).
RTG Libreville, 4.777 at 0520 in French w/African paps (Tarte, MI).
GHANA GBC on 4.915 at 2215 w/acapella African choral music. Have yet to hear a shred of highlife on this station, odd since it originated in Ghana (Tarte, MI). Jazz originated in the USA & how much do you hear on our stations?-- Ed.
GBC-2, 3.366 at 0547 in English, calypso music, ID (Ross, ON). 0554 in English w/hymns, drums, clear ID (Hampton, IL).
GREECE V. of Greece on 9.905 at 0121 in Greek w/Greek music (Hampton, IL). 7.395 at 0136 in Greek (Shute, FL).
GUATEMALA R. Cultural, 3.300 at 0145 w/elevator music of a religious nature (Tarte, MI).
R. Chortis, Jocotan, Chiquimula, 3.380 at 0150. Ute QRM. (Tarte, MI).
GUINEA R. Nationale on 15.308 in French at 1600 (Buckholtz, VA). 4.910 at 2247 in vernacular w/native music (Tarte, MI).
GUYANA GBC on 5.950 at 0740 to 0909 w/wide variety of religious music & talk in English (Johnson, NE).
ICELAND Icelandic State R., 9.957 at 1513 in Icelandic. OM/YL talks (Morgan, ME).
INDIA All India R., 11.620 at 2220 in English w/Indian vocals & instrumentals, ID, address, sked (Paszkievicz, WI). 9.595 at 0030 w/music program, fair level (King, NE).
ISRAEL V. of Israel, 9.430 at 0409 in English w/news, into French (Hampton, IL). 9.815 at 2000 in English w/IS, ID, news. Also 9.435 to 2015 (Morgan, NE). 7.412 at 0107, mentioned no transmissions next day due to religious holiday (Eaton, FL).
JAPAN, R. Japan, 9.505 at 0700 w/current affairs & commentary. Poor to 0730 s/off (Morgan, NE). 9.605 at 1715, weak w/news (King, NE).
KAMPUCHEA V. of the People of Kampuchea, 11.938 at 1210 in Khmer w/exotic music, talk by woman on Soviets & Kampuchea (Hampton, IL).
KUWAIT R. Kuwait, 11.675 at 2000 "Soul With A Beat" (Miller, GA). World/local news at 1839 (Hemmalin, RI).
LATVIAN SSR R. Vilnius, via Moscow trans-

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mitters, 6.100 at 2145 w/music. Weak (King, NE).

LEBANON KING of Hope, 6.215 at 0508, very poor, tentative logging (Linville, AB).

R. V. of Lebanon, tentative on 6.549 at 0402 w/YL announcer in un-ID language. S/on w/music. Very weak (Shute, FL) Probably was-- Ed.

LESOTHO R. Lesotho, 4.800 at 1940-2130 local music, news, ID (Buckholtz, VA). 0427-0505, American pops, ID, world news, time checks (Ross, ON).

LIBERIA VOA Relay on 15.315 in French at 1845 (Marcotte, PQ).

LIBYA R. Jamohiriya, 15.450 at 1850, transmission to Africa, Arabic-interest news (Hemmalin, RI).

LUXEMBOURG R-T Luxembourg, 15.350 in French at 1900 (Marcotte, PQ). 6.090 at 0002 w/rock, commercials; program beamed to the UK (Hemmalin, RI).

MALAWI MBC, tentative at 0610-0640 on 3.380 in presumed Chichewa. Local/tribal music, drums. No ID! (Ross, ON).

MAURETANIA ORTM Nouakchott, 4.845 at 2250 w/native music, heavily distorted possibly due to fade-up of R. Bucaramanga in Colombia (Tarte, MI).

MEXICO R. Mexico International on 15.430 at 2256 in Spanish. Latin music, ID (Paszkievicz, WI).

MONACO Trans World R. at 0700 on 7.160, "Youth For Christ," religious music (Eaton, FL).

MONGOLIA R. Ulan Bator, 15.015 in English at 0830, ID. S/off 0840 (Morgan, BC).

NAMIBIA Southwest African BC Corp., English at 0450 on 3.295, report from Washington, elevator music. 3.270 at 0548 in vernacular, pop music, commercials, news, not as strong (Tarte, MI).

NETHERLANDS ANTILLES R. Netherlands Bonaire Relay, 9.590 at 0230 w/music & talk (Northrup, WI). 0501 in Dutch (Shute, FL). 21.685 w/"Happy Station" to 1925 s/off (Aldrich, IA). 9.630 in English at 0345 (Morgan, ME). 21.685 at 1851 w/"Shortwave Feedback" (Sweitzer, FL). 9.715 at 2102 w/"Images" & "Dutch by Radio". 6.165 at 0550 w/"Newline" (Eaton, FL).

Trans World R. Bonaire at 2215 in Spanish on 11.875 (Hampton, IL).

NEW CALEDONIA R. Noumea, 7.170 at 0836 in French. Beach Boys & pops (Hampton, IL).

NEW ZEALAND R. New Zealand International, 6.095 at 1041 in English, pretty weak w/1940's music (Turim, NY). 15.150 poor/fair at 2030 w/music (Brown, CA). 0454 w/"Music For Pleasure" (Johnson, NE). 9.600 at 1212 w/news & s/off (Northrup, WI).

NICARAGUA V. of Nicaragua, 6.014 music/news (Chinakos, WA). English at 0220, "a free voice in America..." (Aldrich, IA). 0438 in English, "Detained in the land of the free" (Hampton, IL).

NIGER ORTN Naimey, 5.020 at 0600 in French, news, announcements, flutes/drums between segments. No ID so tentative. (Paszkievicz, WI). 2239 tentative, in French (Tarte, MI).

NIGERIA V. of Nigeria, 7.255 at 0636 in French w/news (Hampton, IL). 0440 w/pop music, sked of government services for the morning, apparently interrupted by the coup. In English at 0515 on 4.820 w/reports about RSA plus sked of government services. Also 4.990 at 2243 to 2300 s/off (Tarte, MI).

Kaduna, 4.770 in English at 2300 s/off (Tarte, MI). 0515 in English w/news & commentaries about Africa (Johnson, NE).

NORTH KOREA R. Pyongyang, 9.975 (nominal 9.977-- Ed.) at 1210, S. Korea's proposal vs. N. Korea's (Northrup, WI). 9.745 at 1257 in Korean, military music, talks (Hampton, IL). 9.750 & 9.977 at 0731 (Morgan, ME).

NORWAY (R. Norway International, 15305 at 1725 features on life expectancy & health, church service at 1730 (Aldrich, IA). 1230 in English w/pop albums (Hampton, IL).

PAKISTAN R. Pakistan, 9.465 in French at 1925 (Marcotte, PQ).

PERU R. Eco, 5.010 at 0304 in Spanish w/rapid talk by man, ID (Paszkievicz, WI). R. Atanrida, Iquitos, 4.790 at 0206. Was QRM'd. (Tarte, MI).

POLAND R. Polonia, 7.270 at 1845 in English, to 1900 (Morgan, ME). 2230 in English w/IS, ID, news, "What We Said" (Paszkievicz, WI).

PORTUGAL R. Portugal, 15.285 at 1715 in Portuguese, musical variety (Aldrich, IA). 6.095 at 0030-0054 in English (Hemmalin, RI). 15.280 in French at 1840 (Marcotte, PQ).

ROMANIA R. Bucharest, 11940 at 0200, 100th anniversary celebration (King, NE). 5.990 w/world news at 0204 (Hemmalin, RI). 9.510 at 0418 in English, talk, ID, Listeners' Club (Hampton, IL).

SENEGAL ORTS Dakar, 4.890 at 2252 in French

w/guitar music, s/off at 0106 after news (Tarte, MI).

SOMALIA R. Mogadishu, 7.200 at 0300 in Somali w/national anthem, ID, Koran readings. QRM from Sofia/7.205. Have to catch this one when VOA isn't on freq (Paszkievicz, WI). 7.220 (whoa?-- Ed.) at 0329 in vernacular, pop music w/Afro-Arabian flavor (Tarte, MI).

SOUTH AFRICA SABC on 4.835 at 0420 w/agri journal, ID, news, religious messages (Miller, GA). 4.880 in Afrikaans w/financial reports at 0450 (Tarte, MI).

Capital R., Transkei on 3.930 at 0331 with bland pop music, woman announcer (Tarte, MI).

Radio RSA, 6.010 at 0217 w/ecology, pop music, "People of S. Africa" (Northrup, WI). 7.270 at 1705 w/"Africa Today" (Morgan, ME). Are all of your times GMT? Some seem a bit odd--Ed.

SOUTH KOREA R. Korea, 9.750 at 1408 in English w/political-economic dialogue (Hampton, IL).

SPAIN Spanish Foreign R., 9.630 at 0513 in English, editorials, sports report (Hampton, IL). 0124 w/discussion on growing awareness of Latin America (Eaton, FL). 2114 in English, also on 11.800 (Morgan, ME).

SWAZILAND Trans World R. on 4.760 at 0319 in language, African choir, religious program, s/off 0330 (Paszkievicz, WI).

SWITZERLAND SRI on 12035 at 2116 in English w/"Dateline." Info Spanish 2130 (no listener credit for this report). 9.885 w/news & Swiss folk music at 0130 (Eaton, FL).

SYRIA R. Damascus, 12.085 at 2019 in English w/news (Sweitzer, FL). 1938 in Arabic w/musical variety (Aldrich, IA). 2017 on 9.565 w/news & music (Eaton, FL).

TAHITI R. Tahiti, 11.826 at 0136 w/French pops. Good except for het (Shute, FL). 15.170 at 0300 w/international disco, also 11.825 at 0430 with island music (Johnson, NE).

TAIWAN V. of Free China, 6.070 in English at 0109 (Chinakos, WA). 9.680 at 0225, Taoist philosophy (Northrup, WI). 5.985 at 0621 in Chinese (Eaton, FL). All via WYFR (FL)-- Ed.

TOGO RTT, 5.047 at 2239 in French w/classical guitar (Tarte, MI). 0537 in French, wide variety of music (Johnson, NE).

RTT R. Kara, 3.222 at 0551 in French. Chants, songs, drum solo, flutes (Hampton, IL).

UKRAINIAN SSR R. Kiev (via RSR transmitters-- Ed.) 7.205 at 0030 w/regional news, features (King, NE). 7.155 in English, review of outstanding events of previous month (Turim, NY).

UNITED ARAB EMIRATES UAE R., Dubai 11.730 at 1235, English but QRM //15.300 (Morgan, ME). 1331 on 15.320 w/news, national interest program (Hemmalin, RI).

UNITED STATES AFRTS, 6.030 at 1203 w/UPI news. Also 0155 w/baseball on 11.790 (Northrup, WI). 15.330 news, program notes, newscalls (Sweitzer, FL).

KCBI International, 11.790 at 1700 w/country music show, mention of AM freq but no SW mention (Aldrich, IA). R. Earth via KCBI 1800

w/listeners' letters, "Skyline," "Swiss SW Merry Go Round," ads for Curacao, "SW Pandemonium" (Hampton, IL).

V. of America, 6.040 at 1530 w/Newsline to 1600 (Morgan, ME).

WRNO 6.185 at 0030 "World of Radio" (Morgan, ME) 7.355 at 0210, pop music, letters from listeners, sked (Turim, NY). 0145 w/Worldwide Dedication call-in (Eaton, FL).

R. Marti, 11.930 at 2218 w/rock (Hampton, IL). 9.660 at 0130 Latin American soul music (Eaton, FL).

WINB on 15.295 at 1812, evangelist on Liberals & the media (Aldrich, IA).

USSR R. Moscow, 9.600 (via Havana-- Ed.) news at 0200, 1207 in English on 9.795, 0220 on 12.340 and 2230 on 13.665 (Northrup, WI). 9.765 at 1845 "Science Question" (Eaton, FL). 9.600 at 0420 in English (Hampton, IL). 7.400 at 0130 news/commentary (Aldrich, IA).

UZBEK SSR R. Tashkent, 11.785 (via USSR transmitters) cultural program, weak at 1400 (King, NE).

VATICAN Vatican R., 6.015 in English at 0105-0110 w/open carrier to 0113 then into Spanish. QRM from Nicaragua (Hemmalin, RI).

VENEZUELA VYTO time station, 6.100 at 0652 time & announcement in Spanish (Eaton, FL).

R. Capital, Caracas, 4.850 at 0155 w/sports in Spanish, songs by Rosita Moreno, jingle ID's (Hampton, IL).

VIETNAM V. of Vietnam, 15.010 at 1917. Also at 1345 (Hemmalin, RI).

WEST GERMANY V. of Germany, 5.960 at 0520 in English w/news (Chinakos, WA). 6.145 at 0120 w/commentary & discussion of alcoholism in W. Germany (Eaton, FL).

Thanks and a tip 'o the hat to: James Morgan, Bangor, ME; Sheryl Paszkiewicz, Manitowoc, WI; Allen Linville, Edmonton, ALB; Chris Sweitzer, Gainesville, FL; Donald and Caroline Eaton, Avon Park, FL; Brian Buckholtz, Sterling, VA; Al Hemmalin, Middletown, RI; Robert S. Ross, London, ONT; Guy Marcotte, Gaspe, QUE; Mark A. Northrup, Milwaukee, WI; Mike Chinakos, Camus, WA; Randy King, Lincoln, NE; Bob Tarte, Grand Rapids, MI; Steven Johnson, Omaha, NE; Robert Brown, San Jose, CA; Evelyn Y. Hampton, Chicago, IL; Michelle Shute, Pensacola, FL; Tom Aldrich, Sioux Center, IA; and Gayle Turim, Brooklyn, NY.

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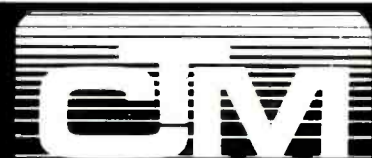
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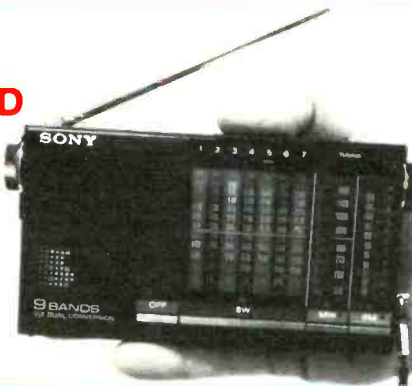
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related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.

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.

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Yaesu Electronics Corporation
6851 Walthall Way, Paramount, CA 90723
(213) 633-4007

Yaesu Cincinnati Service Center
9070 Gold Park Drive, Hamilton, OH 45011
(513) 874-3100



Prices and specifications subject to change without notice.
FRG-9600 SSB coverage: 60 to 460 MHz.

ICOM 25-1000MHz Plus!

IC-R7000



ICOM's commercial quality scanning receiver...Top quality at a gem of a price.

ICOM introduces the IC-R7000 advanced technology 25-2000MHz* continuous coverage communications receiver. With 99 owner programmable memories, the IC-R7000 covers low band, aircraft, marine, business, FM broadcast, amateur radio, emergency services, government and television bands.

Keyboard Entry. For simplified operation and quick

tuning, the IC-R7000 features direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency or by turning the main tuning knob.

99 Memories. The IC-R7000 has 99 memories available to store your favorite frequencies, including the operating mode. Memory channels may be called up by simply pressing the Memory switch, then rotating the memory channel knob, or by direct keyboard entry.

Scanning. A sophisticated scanning system provides instant access to most used frequencies. By depressing the Auto-M switch, the

IC-R7000 automatically memorizes frequencies in use while the unit is in the scan mode. This allows you to recall frequencies that were in use.

Other Outstanding Features:

- FM wide/FM narrow/AM/upper and lower SSB modes
- Six tuning speeds: 0.1, 1.0, 5, 10, 12.5 or 25KHz
- Dual color fluorescent display with memory channel readout and dimmer switch
- Compact Size: 4-3/8"H x 11 1/4"W x 10 7/8"D
- Dial lock, noise blanker, combined S-meter and center meter

- Optional RC-12 infrared remote controller
- Optional voice synthesizer. When recording, the voice synthesizer automatically announces the scanned signal frequency.

*Specifications guaranteed from 25-1000MHz and 1260-1300MHz. No coverage from 1000-1025MHz. No additional module required for coverage to approximately 2.0GHz.

See the IC-R7000 receiver at your local authorized ICOM dealer. Also available is the IC-R71A 0.1-30MHz general coverage receiver.

ALL THIS AT A PRICE YOU'LL APPRECIATE.

CIRCLE 115 ON READER SERVICE CARD



First in Communications

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All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. R7000985