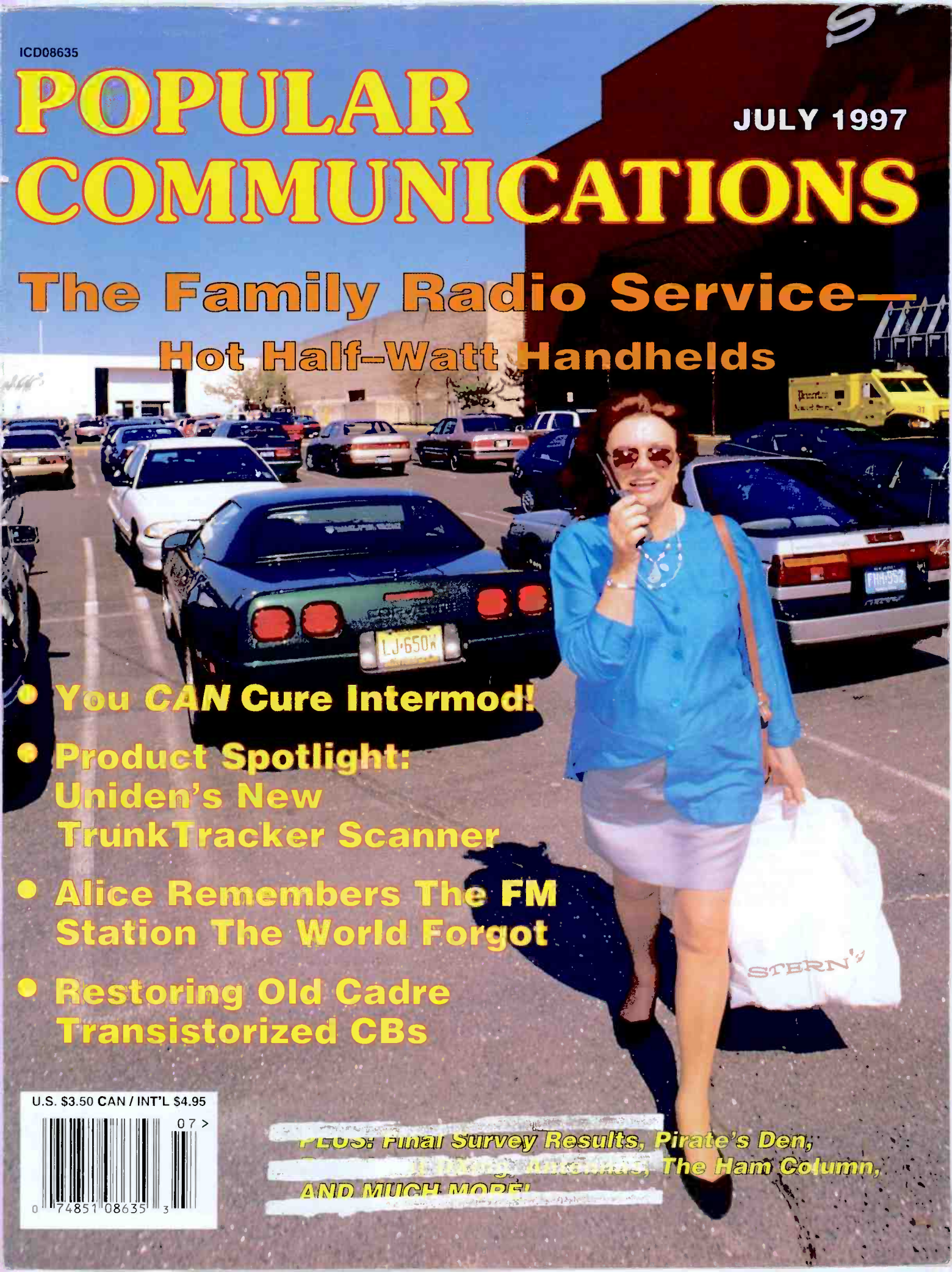
ICD08635

POPULAR COMMUNICATIONS

JULY 1997

The Family Radio Service—Hot Half-Watt Handhelds



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- **Memory:** 400 CH 4 banks
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AR3030G

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FEATURES: The AR3030G boasts a wide frequency coverage from 30kHz to 30MHz and all mode reception 'as standard': AM, S.AM (synchronous), NFM, USB, LSB, CW & FAX. There are 100 memory channels which allows data to retain frequency, mode, bandwidth, AGC, attenuator and tone etc. There are rear panel connections for low level audio output and tape recorder remote switching. I.F., output and AGC is also available through a rear panel connector. Computer control is possible through the RS232 rear panel port.

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1. Cell blocked, no blocks OK for FCC qualified users

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POPULAR COMMUNICATIONS

JULY 1997 VOLUME 15, NUMBER 11

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page 12

ON THE COVER: A New Jersey shopper uses her new Family Radio Service radio to call her husband from the mall. For more information on this new service, check out Gordon West's feature "Family Radio Service on the Air!" on page 8. (Photo by Larry Mulvehill.)

FEATURES

COLUMNS

DEPARTMENTS

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Shortwave Receivers Past & Present is your guide to over 500 communications receivers made from 1945-1996. This huge 351 page Second Edition includes 80 chapters representing: Collins, Cubic, Dansk, Drake, Eddystone, Galaxy, Gonset, Hallicrafters, Hammarlund, Heathkit, Icom, JRC, Kenwood, Knight, Lowe, Mackay, McKay Dymek, Morrow, National, Plessey, Racal, RME, Rohde & Schwarz, Sony, Squires-Sanders, Ten-Tec, Vigilant, W-J, Yaesu and many more. Entry information includes: receiver type, date sold, photograph, size & weight, features, reviews, specifications, new & used values, variants, value rating and availability. Become an instant receiver expert! *#0002* **$19.95** (+$2)

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- **Passport To Worldband Radio 1997** *By L. Magne*
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BY HAROLD ORT, N2RLL, SSB-596

Tuning In

AN EDITORIAL

The FRS, GMRS and the FCC Doing Battle

It seems the entire General Mobile Radio Service (GMRS) community is losing sleep over the new Family Radio Service (FRS), and frankly I couldn't figure out why—until I started looking at the FRS facts. Apparently there's more to this battle than the entry of the new FRS transceivers into the marketplace. Let's examine the issue.

The FCC has set aside 14 low-power UHF channels for the new FRS; these are designed for license-free, short-range voice communications that's seen as an alternative to the more technically oriented ham radio, the also-licensed GMRS, and the more crowded unlicensed CB radio service.

The 14 channels are wedged between (and somewhat overlap) licensed GMRS repeater input frequencies. As you might imagine, there's the problem—or is it? These FRS frequencies are as follows:

CH 1	462.5625
CH 2	462.5875
CH 3	462.6125
CH 4	462.6375
CH 5	462.6625
CH 6	462.6875
CH 7	462.7125
CH 8	467.5625
CH 9	467.5875
CH 10	467.6125
CH 11	467.6375
CH 12	467.6625
CH 13	467.6875
CH 14	467.7125

These new FRS transceivers are pocket-sized walkie-talkies that fall under the new FCC Part 95 UHF/FM rules. They typically cost from $130 to $200 and come complete with the non-removable rubber duck antenna and belt clip. Higher-priced units will have CTCSS tones that allow the user to set a sub-audible tone giving the added benefit of the user hearing his or her own units. Range for these one-half watt units is also fairly consistent at about a mile. OK, I'm sure there's someone out there who has gotten 385.5 miles over Lake Superior or in the Gulf of Mexico, but typically outdoors you'll find pretty good local neighborhood/downtown comms of about a mile. Much beyond that and you'll find yourself standing on truck roofs to increase your range! Of course out in the open with no obstructions—over the water, for example, you can get better range, often several miles. Ironically, the big guys—the full-featured GMRS handhelds with more power and with the added benefit of detachable antennas, longer-life battery packs and adaptability to mobile/base antennas cost nearly the same. The rub is the $60 fee for a five-year license (soon to be $70).

"My family and I talked on several FRS channels until the batteries died."

So there you are with Grandma and Aunt Wilma in downtown Willoughby using your new FRS transceivers. Unknown to you is the GMRS repeater on 462.675 MHz. This repeater's *input* frequency, 467.675 MHz lies right near FRS channel 12—the same channel you're using that afternoon. Is this a problem for either user? Yes, and no. The receiver of a GMRS repeater is designed to capture a relatively weak signal that is within a certain bandwidth; if the received signal is "off" slightly, there's a good chance the repeater might still pick up the signal, thereby possibly preventing a licensed GMRS mobile user out in the boondocks from accessing the repeater. The operative word here is "possibly."

Certainly each case would have to be individually checked out. You could take the better part of a beautiful summer afternoon testing for interference; have an FRS user begin transmitting, then simultaneously have a distant mobile try to access the repeater. You could stand a quarter mile from the repeater site and key up on the FRS channel nearest the repeater input frequency. You could do all these things repeatedly and *possibly* bring

(Continued on page 77)

POPULAR COMMUNICATIONS

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Pop'Comm P.O.

LETTERS TO THE EDITOR

Sharing Knowledge, Frequencies and Techniques

Each month we select representative reader letters for our Pop'Comm P.O. column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in Pop'Comm P.O. Address letters to: Harold Ort, N2RLL, SSB-596, Editor, *Popular Communications*, 76 N. Broadway, Hicksville, NY 11801-2909, or send e-mail via the Internet to <popularcom @aol .com>.

Talk About Scanning!

Dear Editor:

Let me take this opportunity to pontificate on the topics of promoting understanding and expansion of our scanning hobby. We all love to take every chance we get to seem like an expert on topics of which we are interested, myself included. So when someone sees me with my AOR handheld and inquires about what it is, I give them the answer in layman's terms, "It's a police scanner." That's when the questions really start to fly. "Aren't they illegal?" NO. "Can I listen?" YES. "How much do they cost?" I reply that some are less than $100. "Where can I buy one?" I tell them any good electronics or radio shop. What usually ends any further conversation on my part is the statement "Wow, that would be great to help rob a bank!"

This is where the promotion ends and the policing begins. It's our responsibility to make sure our hobby doesn't become someone's criminal enterprise. Recently in the county where I live, two men committed an armed robbery of a business in the southern part of the patrol district. While the local police were chasing them, another group, armed with guns and a scanner committed a robbery in the northern part of the patrol district. This to ME is no small coincidence.

For my part in policing our hobby, I have a couple of rules: Do not loan your scanner to anyone. Do not give law enforcement frequencies to anyone. Do not share any information you have gained about police procedures and routines with anyone. I only make exceptions to these rules for close friends and family whose reputation I can vouch for.

These rules should also be followed by dealers and mail order vendors of monitoring equipment. A local radio chain store gives out a printed sheet to scanner customers with all the local frequencies and voice codes for the area law enforcement agencies. This is totally irresponsible as well as poor business practice since they also sell a soft cover book with all the frequencies the novice could ever use, and it sells for no small change either. If you want to help someone get started, give them local fire/rescue, taxi, or airport frequencies. Make the criminal users work for their information the way we did when we started out. They probably won't make the extra effort because they don't want to work for anything as it is.

As you already know, 99.99 percent of monitors are good people ready to help if possible. For my own part, my listening lead to the apprehension of three armed car jacking suspects . . . score one for the good guys. It's up to all of us in the hobby to ensure the lawful use of the airwaves is not misused.

Joseph Walling
Riverdale, MD

Dear Joseph:

You're right, 99.99 percent of monitors are good people ready to help. But in all my years of promoting the hobby, people I've had the pleasure of talking with haven't even hinted at criminal use of a scanner. Typically they're concerned about the legality of listening and the cost factor. Perhaps you should refrain from dubbing the radio "a police scanner." Why not say it's a scanner that receives police, aircraft, government and even marine communications. That way you're sure to pique your listener's interest about *some* aspect of radio monitoring, not only police or public safety.

The use of a scanner in the commission of a crime goes way back to pre-programmable days, just like the use of guns, crowbars, flashlights, knives and all kinds of equipment that can be used for dastardly deeds. Think about it for a minute: If someone's intent on a life of crime, there's no textbook telling them where to get the guns, ammo, knives, rope, wire cutters, or scanners. They don't need one. These characters seem to instinctively sniff out the tools of their trade without any help from you and me. So keeping good, law-abiding citizens from monitoring the public airwaves accomplishes nothing. I think it's very important to share our knowledge, frequencies and monitoring techniques with interested newcomers. When I got my first scanner some 30 years ago, the dealer also gave me a sheet of frequencies (along with an address for obtaining crystals!) that helped me make sense of my new hobby.

Joseph, thanks for promoting our hobby and helping our law enforcement officials! That's what citizen monitoring is all about.

Call to Action

Dear Editor:

I've never had the need to write to your publication until I read J.T. Ward's article "Scanning Becomes Extinct." I believe that a dangerous precedent was set when the ECPA was enacted. This, for the first time, gives the government the power to tell a free people what we can and cannot listen to! This would be like the first Congress of the United States telling the people of the 13 states they couldn't read publication "A"!!

I agree and share Mr. Ward's concerns about the future, although my solution is a bit different. As a ham radio operator, I think it would be a waste of time to coax the ARRL to take up the battle. It should be an organization such as *Pop'Comm*. Now I know the first reaction is—"that will cost too much money" or "we don't have the time to do it!" I disagree. I believe that you should ask your readership in the next survey what their feelings are. For example: "Would you support financially *Pop'Comm*'s efforts to lobby to amend the ECPA to exempt law-abiding citizens?" Would you support *Pop'Comm*'s efforts to lobby Congress to keep the airwaves free from government encroachment?" . . . The

time is now for all of us to put our money where our mouths are. Let's stop complaining about it and do something!

Without some movement by those of us who believe in a free nation, eventually the day will come when the only thing my BC-3000, BC-9000 and PRO-2006 will be good for is listening to NOAA weather radio broadcasts!

Bob Reynolds, WB3DYE
Wilkes-Barre, PA

Dear Bob:

Here's what we'll do; we'll run your letter and see where it goes. Also, in your letter you suggested raising subscription prices to cover the cost of a paid lobby who could testify before Congress on behalf of the radio listening community. While a noble cause, we're not about to ask readers to underwrite such a task. It would probably cost much more in additional money and time I feel could be better spent by a massive letter-writing campaign as Bob has suggested. Writing and calling your representatives, local media and speaking with influential community leaders will, in my opinion, get better long term results. Sure it will take time—efforts like this always do, but it has to start somewhere.

Friends like officer Stefan Jagoe in KY who can attest to the value of citizen monitoring are vital in an effort such as this. How about it readers? Let's hear from the public safety professionals who recognize the value of citizen monitoring and disagree with the ECPA and other anti-monitoring laws!

Give 'Em Heck, Dave!

Dear Editor:

It's nice to know that I can always count on you hams not to disappoint when it comes to being high-handed. I speak, of course, of your never-ending drone about 11 meters.

You guys all sit there and talk like citizens band operators are so much dirt under your nails and come up with all these schemes to get your frequency band back. Newsflash!!! What, in God's name, makes you think that you'd get it back? There are around 30 to 40 million 11 meter radios out there and what, 600,000 hams? Are you really elitist enough to think that we'd stop using equipment we've got a lot of money invested in just because you say so?

Look guys, CB is here to stay, so get used to it. Sure, we've got some bad apples. But no more than you do. Some of the foulest language I ever heard on a radio was on 28.045, coming from operators with five-digit callsigns.

As for your precious licenses, big deal! I've got enough graduation certificates from Air Force Electronics Technical schools (I'm a retired HF communications technician) to wallpaper most of your hamshacks, but I don't wave them around like a Holy Grail and say I'm the only one who knows anything 'cause I've got one of these. You need to grow up and by the way, get rid of that anachronistic form of communications and grab a microphone. People won't laugh at your voice.

Dave Waits
OH

Dear Dave:

You've covered a lot of territory in your letter, but I think it's important to note that our mutually-enjoyable hobbies are all about *having fun*, communicating and serving our community in the process. Once we start taking ourselves too seriously, it's time to step back and examine the motivation for our actions. ■

World's Most Powerful CB and Amateur Mobile Antenna*

Lockheed Corp. Test Shows *Wilson 1000* CB Antenna Has 58% More Gain Than The K40 Antenna (on channel 40).

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

***Lockheed** - California Company*
A Division of Lockheed Corporation
Burbank, California 91520

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #670529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

58% MORE POWER GAIN THAN THE K40

Individual test results may vary upon actual use.

Guaranteed To Transmit and Receive Farther Than Any Other Mobile CB Antenna or Your Money Back**

New Design

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

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Family Radio Service on The Air!

No Test, No License and Plenty of Radio Fun

By Gordon West

There is BIG excitement over a little radio the size of a deck of cards. They have one-half watt output on UHF, narrow-band FM, 14 channels, phased lock loop synthesis, and full squelch, plus continuous tone coded squelch system (CTCSS). Minimum range within steel buildings is about 3,000 feet. Mountain top point-to-point range is greater than 80 miles! No license is required; there's no theory or code test. Welcome to the Family Radio Service!

Family Radio Service, abbreviated "FRS," is authorized by the Federal Communications Commission under Part 95, Subpart B, FRS Rule 3, Part 95.193 which says:

(A) You may use an FRS unit to conduct two-way voice communications with another person. You may use the FRS unit to transmit one-way communications only to establish communications with another person, send an emergency message, provide traveler assistance, make a voice page, or conduct a brief test.

The rules also indicate that tone signaling is perfectly acceptable, phone patch to interconnect to the public-switched network is not acceptable. Also noted is authorization to operate anywhere in the 50 United States and its territories, with no specific rules on what you can and cannot say over the airwaves, other than you can't use your little FRS unit to conduct any activity which is against federal, state, or local laws.

Is It Like CB?

Sounds a bit like Citizens Band? Actually, the Family Radio Service falls under the same Part 95 Personal Radio Services that the common Citizens Band is also under. And if you think about it, 40 years ago there was a Class A Citizens Band on UHF frequency pairs 462.xxx MHz/467.xxx MHz; the rules back then were much like the new rules today for Family Radio Service.

The whole idea of a short-range, no-license, no-skip, UHF Family Radio Service was developed by RadioShack's Robert Miller, K2RM. Miller saw the need for a multi-channel synthesized handheld with a minimum of one-half mile range to keep people in touch. Miller, an active ham radio operator, was looking for a radio service that would fulfill the requirements of family members and friends to stay in touch without having to pass a ham test, or without having to fill out complicated FCC licensing forms. Miller suggested frequencies that would straddle the already-in-place General Mobile Radio Service channels.

Motorola drew big crowds to their booth during FRS demonstrations.

These 8-plus-8 GMRS frequencies are authorized under FCC Part 95.29 for repeater and "talk-around" communications by licensed GMRS users. The General Mobile Radio Service is an offshoot of that original 40-plus year-old Class A CB radio service on UHF. GMRS is a no-nonsense, well-disciplined, radio service

GMRS Frequencies

Base Station, Mobile Relay Station, Fixed Station, or Mobile Station	Mobile Station, Control Station, or Fixed Station Operated in the Duplex Mode
CH 1 – 462.550 MHz	CH 1 – 467.550 MHz
CH 2 – 462.575 MHz	CH 2 – 467.575 MHz
CH 3 – 462.600 MHz	CH 3 – 467.600 MHz
CH 4 – 462.625 MHz	CH 4 – 467.625 MHz
CH 5 – 462.650 MHz	CH 5 – 467.650 MHz
CH 6 – 462.675 MHz	CH 6 – 467.675 MHz
CH 7 – 462.700 MHz	CH 7 – 467.700 MHz

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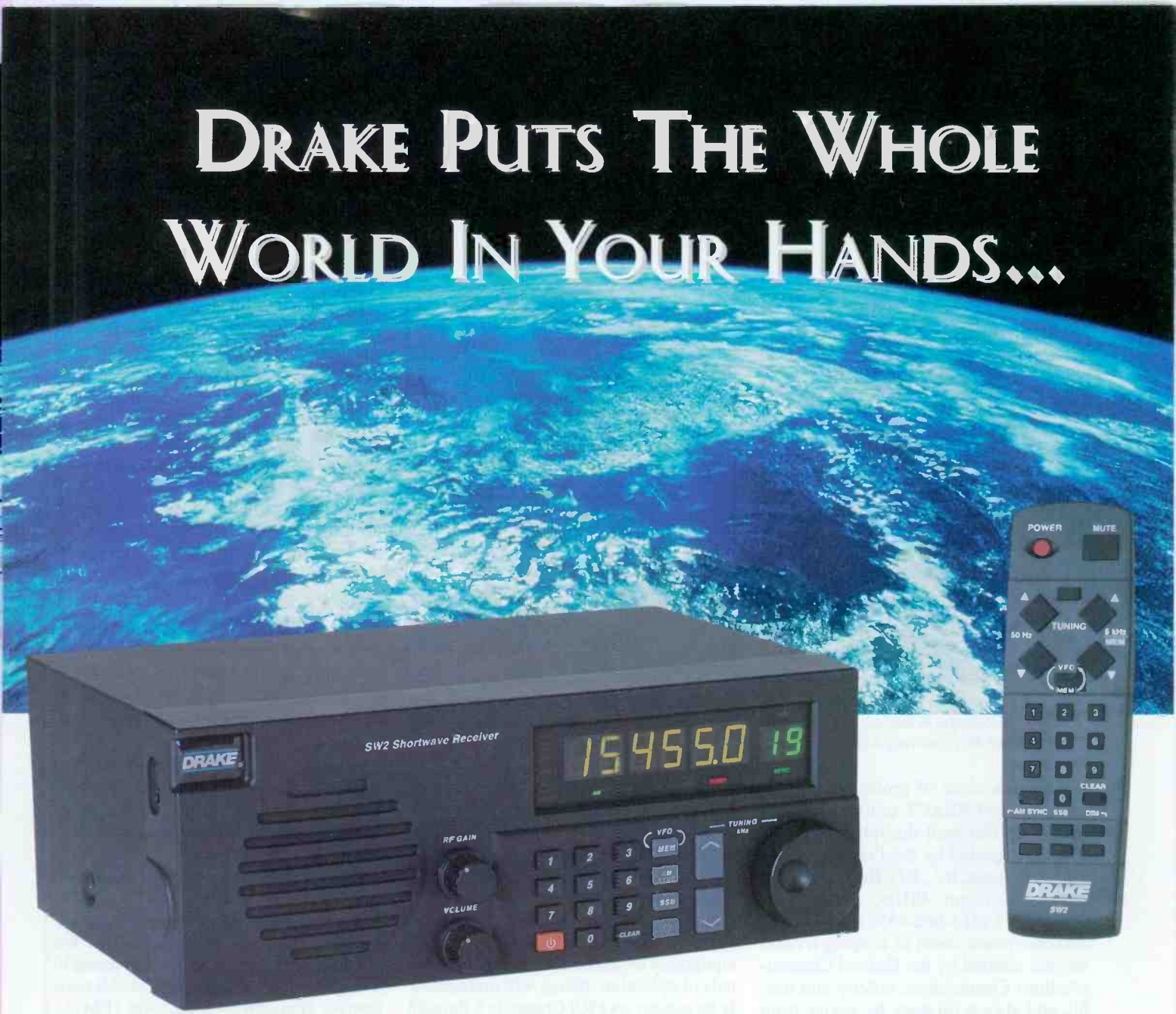

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DRAKE MADE IN AMERICA

FRS equipment transmits one-half watt on UHF simplex frequencies, +/- 3 kHz deviation FM. (Courtesy Alinco)

Motorola's TalkAbout two-way FRS radios are designed specifically for active families. (Courtesy Motorola)

serving thousands of professional radio operators and REACT units throughout the USA. The well-disciplined GMRS service is guided by the Personal Radio Steering Group, Inc., P.O. Box 2851, Ann Arbor, Michigan 48106, phone 313-MOBILE-3 (313-662-4533). The PRSG deserves much credit in keeping a radio service, created by the Federal Communications Commission, orderly and useful, and always on track by advice from their regular newsletter. Call or write the PRSG for more details if you're looking for a well-run repeater radio system for personal communications.

Family Radio Service communications operate *simplex only*, not through repeaters like GMRS. But as you can see by the frequency allocations, the Family Radio Service simplex communications stagger GMRS repeater output frequencies and mobile input frequencies. The FRS "interstitial" channels also duplicate seven simplex frequencies granted to GMRS low-power base stations and portable stations. The new Family Radio Service 14 UHF channels are sandwiched in between licensed users on GMRS frequencies.

The little Family Radio Service transceivers operate the same type of frequency modulation as GMRS units on these frequencies, but FRS equipment is limited to one-half watt output. FRS equipment also runs tighter deviation at 3 kHz. If there is a GMRS user on one of these frequencies running 5 watts at 5 kHz, they will definitely command the channel.

Since most Family Radio Service equipment is synthesized for all 14 channels of operation, things will undoubtedly be quieter on FRS Channels 8 through 14. But what is good for FRS unit-to-unit communications on Channels 8 through 14 may not necessarily be good to GMRS repeater inputs which straddle these higher FRS channels.

"Tests showed an alarming problem with a FRS radio with CTCSS when operated on a frequency adjacent to a GMRS repeater input, using the same tone," comments Bob Leef, well-known communications expert and member of REACT. "The repeater gets activated, and although voice was not always passed, the interference takes the form of repeater keying where licensed GMRS users must put up with the sound of repeater 'kerchunking'. This is a serious condition when the repeater was FRS-activated at seven miles from the site, and another at over 13 miles away from its site," comments Leef. "We hope people using FRS equipment will STAY OFF Channels 8 through 14," added Leef.

He raises a good point for FRS users to stay off of the higher channels when operating in commercial areas near potential GMRS repeater sites. It would also help to not necessarily run tone-coded squelch on transmit unless absolutely necessary in order to protect licensed adjacent-channel GMRS repeaters.

A Look at FRS Equipment

Family Radio Service equipment is readily available in the $149 per unit price bracket. You can spend less, but you may only get five or six channels. You can spend more and get all of the options. And no doubt, you will recognize many of the brand names: Motorola, RadioShack, Midland, Standard, Kenwood, Alinco, Maxon, and Cobra.

Almost all of these sets put out the maximum limit of one-half watt into their built-in antenna. Antennas are not allowed to be removable, and you are not allowed to extend your range by going to a bigger outside antenna system. All units operate frequency modulation (FM), 3 kHz deviation, and most also offer quiet channel monitoring using sub-audible tone decode.

The little Family Radio Service equipment will run about a day on internal alkaline "AA" or "AAA" batteries. Most also feature a battery-saving circuit which minimizes current when there is no one

FRS Channels

FRS Channel 1 – 462.5625 MHz	FRS Channel 8 – 467.5625 MHz
FRS Channel 2 – 462.5875 MHz	FRS Channel 9 – 467.5875 MHz
FRS Channel 3 – 462.6125 MHz	FRS Channel 10 – 467.6125 MHz
FRS Channel 4 – 462.6375 MHz	FRS Channel 11 – 467.6375 MHz
FRS Channel 5 – 462.6625 MHz	FRS Channel 12 – 467.6625 MHz
FRS Channel 6 – 462.6875 MHz	FRS Channel 13 – 467.6875 MHz
FRS Channel 7 – 462.7125 MHz	FRS Channel 14 – 467.7125 MHz

Shared GMRS/FRS Frequencies

462.5625 MHz	462.6625 MHz
462.5875 MHz	462.6875 MHz
462.6125 MHz	462.7125 MHz
462.6375 MHz	

coming through your squelched channel.

Typical range in a residential neighborhood is about one mile between FRS units. Inside shopping malls, range may drop down to 300 yards, but out in the open, one-half watt on 462 MHz, 467 MHz channels goes line-of-sight plus about 20 percent from refraction over snow, ice, and water. It's not unusual for a family to stay in touch from an open fishing skiff back to base camp over five to seven miles. This is generally a lot better than what you could do with a pair of five-watt, Class D, 27 MHz, CB walkie-talkies, and it's a lot further than what you could ever expect with a pair of 49 MHz low-power handhelds.

When it comes to maximum range, the record is well over 100 miles between a pair of FRS units from one mountain top to another on a line-of-sight basis. I expect to see radio hobbyists try to punch through 200 miles on a hot summer afternoon, taking advantage of tropospheric ducting. One-half watt goes a heck of a long way!

The new Kenwood 14-channel FRS transceiver. (Courtesy Kenwood)

FRS is a great way to stay in touch at conventions. (Photo by Gordon West)

Some Family Radio Service operators have turned their little handhelds into quasi-repeater stations. They use voice-activated transmit circuits, and create their own input and output portable repeater system.

There are also digital store-and-forward simplex "repeaters" that will listen for 30 seconds, and then digitize the conversation back out on the same frequency. There have also been attempts to inductively couple external antennas onto the little rubber antenna—and as long as you don't make a direct connection, this method could possibly extend your range if you can do it just right. But remember, going into the actual antenna circuit on an FRS unit would not be allowed.

The intent of the FRS is a family radio service where mom and dad can chat, and still keep track of the kids out on the lake, or in that big shopping mall. FRS can satisfy the needs of small shop owners that may need to communicate from the front room to a warehouse next door. FRS is a great way to stay in touch when visiting a theme park, or a huge shopping mall where kids might get separated from the rest of the party.

It's thought that FRS will soon be one of the hottest hobby bands around for those operators wanting a taste of no-license radio, and an introduction on what they might do with more powerful equipment if they were to obtain their amateur radio ticket or realize the capabilities of other commercial radio services. FRS is hopefully not going to turn into whistles, hoots, and howls that presently create chaos on Class D Citizens Band. Since FRS base stations are not allowed on an outside antenna, it's doubtful it will appeal to those type of operators. However, to the radio hobbyist wanting to break a new long-range record on UHF, FRS is a fun way to get started out on the airwaves.■

The Midland 75-510 14-channel FRS transceiver has many features including auto power save. (Courtesy Midland International)

The FM Station The World Forgot

Gone for Nearly 50 Years, We Locate Its Old Antenna!

By Alice Brannigan

Although several FM broadcast stations had been operated beginning in 1941, prior to World War II, it was the war itself that forced this exciting new technology to develop at an enhanced pace. Mobile communications systems were deployed in combat areas —virtually all using FM by war's end in 1945. And then, FM was being promoted to the public as the next major advancement in radio broadcasting, providing several distinct advantages over AM broadcasting, static-free reception, nighttime reception unaffected by fading and interference from distant stations, and improved audio fidelity. In 1945, the FCC even claimed FM was the "preferred" mode of broadcasting, vaguely hinting that they would allow it to phase out AM.

The 1941 FCC allocations for FM broadcasting had been in the 42–50 MHz band. In May, 1945, the old band was replaced by 100 channels in a new 88–108 MHz FM band. Broadcasters were pleased to learn that it would cost less to put an FM station on the air than an AM station. Early FM supporters saw the potentials for quality programming of classical music and operas in order to take fullest advantage of the high fidelity that FM provided.

Equipment manufacturers carefully began testing the new market with expensive FM tuners, receivers, and a few AM/FM receivers. The public was not stampeding to buy these, being somewhat confused about what FM was, or would be when it eventually developed with many stations to be heard.

The 42 MHz stations shifted to the new 88 MHz band. Many radio industry eggheads predicted a rosy future for FM. Broadcasters were intrigued by FM's potentials, with a rugged contingent willing to face the risks involved in trying to establish their own early foothold on a fledgling band with an as yet undeveloped audience. By 1946, only 55 American commercial and educational FM stations were in operation, with 401 more authorized, but not yet in operation, plus 250 pending. About 85 percent of the new FM licenses were granted AM licensees as either a hedge against the demise of AM radio or to discourage potential local competition from another broadcaster.

The old KONG-FM tower and five-bay antenna shown at the right in this photo taken last year, nearly half a century after the station went dark! (Photo by Jan Lowry, Castaic, CA).

Enter KONG-FM

In early 1946, California had only two commercial FM broadcasters; KHJ-FM and KMGM in Los Angeles. On November 20, 1946, the FCC gave a Conditional Grant for the state's next commercial broadcaster. This was for the first commercial FM station in the Bay area, and was issued to Abraham and Sara F. Kofman, doing business as the Times-Star Publishing Company.

Authorized operation was on 105.9 MHz with 750 watts, thus providing coverage of the metropolitan area. The proposed station (to use the call letters KONG-FM) was to be located in the Alameda Times-Star Building, 1516 Oak Street, Alameda. On June 12, 1947, just prior to going on the air, KONG-FM was reassigned to operate on 104.9 MHz.

The station's 278-foot tall tower and five bay antenna were installed at the three story "art deco" style newspaper building on Oak Street, under the direction of Chief Engineer Merlin W. Hagg.

KONG-FM scheduled its initial airdate for Friday, Sept. 19, 1947. When it commenced operations, KONG-FM had an initial roster of 22 advertisers. But the Bay area had too few FM receivers in operation for KONG-FM to build an audience. Industry pundits had indeed been too enthusiastic in their initial forecasts of the general public's interest in static-free reception and classical music.

Pioneer FM stations owned by networks and local AM stations were often willing and able to operate FM outlets at a financial loss while they hoped their FM audiences would develop. On the other hand, many independent FM stations found that the continuing financial drain was more than they could sustain for an indefinite period. Such was the case with KONG-FM.

After only about a year of operating, it was decided to withdraw KONG-FM

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Famous for its top-gun DX receivers, Japan Radio once again pioneers with a new receiver. Only the NRD-345 offers Japan Radio performance and quality at a surprisingly affordable price.

The NRD-345 delivers hour-after-hour of listening pleasure with synchronous AM detection to help tame fading, dual IF filter bandwidths (with a third optional), and high dynamic range. Compact, light, and refined, the NRD-345 offers advanced multifunctions, 100 memory channels, and even personal computer control. The NRD-345 brings shortwave listeners an outstanding value in a high-performance receiver for under $1,000.

- Synchronous AM, AM, CW, SSB, and FAX modes.
- 0.1 to 30 MHz coverage.
- Dual IF filter bandwidths, 4 kHz and 2 kHz, with optional filter position.
- High sensitivity and wide dynamic range. The RF amplifier and first mixer in the front-end incorporate four low-noise junction-type FETs with excellent cross modulation characteristics to ensure both high sensitivity and high dynamic range.
- 100 memories that store frequency, mode, AGC time constant, ATT on/off, VFO, IF filter bandwidth, and NB status.
- Noise blanker.
- Clock/Timer.
- High/low antenna inputs.
- Memory scan and frequency scan functions.
- Personal computer control with optional RS-232C interface cable.
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DAILY	SUNDAY	WEEKLY
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Dear Listener:

The Star desires to thank you for your communication, just received. We are pleased to know that you tune in on our station and are enjoying our broadcasting.

WDAF is one of the world's largest broadcasting stations. It is a 500-watt Western-Electric transmitter, using two 250-watt tubes in series in the modulator circuit, and two in series in the oscillator circuit. Its speech amplifier is the regulation type, and it employs in addition a 50-watt speech amplifier tube in the transmitter. Fourteen volts on the filament and 1,600 on the plate are generated from motors run off The Star's own dynamos.

The Star wants you to consider this a personal invitation to visit its building and equipment, as well as WDAF, its studio and operating rooms, whenever you are in Kansas City. We want you to feel welcome here any time.

WDAF is dedicated to the people of the Southwest, and to the country generally. Its purpose is to broadcast entertainment, education and amusement for those people, and if they find those things in this station, The Star will feel that its mission in installing a radio station has been fulfilled.

Thanking you again for your interest in WDAF and trusting to hear from you in the near future, we remain,

Very sincerely yours,
The Radio Department,
THE KANSAS CITY STAR,

By_____

P. S. A Schedule of our broadcasting hours is enclosed.

An enthusiastic letter to a DX listener from WDAF, extending an invitation to visit the studios.

Close view of WDAF's fabled Nighthawk, wearing headphones.

from active broadcasting. The Times-Star Publishing Company permanently closed down the station, and on December 13, 1948, the license was voluntarily returned to the FCC for cancellation. The 104.9 MHz spot on the FM dial remained vacant in the Bay area until June of 1960 when it was assigned to a new station in Fremont, CA.

By 1949, the initial enthusiasm about FM broadcasting was generally considered to have ended. AM had not died, and was doing better than ever. FM license applications dwindled, and by 1950 active FM stations began pulling the plug in ever-increasing numbers. In only five years, 86 of the 616 stations on the air in 1952 had gone dark. There was virtually no money being made in FM broadcasting; most stations ran at a loss. After the 1940s, FM was kept alive primarily in large cities by FM outlets duplicating the programs of the AM stations that owned them, also by a dedicated handful of classical music stations serving the relatively small hi-fi market.

In 1957 FM broadcasting was reborn anew as AM frequencies in larger markets became saturated with licensees. This happened at about the same time popular-priced imported FM receivers and cheap AM/FM transistor portables began arriving in American stores. Also, the new transistorized receivers incorporated circuitry that no longer had the irritating problem tube-type FM receivers had of drifting off frequency. Stereocasting and SCA further added to turning FM into a popular and profitable mass medium with some 7,300 basic licensees in the U.S. today, plus more than 2,700 translators and boosters.

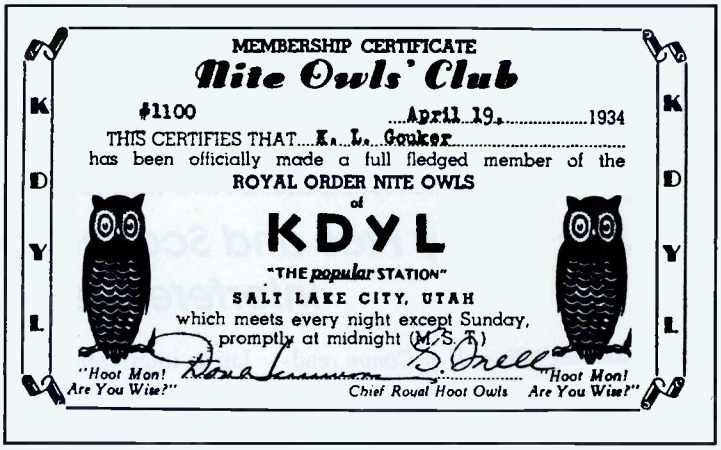
KONG-FM had come and gone so quickly that it must surely have had one of the briefest careers in the annals of American commercial broadcasting. No wonder the world has all but forgotten KONG-FM. Forgotten, but not completely forgotten! Nearly half a century later, the old KONG-FM 278-foot tower, complete with its long-silent five-bay FM antenna, weathered but still intact, defiantly remains in place atop what is now the Kofman Building in downtown Alameda. The Alameda Times-Star offices and presses have moved to new facilities in nearby Oakland.

Thanks to Broadcast Pro-File for permitting us to extract information about KONG-FM from their research report on this pioneer FM station. BP-F is a professional service that can, for a reasonable fee, prepare highly detailed historical profiles of any American AM or FM broadcaster, past or present. Their complete catalog of services and fees is $1 from Broadcast Pro-File, 28243 Royal Road, Castaic, CA 91384-3028.

By Contrast, AM Was a Different Story

Let's compare broadcasters' cautious reaction to FM with their enthusiastic entry into AM radio less than 25 years earlier. The period of late-1921 to 1935 was the dawn of broadcasting. Radio was the electronic marvel, novelty, and rage of the era. In early 1922, there were some 30 stations on the air. By the end of the

Membership card in WDAF's Nighthawks Club for DX'ers.



KDYL provided these great cards to members of its "Nite Owls' Club." (Courtesy Tom Buckley, Washington, D.C.).

year at least 500 more had scrambled to get on the air in the U.S., most of them using 832 kHz. There were at least 100,000 factory-made radios sold in 1922 alone. In addition, countless thousands of homebrewed crystal and vacuum tube sets were in use.

Practically everyone who owned a radio became a night owl, staying up to all hours seeing how many different AM stations they could log, and how far their equipment could pick up. This was by design, not by chance. A number of stations aggressively tried to build the radio audience by attracting distant nighttime listeners with innovative special programming and ideas such as QSL cards, DX tests, clubs, EKKO verification stamps, pennants, souvenirs, etc. They created the DXing hobby.

One very popular station encouraging DXers was 500-watt WDAF, Kansas City, MO. WDAF was one of the first licensed American stations, having begun began operating on Feb. 16, 1922. WDAF's late-night "Nighthawks" program issued a "Nighthawks Club" membership card to every DXer who sent a reception report.

The WDAF program featured live broadcasts from Kansas City's Muehlbach Hotel, with music played by Carleton Coon and Joe Sanders' "Kansas City Nighthawks" 10-piece jazz band. A wonderful CD reissue of their rare original recordings is called "The Coon- Sanders Nighthawks: Everything is Hotsy-Totsy Now" (Living Era ASV 5199). On their 1924 song, "Nighthawk Blues," the lyrics refer to people from coast-to-coast staying up all night tuned to their radios just to hear the "Nighthawks" play. They weren't kidding!

"Industry pundits had indeed been too enthusiastic in their initial forecasts of the general public's interest in static-free reception and classical music."

The WDAF slogan was, "The Nighthawks, Enemies of Sleep." Unfortunately for WDAF, the station had made the band so popular that the group was eventually lured to Chicago to broadcast at night over 15 kW clear channel station WGN. Their WGN broadcasts made the band even more well-known, and they ended up with their own program on the NBC Radio Network. Shows you how many folks were DXing in those days!

Another station aggressively pursuing DX listeners was Salt Lake City's 1 kW KDYL, which had also started in 1922. Well into the 1930s, KDYL ran a nightly program for DXers called the "Nite Owls' Club," issuing ID cards and other inducements to attract listeners to their signals.

WDAF, WGN and KDYL are good examples, though they aren't unique. Surely, every early AM broadcaster who sent out popular late-night programming, QSL cards and letters and EKKO stamps participated in encouraging the establishment of a large and enthusiastic audience for their medium. WDAF, WGN, and KDYL all remain in operation, more than 70 years after they began. Today, there are more than 4,800 American AM stations.

Today we can still directly contact the early flickerings of the AM service by listening to a CD of the actual "Nighthawks" singing about DXing in 1924. We can still see the intact antenna of an obscure and long-dark pioneer FM broadcaster. And we can keep those memories alive in *Popular Communications*.

That's a wrap for this month. Hope you'll join us next time. Meanwhile, we look forward to receiving your old time radio and wireless QSL cards (originals or good copies), picture postcards or photos of old stations, station lists and news clippings. At long last, if you have anecdotes or memories to share, or column suggestions, you can send an e-mail to me at <radioville@juno.com>. See you on the road to Radioville! ■

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BY GORDON WEST, WB6NOA

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Public Safety Pros and Scanner Users—You CAN Cure Intermod Interference. Here's how . . .

Greetings fellow *Pop'Comm* readers and radio enthusiasts! I was never very far away from the pages of *Pop'Comm*, but was just gathering more great ideas and columns for you during the past few months.

Let's begin our Radio Resources column by talking about curing intermod interference. It's certainly something that plagues scanner listeners and emergency communicators, alike!

Emergency communicators are often on standby, and this requires monitoring the main call-out channel, plus the associated public safety frequencies to stay abreast with routine activity that could instantly turn into a call-out. Monitoring or scanning using a base station antenna can sometimes pull in too much activity, and some calls are drowned out by intermodulation interference. Intermodulation interference arises from non-linear mixing of two or more powerful signals that are pulled in by that big base station antenna and ultimately saturate the front end of your receiver. Older base stations may offer multiple shielded stages of intermod elimination, but newer base station transceivers, which are really mobile units on a power supply, and almost all handheld transceivers, have few if any physical internal cavities to reduce the effects of intermodulation. Scanner receivers with "open-end" RF amplifiers are especially prone to the problems of signal mixing.

The symptom of intermodulation interference is a constant chattering of the squelch with two or more stations being heard at the same time. Other problems may be two distinct separate signals coming in with the desired signal from a mobile or portable unit on channel. Most common are the paging tones that override your squelch circuit, and drown out almost anything else on your frequency.

Those Darn Paging Transmitters!

It is the nearby paging transmitters that create the greatest amount of intermodulation interference potential. Pagers are assigned frequencies at 152–153 and 157–158 MHz. The typical effective radiated power output of some of these paging transmitters may exceed 1,000 watts! When two or three of the paging transmitters are on the air at the same time, sums and differences of their frequencies may create the perfect mix within your receiver to pass the signals through to your audio output stage. And if you're a public safety professional and your radio system is operational with CTCSS tone squelch always on decode, you might not hear the intermod, but the intermodulation could be canceling incoming weak stations from making it through your tone squelch circuit.

Fixing The Problem

Two different types of filters can help the small handheld or inexpensive mobile/scanner receiver to minimize intermodulation interference. A band-pass filter, such as the Sinclair Labs SBP 155 MHz series for special emergency VHF high-band channels, or the Sinclair Labs SBP 144 MHz series for CAP and 2-meter amateur radio operation will significantly roll off (attenuate) frequencies 3 MHz above and below the desired band pass. The Digital Communications, Inc., DCI 146 MHz and 155 MHz series band-pass filters may offer up to 40 dB attenuation on each side of its 2 MHz wide band-pass peak. Insertion attenuation is less than 1/2 dB, so adding this four-cavity filter in series with your incoming antenna lead won't cut down on your on-frequency desired reception. DCI is located in White City, Canada at 306-781-4451 and SINC Labs is in Tonawanda, New York at 716-874-3682.

Inside these shoebox-sized band-pass filters are tuned cavity networks; usually four individual compartments which are pre-tuned by the factory for your specific operating frequency, your desired band spread, and the deepest and fastest drop-off possible to attenuate interference coming in from powerful transmitters 4 MHz and high above, and 4 MHz and lower below your operating frequency. The band-pass filters cost about $100, and they also can produce filters for the UHF bands, too.

Photos by Gordon West

Notch filters will help on handheld radios used on large base station antenna systems.

"Our 156.8 MHz reception was getting pounded by paging transmitters and business radio calls on frequencies just a few MHz away," comments a Sea Tow marine emergency boat dispatcher located near Los Angeles "intermod alley". "The DCI filter was tuned specifically to the VHF marine band Channel 16, 156.800 MHz, and crystal-clear reception instantly came in after we put the filter in line with our base station transceiver," adds Sea Tow. "At first we thought our radio wasn't working because we didn't hear the normal ear-crunching tones, whistles, and triple conversations."

Sometimes 30 or 40 dB attenuation is

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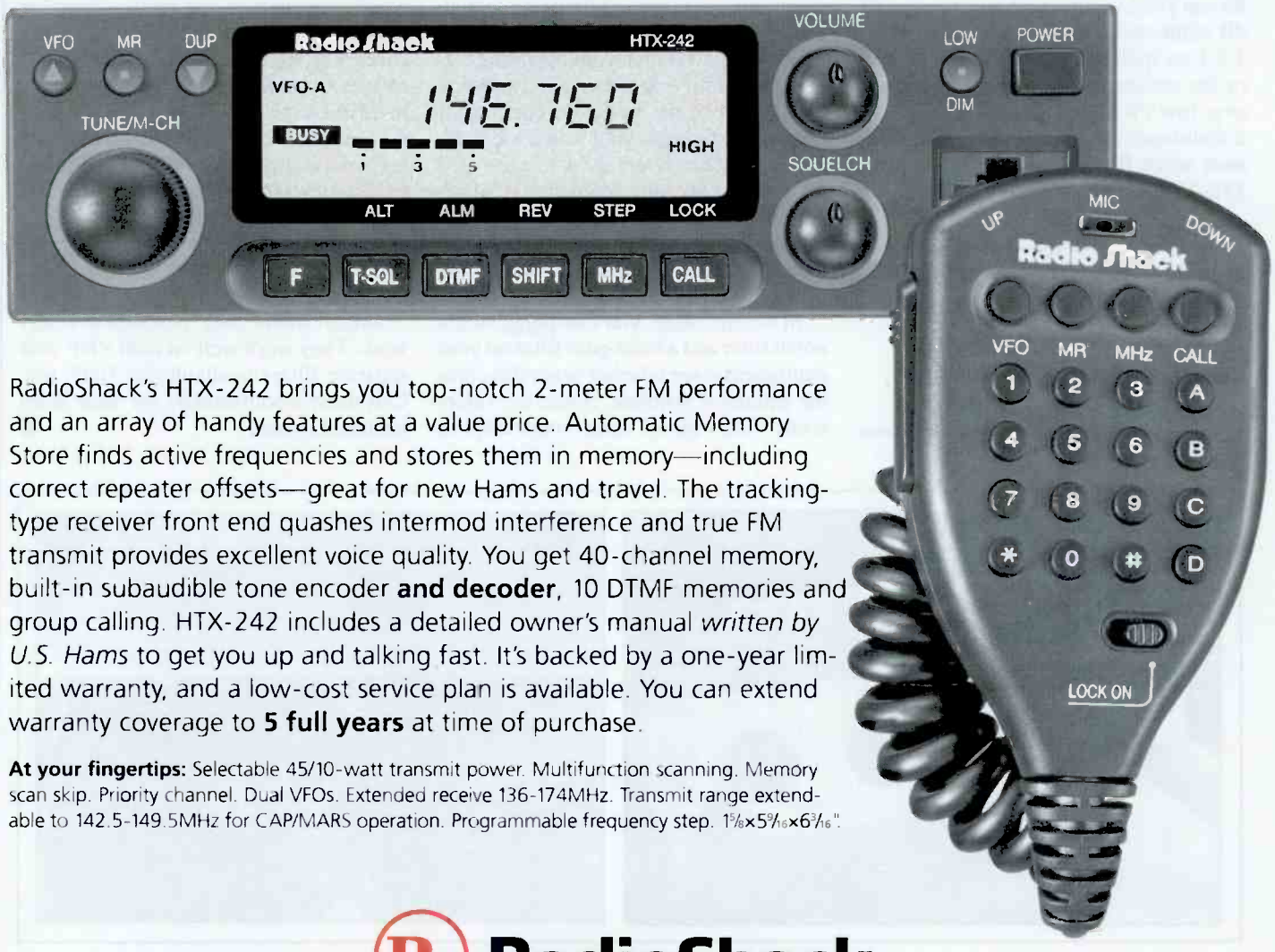

RadioShack's HTX-242 brings you top-notch 2-meter FM performance and an array of handy features at a value price. Automatic Memory Store finds active frequencies and stores them in memory—including correct repeater offsets—great for new Hams and travel. The tracking-type receiver front end quashes intermod interference and true FM transmit provides excellent voice quality. You get 40-channel memory, built-in subaudible tone encoder **and decoder**, 10 DTMF memories and group calling. HTX-242 includes a detailed owner's manual *written by U.S. Hams* to get you up and talking fast. It's backed by a one-year limited warranty, and a low-cost service plan is available. You can extend warranty coverage to **5 full years** at time of purchase.

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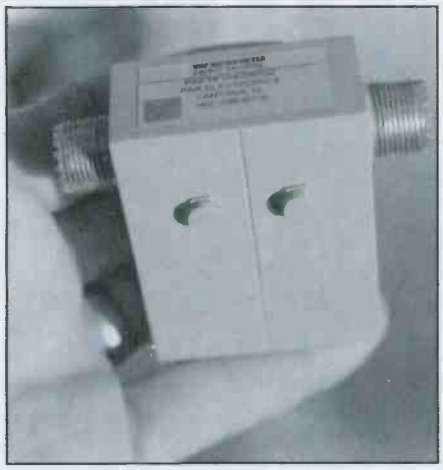


This Par Electronics notch filter is easily added between your radio and an antenna .

not enough, and this calls for the notch filter. Notch filters are incredibly small - about the size of a deck of cards. The filter can yield a stop-notch in excess of 45 dB while maintaining a VSWR of under 1.2:1 on special emergency frequencies, or the amateur radio 2-meter band, and even low SWR on UHF frequencies from a dual-band transceiver. The most common notch filter is centered around the 152–153 MHz pager band. Although it has no effect on 157–158 MHz pager frequencies, the elimination of the strong 152 MHz signals dramatically reduces the mixed capabilities between the two pager bands.

"At first we thought our radio wasn't working because we didn't hear the normal ear-crunching tones, whistles, and triple conversations."

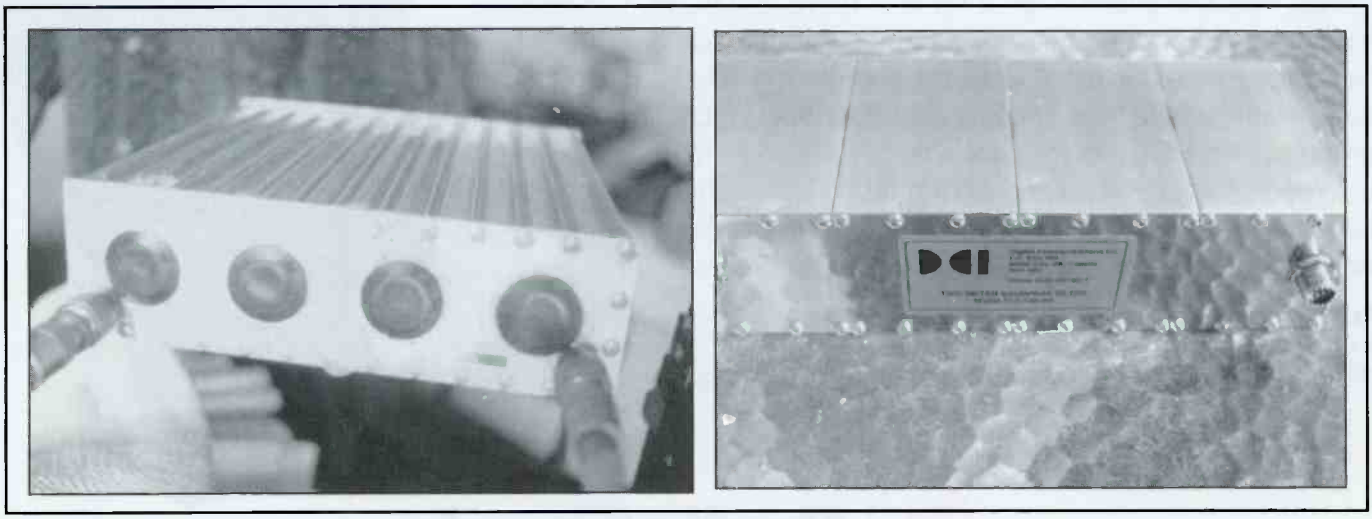
"In severe cases, you can piggyback a notch filter and a band-pass filter on your equipment to see whether or not this cures the intermod problem."

The notch filters from Par Electronics, Lantenna, Florida, phone 407-586-8278, are unlike most other notch filters. Par Filters offer wide transmission and reception bandwidth on almost ALL frequencies above and below the notch giving them the capability of working with wideband scanners as well as combination VHF and UHF transceivers. Par filters may be specifically tuned to any one of the known mixed frequencies to help notch out the intermodulation potential. This may require several days of scanning higher and lower than your operating frequency, identifying the actual frequency that is part of the intermod component that comes through your squelch circuit. Tests of the Par filters show less than 1/2 dB loss at operating frequencies, which is negligible when compared to the tremendous amount of filtering they offer to powerful pager transmitters just a few MHz away.

In severe cases, you can piggyback a notch filter and a band-pass filter on your equipment to see whether or not this cures the intermod problem. Since the filters come with coaxial cable connectors or BNC connectors, it's no big deal to add or subtract the different styles of filters to see whether or not band-pass or notch filters will have the best results.

When the interference occurs at the distant transmitter sites where an on-channel real phantom signal is generated, filters at your end of the circuit won't help. The best way to test for this is have several different radios tune into your main dispatch frequency; and if all of the different radios with their own individual differently designed receivers pick up the same offending signal, then the signal is indeed on your frequency and you'll need to do some detective work to figure out which transmitters are mixing together creating the undesired interference. In cases like this, the Federal Communications Commission may sometimes get involved, especially if the signal is causing interference to an emergency radio service system. But don't be calling the FCC until you make darn sure that the signal is coming from out of the air on your channel, rather than mixing inside your own set covering up your channel. These are two different problems.

Notch filters and band-pass filters work. They work well on both VHF with separate filters available for UHF, too. Call these manufacturers for their latest technical sheets. ■



Bandpass filters are the first step in reducing out-of-channel interference and intermodulation. Shown here is the DCI filter (on left) and Sinclair filter on right.

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CIRCLE 150 ON READER SERVICE CARD

The Radio Connection

BY PETER J. BERTINI
<RadioConnection@juno.com>

A LOOK BEHIND THE DIALS

Your Search for Custom Dial Covers Is Over!

Many vintage radios have plastic dial covers that have become discolored, warped or cracked with age. Fortunately, you can have custom dial covers made to make your set look good as new.

Meet Rita Hutchings!

I first learned of Rita's radio dial cover replacement service while browsing through the Internet newsgroups devoted to antique radios. After seeing numerous posts from satisfied customers extolling Rita's craftsmanship I had to contact Rita for more information. Here is Rita's response to our inquiry for more information about herself and her home-based radio dial cover factory.

"Dear Peter,

"I began collecting radios about six years ago. My collection now has over 150 wooden, bakelite, transistor and console radios, among others. I acquired my love for vintage radios from my father, who was an electronics engineer. He taught me all about radio when I was a young girl, and it has stayed with me throughout the years. I repair and restore my own sets.

"In 1994, I was diagnosed with cancer at the age of 39. After undergoing two major surgeries and several weeks of radiation treatments, I am now cancer-free and doing quite well. Although I was left disabled, I sought ways to keep myself busy and productive. My career as professional artist was over since I was told I could no longer risk further exposure to the materials I had once used for sculpting and painting.

"After seeing numerous posts from satisfied customers extolling Rita's craftsmanship I had to contact Rita for more information."

"I immersed myself in my radios. While restoring some of them, I found it

Rita Hutchings with one of her Zenith consoles. Note the fine veneers used in this classic set.

Rita and a small sampling of her radio collection. Note the diversity—there are wooden sets, plastics, bakelites, and even some early transistor radios!

Rita at work! Various shop tools in background are used to make the custom molds for the dial covers. In front of Rita is a vacuum heat table used to form the plastic over the molds.

The Radio Connection's Emerson set now sports a new dial cover courtesy of Rita! Note the old cover is discolored, warped and cracked by age.

was difficult to find sources for replacement custom-made plastic dial covers. I decided to learn how to make my own, and had to design and develop my own machines to do the job!

"I took one of my radios to a Memphis Antique Radio Club meeting, and mentioned that I made the dial cover myself. I soon found myself bombarded with requests for dial replacements from other members. At their urging, I expanded my little factory and can now offer my dial cover reproduction services to collectors 'all over the world.'"

Rita goes on to mention she is working hard on perfecting methods to reproduce early radio knobs. She promises to keep us posted on her progress. I have no doubt this talented young lady can do anything she sets her mind too! Information for contacting Rita is given later in the column.

An Unusual Zenith

I suppose a lot of readers would love owning a big Zenith console like the ones we have shown in this column. There is something magical about those big black Zenith dials with the Zenith legend emblazoned in lightning bolts and the promised "long distance" reception.

"There is something magical about those big black Zenith dials with the Zenith legend emblazoned in lightning bolts . . ."

If you can't own a Zenith, I guess the next best thing is to own one of these nifty Zenith dial face wall clocks, the handiwork of Joe Smolski of Antique Radio. I saw his display at a vintage radio show, and I was impressed with the quality and workmanship! The 10-inch Zenith classic radio wall clock is $19.95, and that includes priority mail shipping to anywhere in the U.S! Massachusetts residents, please add $1 sales tax.

Where We Left Off . . .

In June, I promised to talk more about capacitor voltages, and some not so obvious pitfalls that trap even experienced restorers. We are getting into the nitty-gritty of restoration—a basic knowledge of how things work. So let's get to it!

Take a look at **Figure 1** which shows a fullwave rectifier circuit and a single-ended class A audio stage. Many radios from the 1930s and 1940s use similar designs—the tubes and parts values may be different, but the principle is the same.

The rectifier tube is a 5Y3. Notice this tube does not use a cathode, instead the filament acts as the emitter. Because the filament is at the B-plus voltage potential, a separate 5-volt filament winding is needed on the power transformer.

Last month I said that the negative side of a filter capacitor may not always go directly to ground—it depends on the biasing scheme used by the audio amplifier. Note that the negative side of filter capacitor C1 illustrates this fact.

Let's look at the circuit when everything is running. You may wish to jot down some notes on the schematic in pencil as we go along. The 6F6 audio tube is running class A. My GE tube manual shows the plate current will be about 40 mA with a plate voltage of 285 volts. The screen grid is also at 285 volts and draws another 7 mA of current from the power supply. Class A stages always draw a constant current. The cathode current is the sum of the screen grid and plate currents, or about 47 mA.

Note that the speaker field coil is connected between the center tap of the power transformer and ground. Its resistance is in series for any current supplied by the

"We are getting into the nitty-gritty of restoration—a basic knowledge of how things work. So let's get to it!"

by the power supply. If the audio stage is drawing 47 mA, 47 mA will also flow through the field coil. The field coil has a resistance of 300 ohms as shown on the schematic. Ohms law for resistance shows the voltage drop across the coil is about 14 volts.

E = I R

Where I in amps is 47 milliAmperes, or .047 Amperes. Where R is resistance, or 300 ohms.

E = .047 × 300, thus E = 14.1 volts.

Note that this voltage is NEGATIVE! My GE tube manual shows that the 6F6 in class A with 285 volts on the plate and screen requires a bias voltage of negative 20 volts on the control grid for class A service. The negative voltage developed across the speaker field coil is used to bias the control grid of the 6F6, setting it for Class A service. 14.1 volts is a bit low, but we forgot to include whatever current is being drawn by the other tubes in the radio! If we allow another 20 mA for those stages, the total drawn by all stages is 67 mA. Using Ohms laws again, we see the actual bias voltage is 20.1 volts—more than close enough!

20.1 = .067 × 300

I see a few hands raised! "What about the voltage drop across that 1 megohm resistor feeding bias voltage to the control grid?" Good question! The control grid of a vacuum tube will not draw current until it goes in a positive direction as measured to the cathode potential. The 6F6 cathode goes directly to ground. The potential between the cathode and control grid is 19.5 volts negative. Ohms law will prove the voltage drop across a resistor carrying no current is 0 volts. You will see grid current only in class C stages; these are more common to radio transmitters than receiver circuits.

Alas, that's all for this installment of the Radio Connection! We will continue our discussion of capacitor voltage ratings in a future column. Next month the Radio Connection takes to the road and visits Radio XXVIII, the greater Boston antique radio meet! ■

Zenith classic radio wall-clock features a 10-inch dial reproduction, and a quartz movement. A second hand even emulates the Zenith "sweep second" 0 to 60 logging-scale pointer!

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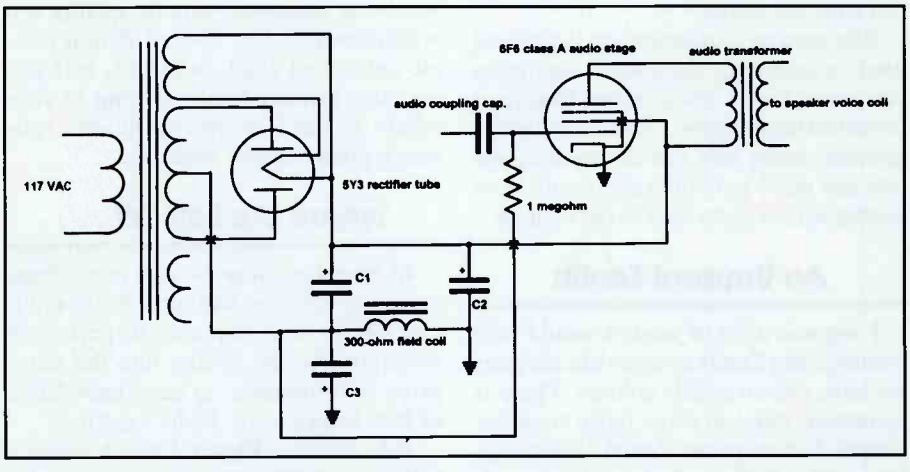
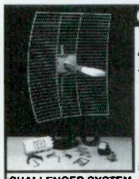


Fig. 1: Power supply and class A audio stage. Biasing voltage comes from voltage drop developed across the speaker field coil resistance. Note "floating" ground on the first filter capacitor.



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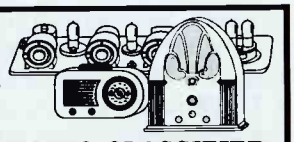

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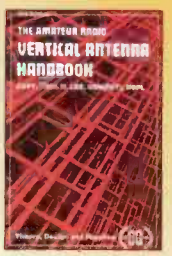

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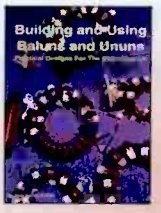

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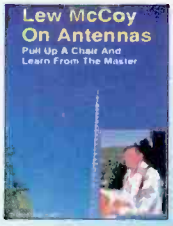

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Antennas for VLF RadioScience Observing

"RadioScience Observing" is a word that I coined to cover all forms of scientific observation using radio receivers. Although it could cover professionals as well as amateurs, this column is mainly for the amateur community (and not just "ham" radio operators - all amateurs). Recently I agreed to write a book on RadioScience Observing for Howard W. Sams/ PROMPT (2647 Waterfront Parkway East Drive, Indianapolis, IN, 46214-2041; 1-800-428-7267 or 1-317-298-5400. Look for it early in 1998.

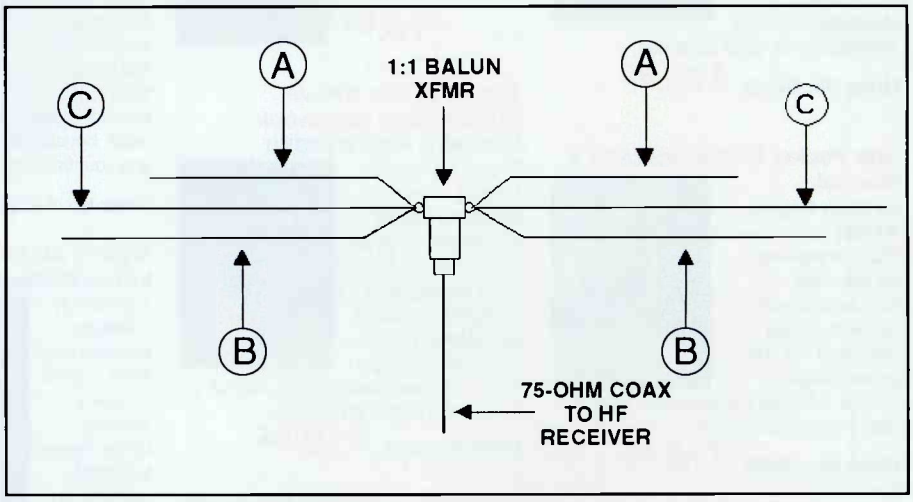

Fig. 1: Wideband dipole for Jovian signal reception.

Observing Phenomenon With a Radio Receiver

Let's check out radio propagation and SIDs. Radio signals travel from point-to-point following certain rules, but those rules are often not well understood. Some of the most interesting propagation for observing occurs in the high frequency (HF) and very high frequency (VHF) bands, but there are observable anomalies in all bands.

SIDs are Sudden Ionospheric Disturbances. They occur when events on the sun, such as flares, send a large amount of energy towards Earth. When the energy hits the ionosphere, it will wipe out HF and some VHF communication for long periods of time, often several days. Oddly enough, even though SIDs reduce signal levels -they can drop the bottom out! - they also tend to enhance very low frequency (VLF) reception quite a bit, especially in the 15–30 kHz range. If you are interested in VLF SID hunting, I'd recommend the columns by Peter Taylor that appeared in our sister publication, *Communications Quarterly*, for several years. Back issues are available from the publisher of this magazine at 1-800-853-9797. Also look for articles by Art Stokes, who is the technical guru behind a lot of the receivers.

Jupiter Hunting

Radio signals from Jupiter are surprisingly accessible. They occur in the range 11 to 40 MHz, with particular concentrations in the 18 to 24 MHz band. In other words, you can receive them on any decent shortwave general coverage receiver! Use the widest bandwidth setting on your filters. The "wave crashes" and "pebble on tin roof" sounds don't occur across the entire band all the time, so one has to hunt for them. They also don't occur all the time, and are only audible when Jupiter is above the local horizon. Unlike optical astronomy, Jupiter hunting is often done during the day.

Whistler Hunting

Whistlers and spherics are VLF signals that occur in the 1 to 10 KHz region. They are sliding tones that start at a high pitch (towards 10 kHz) and slide down towards 1 kHz over a second or so. These sounds were heard as early as the 1880s. When long telephone lines began to web the cities together, operators and users would occasionally report descending pitch howls.

Although whistlers are in the "audio" range of human hearing, you cannot hear a whistler without a radio receiver tuned to those frequencies. The reason is that your ear responds to acoustical waves - vibrations in the air - while whistlers and related phenomena are electromagnetic or radio waves. Receivers for this band are essentially audio amplifiers with sharp front-end filtering to limit the bandwidth to the 1-10 kHz region (which helps suppress 60 Hz signals that would inevitably get into the receiver.

"Whistlers and spherics are VLF signals that occur in the 1 to 10 KHz region."

A high school project called the INteractive Space Physics Ionospheric Radio Experiments, or INSPIRE (c/o Bill Pine, Science Department, Chaffey High School, 1245 N. Euclid Avenue, Ontario, CA, 91762) publishes an occasional newsletter. They ask for a donation for the newsletter in order to defray expenses ($15 is about right, although they asked for a bit less in their last newsletter). By the way, Project INSPIRE can sell you a newly redesigned kit for a whistler hunting receiver for a small fee.

Antennas

So what about antennas. You've seen those massive dish antennas used for radio astronomy, but do you need anything so massive in your own hobby

observations? Not at all. In fact, the VLF antennas are going to surprise you.

For Jupiter reception, an ordinary dipole or HF gain antenna will work if it is pointed towards Jupiter at a time when the planet is above the local horizon. One common form of antenna is the wideband dipole. Because the band of interest is 6 MHz wide (18 to 24 MHz reception), you can make a triple dipole (Fig. 1). These antennas are three parallel dipoles all on the same transmission line and all installed in the same vertical plane.

To broadband the wideband dipole antenna to optimize for 18 to 24 MHz, cut the sections as follows:

Section	Frequency	Half	Whole
A	23 MHz	0.2 ft.	20.4 ft.
B	21 MHz	11 ft.	22 ft.
C	19 MHz	12.3 ft.	24.6 ft.

The lengths of each section on either side of the BALUN transformer are shown in the "half" column, while the overall length for both sides of the BALUN are shown in the "whole" column. If you notice that these dimensions are suggestive of a ham band 15-meter dipole, then congratulations - you win the gold doobie button!

VLF Antennas

OK, so now let's look at antennas for VLF SID and whistler hunters. We all know that antenna lengths are inversely proportional to frequency, so antennas for 1 to 30 kHz are measured in miles not feet, right? Wrong. While it's true that resonant antennas have such lengths, other forms of antenna are not so limited. For example, one SID hunter told me that he simply uses the HF vertical antenna that he uses on the ham bands as the antenna. He also told me that he has used the rain downspout (simple clip-lead connection) and the aluminum roof of a shed he uses for optical astronomy. If you are really pressed for an antenna for SID hunting, then go out and get an eight-foot section of one-inch diameter aluminum tubing, and mount it outdoors in a manner that it is insulated from the ground. A piece of coax can be used as a shielded wire to connect the pipe to your SID receiver.

Whistler hunters typically use telescoping whip antennas from portable "transistor" radios for their receivers. You can buy these antennas as replacement items from radio parts distributors. I've

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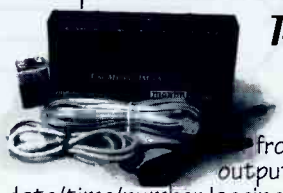

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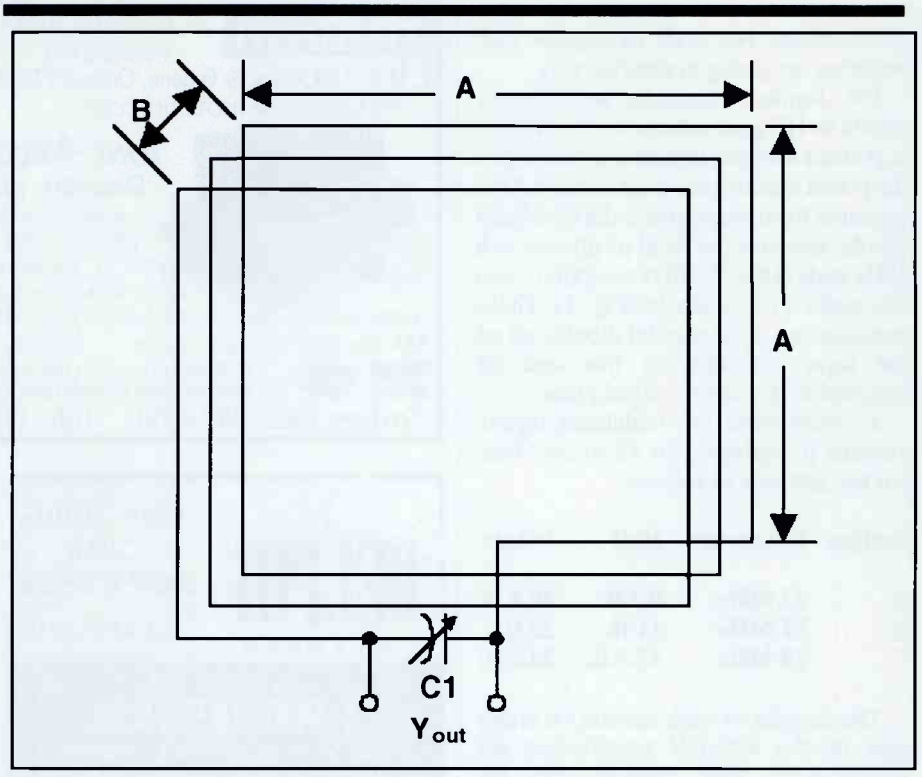

Fig. 2: Loop antenna construction.

"Whistler hunters typically use telescoping whip antennas from portable 'ransistor' radios for their receivers."

also seen them at RadioShack. These antennas will work wonders, and are less likely to pick up 60 Hz interference. Whistler hunting, by the way, is best done many hundreds of yards from power lines, so is usually something one does out in the country.

Another antenna useful for VLF RadioScience Observing is the loop (Fig. 2). These antennas have an overall wire length that is less than 0.15 wavelength, to respond to the magnetic component of the electromagnetic signal rather than the voltage component. As a result, they are less sensitive to 60 Hz interference. The typical loop used in the VLF range is about 2 feet square, and has between 60 and 150 turns of wire. I've built such loops using 50 conductor (25 pair) intercom and telephone cable, as well as 64 conductor computer "ribbon cable" (use the colored type - it's easier to work with when you solder everything together).

The capacitor will resonate the antenna to a specific frequency. It will also greatly increase the signal output voltage. But it also limits the frequency coverage. But since you will tend to pick up a single frequency (e.g. 25 kHz), then it is reasonable to set the antenna once and then forget it.

If pick-up from 60 Hz power lines is severe, then shield the antenna. Use copper foil to wrap the loop over its entire length (all four sides), except for a gap of two inches along any one side (usually the top side). The gap is necessary to ensure that the antenna will respond to the magnetic component of the signal.

The signal pick-up on a small loop is along the plane of the loop. When the antenna is broadside to the signal (i.e. in the direction in or out of the page, as shown in Fig. 2), the signal is in the null of the loop, so it disappears.

Conclusion

RadioScience Observing is a lot of fun. It serves both the radio enthusiast and the amateur scientist. It also is a great activity for high school and junior high school-age proto-scientists. I hope as a result of this article a number of RadioScience Observing projects are seen in next year's round of science fairs around the country!

I can be contacted, SPAMed, shot at or queried at P.O. Box 1099, Falls Church, VA 22041, or via e-mail at <CARRJJ@AOL.COM>. ■

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BY J.T. WARD

Product Spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

Product Spotlight: Uniden BC235XLT - TrunkTracker

It's here, it's real, and it works! The new Uniden Bearcat 235XLT "TrunkTracker" is arguably the greatest technological advance in scanning in nearly 20 years. This new scanner promises to have as much impact on the hobby as the development of the programmable scanner.

The BC235XLT "TrunkTracker" is a 300-channel handheld scanner that's the first on the market to be able to follow or "track" the conversations on Motorola 800 MHz trunked radio systems.

To understand what makes this scanner so phenomenal you have to understand a little bit about trunking technology itself. Unlike conventional radio systems in which a handful of frequencies are assigned to a particular user, a *trunked* radio system can have many users, all sharing the same frequencies. Trunked system users — police departments, fire departments, etc. — are divided into "subfleets" or "talkgroups" with each group and each radio assigned its own ID code. While talkgroups and subfleets are not exactly the same, the TrunkTracker treats them the same, so the terms are being used interchangeably here.

When a radio within a talkgroup is keyed to transmit, a central computer reads the radio's ID code, selects an open frequency from those available and transmits a data burst on a control channel that automatically switches all the other radios within that talkgroup or subfleet to the selected frequency. Once the transmission is complete, the computer releases the frequency for use by another agency. This happens each time a transmission takes place, making it likely that each portion of a conversation will occur on an entirely different frequency. In systems with both public safety and other users, such as the utilities, parks, water and sewer departments, it's impossible when using a conventional scanner to lock out the agencies you don't want to hear. This combination of frequency hopping and multiple users makes it extremely difficult to follow a particular conversation using a conventional scanner.

Identifies Talkgroups

The Uniden "TrunkTracker" is the first scanner to allow the user to identify the various talkgroups or subfleets being used and to program the radio to monitor only those talkgroups the user wants to hear. It also allows you to hold on a single talkgroup and monitor the conversation even as it jumps from frequency to frequency. Up to 10 different trunked systems can be programmed, but only one system can be monitored at a time. Thirty frequencies can be entered for each system, and up to 50 talkgroups can be saved to programmable scan lists for each system. Once the scan lists are programmed, the radio scans talkgroups much like a conventional scanner scans frequencies, and you can activate - or lock-out - particular talkgroups at will.

So far, the 235XLT is compatible only with Motorola-type trunking systems, and only 800 MHz systems can be tracked. Users who want to monitor trunked systems in the 400 and 900 MHz bands, and those wanting to listen to GE/Ericsson trunked systems will have to wait for the next breakthrough.

"Those wanting to listen to GE/Ericsson trunked systems will have to wait for the next breakthrough."

The "TrunkTracker" is in effect a dual receiver. One side of the receiver monitors the data flow from the site controller and tunes the other side of the receiver to follow the conversation as it hops from frequency to frequency. Although the user must figure out which department or division is assigned to which talkgroup, in practice this isn't particularly difficult, requiring only that the user listen to the conversations and note the talkgroup ID, which is shown on the radio's display panel - and the corresponding agency. A basic knowledge of how the system is structured can help. For example, many urban police departments are divided into patrol zones. Each patrol zone usually has its own sub-fleet, as does the detective division, the vice squad, the narcotics unit and so on. If on one talkgroup you keep hearing patrol cars dispatched to a certain area of the city then you can assume that talkgroup is used by cars in that patrol zone. Alternatively, if you hear the city ambulances dispatched on one talkgroup and ladder trucks and fire engines on another, it's not too hard to figure out which is the medic subfleet and which is the fire subfleet. Cities with other than public safety agencies sharing the system may be a little more difficult. For example, it may take a while to distinguish the building inspectors from the code enforcement department.

OK, now that you know "what" the TrunkTracker does, the question becomes, "how well does it do it?" To check out the TrunkTracker in the "real world"

"Think of the talkgroup IDs as frequencies and the scan lists as you would banks in a conventional scanner."

I took field trips to Lakeland and St. Petersburg, Florida, both communities which have been using Motorola trunked systems for several years. Programming the radio to monitor a Motorola Type II system such as St. Petersburg's is easy, although several steps are involved. First the 15 repeater output frequencies are entered into a bank of memory channels the same way they are entered into memory on a conventional scanner. Each bank holds up to 30 frequencies.

Once the repeater output frequencies were entered and stored, a trunking search was initiated by first pressing the TRUNK key, then the SEARCH key. It took the radio only a couple of seconds to search the frequencies and lock onto the data channel. Almost immediately talkgroup ID numbers began appearing on the radio's LCD display panel. Within 30 minutes I had identified nine different police talkgroups including one being used for surveillance.

Once you've identified the various talkgroup IDs you can store them in up to five scan lists for each trunked system. Each scan list holds 10 talkgroups. Think of the talkgroup IDs as frequencies and the scan lists as you would banks in a conventional scanner. Whole lists can be added or removed from the scan sequence just the way banks are used in a conventional scanner, and individual talkgroups can be added or locked out, just like frequencies in a conventional scanner. Once the scan lists are set up, monitoring a trunked system is just as easy as monitoring a conventional radio system. You simply turn the radio on and activate or lock out banks (scan lists) and channels (talkgroups) as you've been used to doing.

Monitoring a Motorola Type 1 system such as used in Lakeland is not quite as easy. The repeater frequencies are entered and searched just as with a Type II system, but to truly customize the radio to a Type 1 system (or to a Type IIi hybrid sys-

"Once the scan lists are set up, monitoring a trunked system is just as easy as monitoring a conventional radio system."

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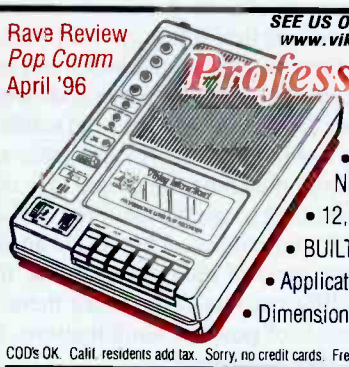

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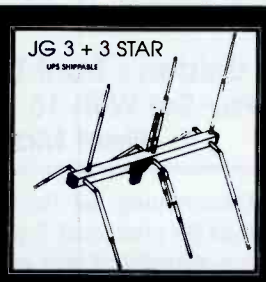

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tem) you've got to assign a so-called fleet map to the system being monitored. Without an assigned fleet map, the TrunkTracker will still do a pretty good job of tracking, but it will miss an occasional frequency change so parts of some conversations will be missed. How do you tell if a system is Type I or Type II? If you are searching a Type II system, all the talkgroup IDs will be even numbers, i.e 8244, 8966 etc. If you are searching a Type I system while still in the default (Type II) mode you will see a mix of odd and even numbers. Simply switch to Type 1 mode and the proper sub-fleet IDs will begin appearing, i.e. 100-7, 200-14, etc.

Uniden's TrunkTracker is Pre-Set With 16 Common Fleet Maps

Determining the fleet map which is correct for your local Type 1 trunked system is a matter of trial and error. For the rare system that doesn't use one of the pre-set fleet maps, Uniden has allowed the user to program custom fleet maps. This is where things become challenging. Each fleet map has eight blocks, and each block must be assigned a size code which defines the number of fleets and subfleets being used. There are 15 available size codes and matching the proper size code to each block is again a matter of trial and error. If you program a block and are still missing parts of the conversations, then try a different size code. Since there are thousands of possible combinations, this could take some time.

However, as the radios become widely available and people begin to figure out the fleet maps for their areas, expect this information to start showing up on the Internet scanning forums as well as in magazines and frequency guides.

Once you have the radio properly programmed, the subfleet IDs can be stored in scan lists and the radio used just as described above. While all the attention is focused on the 235XLT's trunking ability, it's worthwhile to mention that the TrunkTracker is also a fully capable 300-channel conventional scanner as well. (You can't monitor a trunked system and a conventional system at the same time.)

It's Triple Conversion!

The 235XLT may resemble the 220XLT on the outside, but Uniden has upped the ante by making this unit (and the 895XLT base model expected later this year) triple conversion. By adding this third step Uniden has gone a lonq way toward eliminating the intermod and images that were a problem with the 220XLT.

I took the 235XLT driving around downtown Tampa and in areas where my PRO-2026 was flooded with intermod from strong pager signals, the TrunkTracker remained well-behaved and quiet. That's not to say the radio is perfect. By removing the antenna and searching the entire 29 to 956 MHz coverage range (not continuous) I located about 30 "birdies," or internally generated signals which caused the scanner to pause on certain frequencies. I also found television audio images around 111.00 MHz in the VHF aircraft band and at around 406 MHz in the land mobile band.

"The 235XLT is one of the first radios built to meet Uniden's proposed 38db cellular image rejection standard now under consideration by the FCC."

Noticeably missing are cellular telephone transmission images. The 235XLT is one of the first radios built to meet Uniden's proposed 38db cellular image rejection standard now under consideration by the FCC. Reportedly, FCC inspectors were unable to locate cellular images anywhere in the radio's tuning range.

There's been a great deal of speculation that Motorola would take legal action to block sales of the TrunkTracker. While things may have changed between when this article was written and the time you read it in early June, the latest word from Motorola is no legal action has been filed. The company's only comment was "we are aware of the radio and we are looking at our options."

The 235XLT comes complete with a rubber ducky antenna, a battery charger and two NiCd battery packs. Both the pack inside the radio and the spare pack can be charged at the same time. Although the suggested retail price is $429.95, the TrunkTracker is typically selling for $270 to $300, depending upon the dealer. ■

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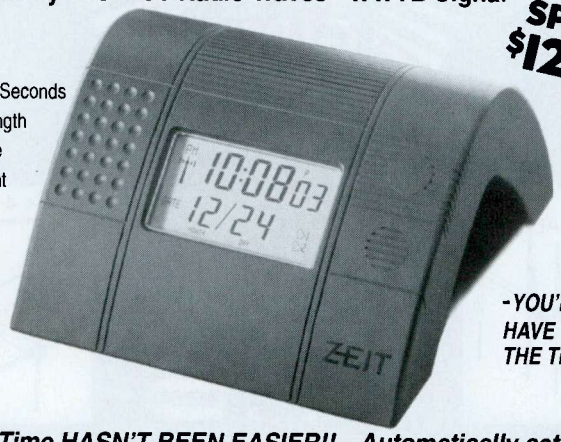

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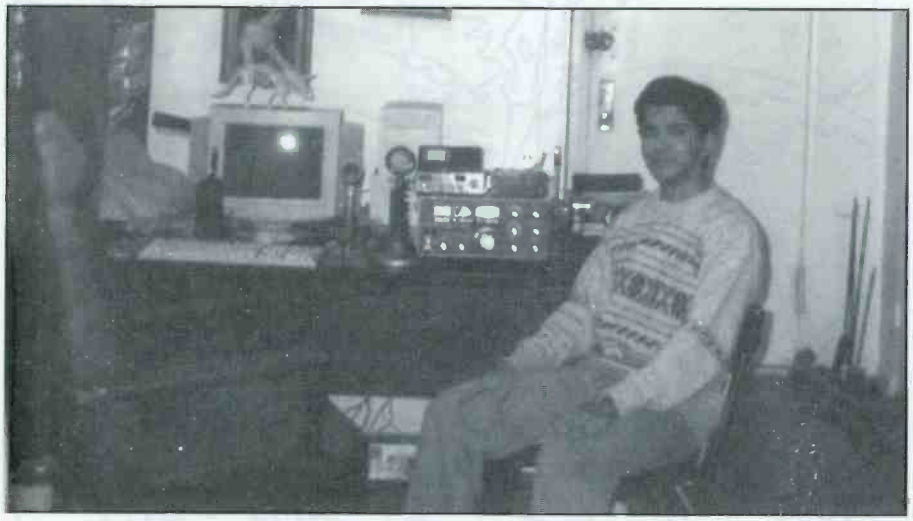

Sumeet Kishnani of Flushing, NY at his monitoring post.

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Our July Winner

Sumeet Kishnani of Flushing, NY contacted us via e-mail with his very interesting radio story. Last December I purchased my first scanner after months of consideration. I now utilize it to its fullest! Soon, I opened the gates to a different world—shortwave.

The amount of literature on the topic was a glut compared to that on scanning, still insufficient and frustrating, but I managed to get mailing addresses for several publications, previously unknown to me. I wrote to all of them requesting information. *Popular Communications* and *National Scanning* were the first to reply. I still haven't received anything from the rest. But at last I had the resources to build upon my newly found hobby, which had been motivated by curiosity alone.

I found the ham bands to be very interesting on my scanner, and I soon inundated my bookshelves with study materials for licenses of all classes. I even started taking class notes in CW. (Many perplexed sources can actually verify this). A few days later, scanning the ham bands again, I heard a station express his lack of interest in the hobby after 52 years of listening!! My first thoughts were, "I hope I never get tired of this hobby." However, if radio still has over 50 years of fascination left for me, then this neophyte made the right decisions in purchasing that scanner. ■

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Scanning The Globe

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

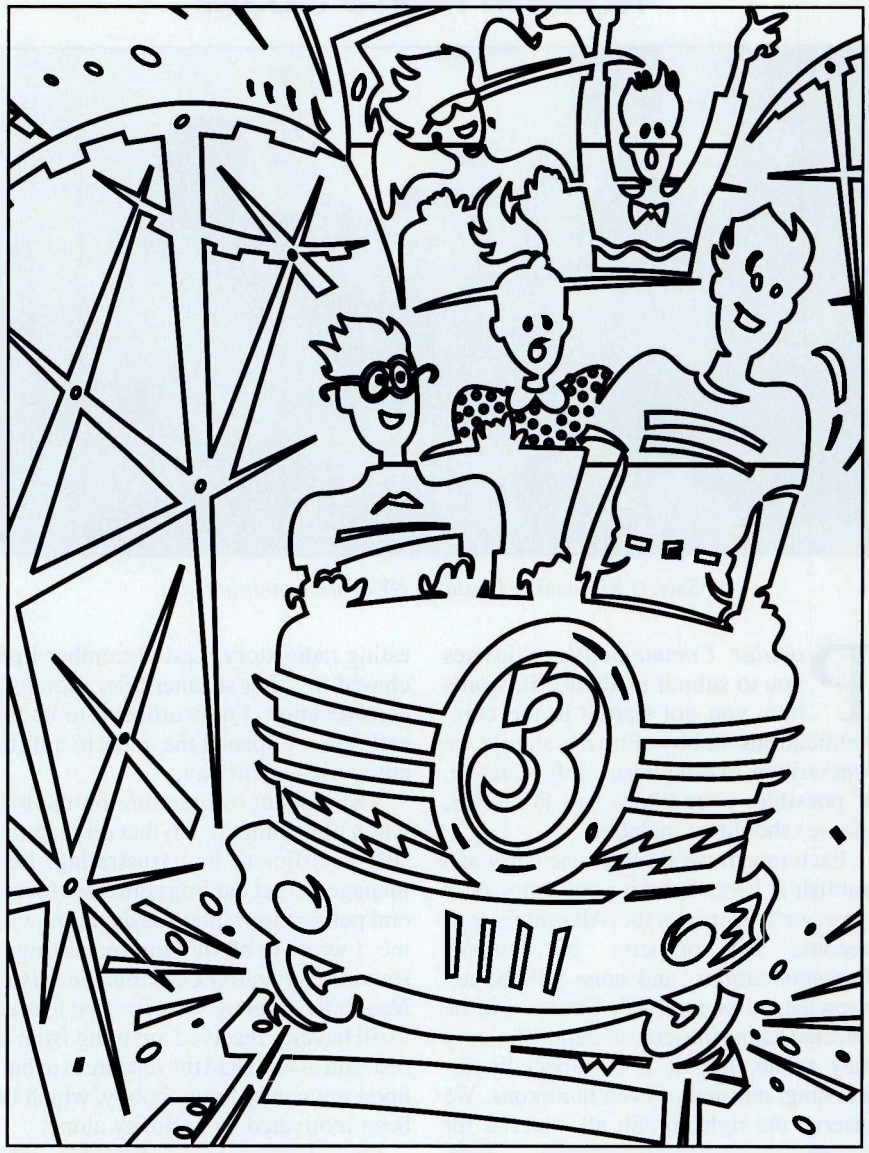
Amused at These Frequencies!

It's summertime, and a favorite pastime is visiting amusement parks large and small. If you head to an amusement park this summer or fall, you may want to pack along a handheld scanner to check out the communications action behind the scenes.

What frequencies are used by amusement parks? A lot of scanner hobbyists will be visiting the fun parks this summer and if you take along a scanner, you can keep abreast of the action. Most amusement parks use business radio frequencies for operations such as security, maintenance, ride operations, entertainment and paging. Typically, it's easy to find amusement park channels.

First, check out the routine VHF business band channels. Some may use the itinerant channel of 151.625. Also, check the other 151 MHz business channels from 151.685 to 151.955. There also are several channels from 154.515 to 154.625. If you don't find any operations there, be sure to check the UHF segments, especially 461 to 465 and 466 to 470 MHz. Be sure to search in 12.5 kHz steps in case low-power channels are being used. These low-power channels are offset 12.5 kHz from routine, normal power channels. For instance, 461.6125 is offset 12.5 kHz from 461.600 and 461.625. The maximum power output allowed on these low-power channels is 2 watts and repeaters are allowed as long as they follow the same power restrictions. There also are some low-power channels at 457.525 to 457.600 MHz.

Keep in mind that your scanning activity may appear to be suspicious to amusement park security guards trying to do their jobs. If they request that you keep your radio out of the park, respect their wishes. After all, you are their guest. However, one trick that seems to work a lot of times is to disguise your scanner as a Walkman™-type of radio. Use your scanner as normal - clipped to your belt, but use a pair of Walkman-type headphones. In fact, you probably could get away without using the rubber duck on your scanner while within the park, too, so go ahead and remove it. You'll hear all the nearby action without an antenna. In fact, it will eliminate a lot of communications from outside the park such as a nearby city that you'd rather not hear anyway.



Summer Action

Don't forget you'll find business frequencies active at various other events during the summer, too, such as baseball games (stadium security is a primary user), auto races (hear the drivers talk to their pit crews), Special Olympics (464.500 and 464.550 are favored by these groups), fairs and festivals (support crews and security will use radios a lot) and more.

The frequencies of 151.625, 464.500, 464.550, 469.500 and 469.550 are reserved for itinerant users and you can almost always find folks using these frequencies for everything from surveying to bridge building to football teams and more. No matter where you live in the United States, you are bound to find someone using one of those itinerant frequencies at any given time during the year, if you keep a constant watch on the channels. In addition, the frequencies of

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154.570 and 154.600 MHz are reserved for low-power use (2 watts) and often are used for purposes such as security at stadiums and facilities such as museums and more. You won't find more than walkie-talkies on these two channels, though.

And when searching through the 461-465 MHz band, remember to search in 12.5 kHz steps so you don't miss all the potential activity on the low-power (2-watt) splinter frequencies offset by 12.5 kilohertz from normal full-power channels. The low-power channels can be used for repeaters, phone calls, paging, walkie-talkies, data or telemetry, and any other conceivable use. These splinter channels fall between the full-power channels.

Unlocking Trunking Data

John Stephens from Passaic, NJ says he wants to monitor trunked communications in his area, but heard that he needs to lock out so-called data channels. He asked via e-mail for an explanation on how to lock and unlock these data channels. It's pretty basic stuff, but it's important for those who monitor trunked communications systems.

In most trunked systems, one of the many channels being used for the system will have "noise" on the channel. It will sound like that dreadful alarm clock that shakes you out of bed every morning. It sounds like a chainsaw that needs oil. It's a horrible noise and you don't want to monitor it! This data channel is sending out data, or computer information, to every radio in the radio system's fleet. For instance, if a New Jersey State Police trooper on the statewide system in New Jersey is ready to transmit a message, the radio sends out its own data signal 45 MHz below the data channel, and the controller at the trunked radio system sends back a signal on the data channel instructing all other radios in the same fleet to tune to the channel the unit transmitting is on. In some systems, these data channels switch from one channel to another every few hours, or at least once a day.

It is a signal you don't want to monitor because your scanner will stop on this channel and stay there because of the noise. Thus, you lock out this channel when it pops up on your scanner. Use the lockout button on your scanner so the scanner doesn't stop on this channel each time it passes by the frequency. However, when a new data channel pops up on your scanner and it locks onto it, it's time to lock out that channel and go back and unlock the other channel that had been in use as the data channel.

Tone Tip

Here's a tip I like to pass along: If an agency uses digital encryption in your area and you have a CTCSS (continuous tone-coded squelch system) or subaudible tone-capable scanner, you can screen out that awful racket.

In systems that use digital encryption, it sounds like static the entire time the station is transmitting. It gets awfully annoying to hear that static. However, if there also are clear-voice communications on the channel, you can screen out that static and hear all the clear calls. First you must determine the CTCSS tone being used by the agency you wish to monitor. Federal agencies have a tendency to use the same CTCSS tone on a nationwide basis. For instance: FBI, 167.9 Hz; Secret Service and White House Communications Agency, 103.5 Hz; and Drug Enforcement Agency, 156.7 Hz. By using the CTCSS capability on your scanner, it will not stop on the channel if it hears the digital encryption, however, it will allow clear voice calls to pass through the scanner's speaker. You may want to try this neat trick if you are tired of hearing static day and night because your local police department is using digital encryption to call in lunch orders to the dispatcher!

Extenders Explanation

Ted Riley from East Stroudsburg, PA, inquired about monitoring highway patrol speed traps. He was curious if scanners can receive radar signals.

No, police radar does not operate on conventional VHF/UHF frequencies. Most police radar operates on 10525 and 24150 megahertz — or even laser. I don't think you'll find any receivers readily available that can receive signals that high except for radar detectors. What you can hear on a scanner related to radar is the frequencies that police radar teams use to catch speeders. In many states, the troopers havecertain frequencies in their two- way radios allocated specifically for radar patrols. For instance, Pennsylvania State Police use 154.755, their car-to-car channel, for catching speeders. Units can be on the ground as well as in an airplane. In Iowa, 155.505 is set up as an "air" channel and is used to catch speeders from Iowa State Patrol airplanes. Knowing these frequencies and listening to them while mobile will tip you off as to where radar patrols (a/k/a "speed traps") are set up. That's how you can use a scanner to find out where radar is up the road.

Another trick is to know when patrol cars are near you. In many states, mobile extenders are used by troopers, especially when they step out of their vehicles. These mobile extenders operate like this: When the trooper leaves his or her cruiser, he or she takes a walkie-talkie along. The walkie-talkie transmits on a dedicated frequency to the patrol car and the patrol car retransmits the signal from the walkie-talkie on the car's mobile transmit channel. The advantage is that by using a handheld radio, the trooper has the full power of the mobile radio behind his or her signal.

Whereas a handheld radio may not reach the dispatcher, the patrol car radio most likely would. By having the patrol car's radio retransmit the handheld's radio signal, the trooper has a better chance of reaching the dispatcher, especially on crowded radio channels.

In addition, the mobile extenders often will relay the signal from the dispatcher to the handheld radio carried by the trooper. If the trooper were in a ravine assisting an accident victim, he or she may not be able to hear the dispatcher while away from the vehicle. However, the extender will retransmit that signal from the patrol car to the trooper's handheld radio. The extender's primary purpose is to offer extended range for handheld radios used while the trooper is outside his or her vehicle.

Not all extenders operate the same, however. For instance, in California, mobile extenders retransmit signals they hear from dispatchers onto the handheld channels all the time. Thus, if you are anywhere within a mile or more from a highway patrol car, you will hear the signal. There have been some scanners made that detect communications heard on these mobile extender channels to alert the motorist that there is a trooper nearby. In other states such as Iowa, the mobile extenders are turned on only when the troopers exit the cruiser.

Write In!

Do you have questions about scanning? What tips can you pass along to your fellow readers? What frequencies do you find the most interesting? We also welcome photos of listener's shacks and two- way systems. Write to: Chuck Gysi, N2DUP, Scanning the Globe, Popular Communications, P.O. Box 11, Iowa City, Iowa 52244-0011. ■

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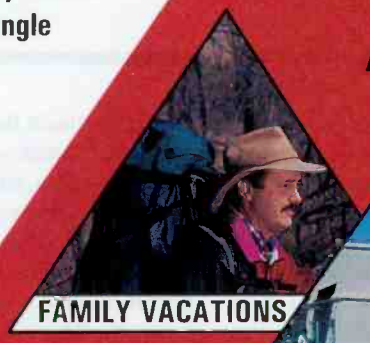

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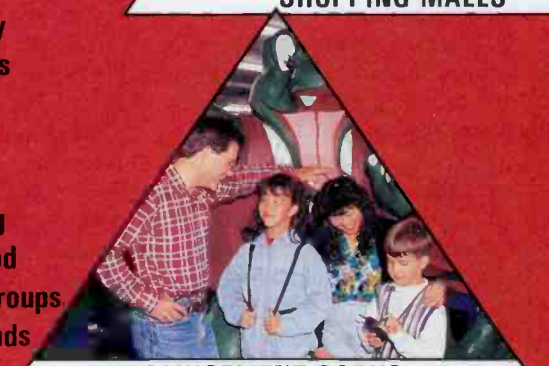

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CIRCLE 91 ON READER SERVICE CARD

Final Survey Results Are Here!

by Harold Ort, N2RLL, Editor

Congratulations to all of the readers who received a free one-year subscription or subscription extension in our monthly random drawings! *Everyone* who answered our questions on the Reader Service Card helped us tremendously as we try to mold *Pop'Comm* into an even better radio enthusiast magazine. A special thanks to those who even sent personal letters with many valuable comments and ideas in addition to mailing the free Reader Service Card.

We've learned a great deal about you during the past few months; information that will be used to plan future columns, articles and the general direction of *Pop'Comm*. We're still compiling the results, translating what the computers and folks at Berkshire Computer told us into plain English that everyone can understand.

Take for example what you told us about your radio spending habits; many of you spent between $250-500 during the past year or so on communications gear, while relatively few of you spent more than $2000. Looking at those who spent between $500-700 and those who spent under $250, the final results showed that 32 percent of you spent under $250, while fully 70 percent spent between $500-700.

Where You Live

Interestingly, a great majority of our readers are in both the northeast and midwest—actually nearly the same numbers of folks responded from each of those areas. On the other hand, respondents from the south central U.S. were about 5 percent of the total. Other percentages break down like this: Our friends to the north in Canada amount to about 3 percent of those folks sending in the Reader Service Card; readers in the southwest U.S. numbered about 8 percent; northeast and midwest amounted to about 23 percent each; middle Atlantic, 6 percent; southwest, 8 percent; metro area readers are about 7 percent of our readers; while suburban readers are about 14 percent. Readers outside the U.S. and Canada and in "other" areas—possibly military stationed overseas, and reader's in other overseas areas, amount to about 3 percent.

Taking a look at exactly *where* you live in these large geographic areas, we find the pie divided nearly into five equal parts between large cities, small cities, suburbs, and small towns/rural areas.

Other Interesting Info

I've read the Internet postings about the state of the hobby and the opinions—and they are just that, opinions—naturally, they run the spectrum, as you might imagine. So a while ago we asked you how YOU felt about the state of the hobby. Your responses were quite interesting.

There's no question that an overwhelming majority feel the entire radio hobby is in a state of change. Nearly the same number of respondents—about 35 percent—feel that hobby is also in a period of slow, but steady growth. Twenty-two percent of you feel the hobby is "prosperous." Conversely, those enthusiasts (if you wish to use that word literally!) who feel our hobby is experiencing minimal growth and expansion, are about 10 percent of the total.

Another "hot potato" topic these days is Morse code; should it be retained in it's present form as a licensing factor, eliminated altogether, replaced with a hands-on test, have a single 10-wpm test for HF operation, or should the requirement be lowered in each license category? Now, some things in life are just a puzzle, and the responses to this question were no exception. Then again, some might contend the responses were predictable.

Considering any slight margin of error, nearly the same number of folks saying they had "no opinion" on this topic said the code requirement should be eliminated. And nearly the same number of readers responding to the question said they'd keep the code in its present form also said they'd completely eliminate the code requirement!

So as percentages, 25 percent of you reported you'd eliminate the code requirement; 24 percent favored keeping it in its present form; 13 percent said they'd eliminate the code and replace it with a hands-on test; only 5 percent favor lowering the wpm standard; more than twice that number—10 percent of our readers would have a single 10-wpm test for HF operation; and 23 percent have no opinion on the subject.

What Our Neighbors Think About Hams

Talk to your neighbor down the street about our hobby; ham radio, CB, shortwave, and scanning—what will they say? When you talk to non-hams (and if you're not a ham, please don't be offended; often non-hams down the street who don't know a scanner from a supermarket scanner lump radio hobbyists into one radio basket anyway.)

Based on personal observations over many years, I've always thought folks who aren't radio hobbyists think we're all "CBers" or even "hams." Let's examine the results together.

Of all the respondents to our question in the May issue, 29 percent of the non-hobbyists you talk to know little about the hobby, although 7 percent have seen hams on TV helping during disasters. The question, or perhaps more accurately, the *answer* of the day—indicates that 10 percent of our non-ham friends think ham radio is like CB. (Sorry 'bout that, but I just *had* to ask the question.)

Nearly 20 percent of you think those you talk to about ham radio believe it is too technical. Another 15 percent believe it is too expensive. Looks like we've all got some work to do, because another 7 percent would like more information on the ham radio hobby. When I see a figure that high, I see potential hams, scanner enthusiasts, CBers and much more. Manufacturers and dealers see dollar signs,

(Continued on page 76)

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The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass and receiver grounded position. 2x3x4 in.

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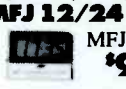
Cellular look-a-like. Covers 25-1300 MHz. High - est gain on 406-512 and 108-174 MHz, 19 in. Magnet mount. MFJ-1824BB has BNC/UHF plug; MFJ-1824BM has Motorola plug.

MFJ-1824BB/BM **$19.95**

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**



MFJ-108B **$19.95** MFJ-105B **$19.95**

MFJ-108B, dual clock displays 24 UTC and 12 hour local time *simultaneously*. **MFJ-107B**, single clock shows you 24 hour UTC time. *3 star rated* by *Passport to World Band Radio*!

MFJ-105B, accurate 24 hour UTC quartz *wall clock* with large 10 inch face.

MFJ Antenna Switches

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MFJ-1702B **$21.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

MFJ-1702B for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95***kit*
MFJ-8100W **$79.95***wired*

Build this *regenerative* shortwave receiver *kit* and listen to shortwave signals from all over the world with just a 10 foot wire antenna.

Has RF stage, vernier reduction drive, smooth regeneration, five bands.

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Pop'Comm's World Band Tuning Tips

July 1997

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German).Times given are in UTC, which is five hours ahead of EST, i..e. 0000 UT equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	5890	Radio Vilnius, Lithuania via Germany	GG/EE
0000	5930	Radio Prague, Czech Republic	
0000	9705	R. Mexico Int'l	SS
0030	4980	Ecos del Torbes, Venezuela	SS
0030	7325	Austria Radio Int'l	
0030	9022	VOIRI, Iran	GG
0030	9540	Radio Exterior Espana, Spain	
0100	4805	Radiodifusora Amazonas, Brazil	PP
0100	4919	Radio Quito, Ecuador	SS
0100	5030	Adventist World Radio, Costa Rica	SS
0100	5498	Radio Lajas, Peru	SS
0100	6010	RAI, Italy	
0100	6135	Swiss Radio Int'l	
0100	6190	Radio Budapest, Hungary	
0100	6260	Voice of Greece	GG/EE
0100	7105	Radio Tashkent, Uzbekistan	
0100	7115	Radio Yugoslavia	
0100	7180	Radio Ukraine	
0100	7345	R. Prague, Czech Republic	EE
0100	9545	Deutsche Welle, Germany	
0100	9650	Emisora Ciudad de Montevideo, Uruguay	SS
0100	9745	HCJB, Ecuador	
0100	15167	Radio Tahiti	FF
0127	7250	All India Radio, Goa (India)	Nepali
0130	5960	Voice of Germany via Canada	
0130	7290	Radio Sweden	
0200	3250	Radio Luz y Vida, Honduras	SS
0200	4418	Radio Bambamarca, Peru	SS
0200	4755	Radio Edu. Rural, Brazil	PP
0200	4930	Radio Internacional, Honduras	SS
0200	5077	Caracol Colombia	SS
0200	5970	Radio Exterior Espana via Costa Rica	SS
0200	6000	Radio Havana Cuba	EE
0200	6025	Radio Amancer, Dominican Republic	SS
0200	6045	Deutsche Welle, Germany	
0200	6150	Adventist World Radio, Costa Rica	SS
0200	9735	R. Nacional Paraguay	SS
0200	11780	Radio Nacional/Radiobras, Brazil	
0230	6140	Radio Tirana, Albania	
0230	6200	Radio Sweden	
0230	7160	Radio Tirana, Albania	
0243	7210	Qatar Broadcasting Service	AA, s/on
0250	6095	Vatican Radio	
0250	7200	Republic of Sudan Radio	AA
0300	3220	Channel Africa, South Africa	
0300	3396	Radio Three, Zimbabwe	
0300	4875	Rdf. Roraima, Brazil	PP
0300	4955	Radio Nacional, Colombia	SS
0300	4960	Voice of America relay, Sao Tome	
0300	4976	Radio Uganda, Uganda	
0300	5009.5	Radio Malagasy, Madagascar	0259 s/on
0300	5025	Radio Rebelde, Cuba	SS
0300	5055	RFO, French Guiana	FF
0300	9690	China Radio International, via Spain	
0300	9700	Radio Bulgaria	
0300	15270	Radio Pilipinas, Philippines	
0330	4760	Trans World Radio, Swaziland	GG
0400	3270	Namibian Broadcasting Corp.	
0400	3330	Christian Voice, Zambia	
0400	4820	La Voz de Evangelica, Honduras	SS
0400	4991	Radio Ancash, Peru	SS
0400	7300	Voice of Turkey	
0430	6165	Radio Netherlands via Bonaire	
0500	4850	CRTV, Cameroon	FF
0500	4904.5	Radiodiffusion National Tchadienne, Chad	FF
0500	6105	Radio Universidad, Costa Rica	SS
0500	6185	R. Educacion, Mexico	SS/EE
0500	7255	Voice of Nigeria	
0500	7480	R. Bulgaria	
0500	9475	Kol Israel	
0500	9485	Radio Bulgaria	EE
0500	9580	Africa No. One, Gabon	FF
0530	4750	Voice of America relay, Sao Tome	FF
0600	3290	GBC Radio, Guyana	SS
0600	4815	RadioTV Burkina, Burkina Faso	FF
0600	4870	ORTB, Benin	FF
0600	4915	GBC, Ghana	
0600	6090	Caribbean Beacon, Anguilla	
0600	7125	RTV Guineene, Guinea	FF

UTC	Freq.	Station/Country	Notes
0600	7215	RTV Ivoirenne, Ivory Coast	FF
0600	9660	Vatican Radio	
0630	6015	R. Austria Int'l, via Canada	
0700	4783	Radio TV Malienne, Mali	FF
0700	5860	HCJB, Ecuador	
0700	7155	RTV Malagasy	FF
0700	11730	Trans World Radio, South Africa	
0730	9660	Radio Australia	
0800	5980	Radio Guaruja, Brazil	PP
0800	6070	Radio Japan-NHK World, via Fr. Guiana	
0800	6100	R. New Zealand Int'l	
0800	9500	Trans World Radio, Swaziland	EE
0900	6030	Radio Globo, Brazil	PP
0900	6160	CKZU, Canada	PP
0900	9505	Radio Record, Brazil	PP
0900	9885	Swiss Radio Int'l	II
0930	4895	Radio Bare, Brazil	PP
1000	4780	Radio Oriental, Ecuador	SS
1000	4790	Radio Atlantida, Peru	SS
1000	4996	Radio Andina, Peru	SS
1000	6030	Radio Vlaanderen Int'l, Belgium	
1000	6065	Colmundo, Colombia	SS
1000	6106	CKZN, Canada	
1000	6115	La Voz del Llano, Colombia	SS
1000	6155	Radio Fides, Bolivia	FF
1000	21605	UAE Radio, Dubai	
1030	5020	Solomon Islands Broadcasting Corp.	EE
1100	3305	Radio Western, Papua New Guinea	Pidgin
1100	3340	Radio Altura, Peru	SS
1100	4770	Radio Centinela del Sur, Ecuador	SS
1100	4890	NBC, Papua New Guinea	Pidgin
1100	6175	Faro del Caribe, Costa Rica	SS
1100	7455	KSDA-Adventist World Radio, Guam	CC
1100	9580	R. Australia	
1100	9730	Voice of Vietnam	
1130	3260	Radio Madang, Papua New Guinea	Pidgin
1130	6120	R. Japan via Canada	
1130	9650	R. Korea, S. Korea, via Canada	
1130	9700	Radio New Zealand Int'l	
1200	5975	Radio Tashkent, Uzbekistan	
1200	9645	VOA relay, Thailand	
1200	9810	Radio Thailand	
1200	13790	R. Bulgaria	
1200	13800	Radio Norway	
1200	15115	HCJB, Ecuador	
1200	15400	R. Finland Int'l	Finnish
1230	11615	Radio France Int'l	
1230	11735	Radio Finland Int'l	
1230	12020	Voice of Vietnam	
1230	12085	R. Ulaan Bataar, Mongolia	
1230	15195	Radio France International	
1230	15430	Voice of Russia via Moldova	
1300	7145	Radio Thailand	various
1300	7365	KNLS, Alaska	
1300	9440	Voice of Asia	unid
1300	9590	R. Norway	NN
1300	9985	KHBN, Palau	
1300	11815	Polish Radio	
1300	15445	FEBA, Seychelles	unid
1300	15605	Radio Norway Int'l	NN/EE
1300	17745	R. Romania Int'l	
1320	21520	RAI, Italy	s/on; Sun.
1330	11650	R. Sweden	
1330	13675	UAE Radio, Dubai	
1330	13770	Radio Austria Int'l	
1400	9405	FEBC, Philippines	CC
1400	13580	Radio Prague, Czech Republic	
1400	13610	R. Vlaanderen Int'l, Belgium	
1400	15160	Radio Algiers Int'l, Algeria	
1400	17560	Radio France Int'l, via Gabon	
1400	17780	RAI, Italy	II
1400	17830	Qatar Broadcasting Service	AA
1430	9485	Radio Sweden	
1430	9535	Radio Japan NHK World	
1430	21515	Radio Portugal Int'l	
1500	9785	China Radio Int's	
1500	9835	All India Radio	Urdu
1500	9910	All India Radio	
1500	11580	Trans World Radio, Guam	
1500	11605	Kol Israel	
1500	11890	Radio Oman	AA
1500	13635	Swiss Radio Int'l	
1500	17545	Reshet Bet, Israel	Hebrew
1600	11750	Qatar Broadcasting Service	AA
1600	11900	Channel Africa, South Africa	Swahili
1600	15160	Radio Algiers Int'l, Algeria	
1600	15240	Channel Africa, South Africa	
1600	21560	Deutsche Welle, Germany	GG
1630	15395	UAE Radio, Dubai	EE
1630	21700	R. Japan NHK World, via Gabon	JJ
1800	11850	Voice of the Great Homeland, Libya	AA
1800	11975	VOA relay, Sao Tome	
1800	13780	All India Radio	
1800	15265	Radiobras/Radio Nacional, Brazil	
1800	15450	RTT Tunisia	AA
1830	11645	Voice of Greece	
1830	11705	Radio France International	FF
1830	11990	Radio Kuwait	
1900	9870	BSKSA, Saudi Arabia	AA
1900	15345	RAE, Argentina	
1900	17785	VOA via Morocco	
1930	15505	Radio Kuwait	AA
2000	11805	Radio Globo, Brazil	PP
2030	7500	Radio Moldova Int'l, via Romania	
2030	9525	Voice of Indonesia	
2030	11960	HCJB, Ecuador	
2030	12085	Radio Damascus, Syria	
2030	15476	R. Nac. Archangel San Gabriel, Antarctica	EE/SS
2100	11915	Radio Gaucha, Brazil	PP
2100	13725	Radio Havana Cuba	USB mode
2200	9445	Voice of Turkey	TT/EE
2200	9555	BSKSA, Saudi Arabia	AA
2200	9570	R. Portugal	PP
2200	17795	Radio Australia	
2230	5945	Radio Austria Int'l	
2230	9855	Radio Kuwait	AA
2245	9600	Vatican Radio	
2300	7475	RTV Tunisienne, Tunisia	AA
2300	9755	Radio Canada Int'l	
2300	9900	Radio Cairo, Egypt	
2300	11700	Radio Pyongyang, North Korea	
2300	11795	UAE Radio, Dubai	AA
2300	9275USB	Iceland National Broadcasting	Icelandic
2330	7105	Radio Romania Int'l	
2355	9925	R. Vlaanderen Int'l, Belgium	GG

Product Parade

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

BY NANCY BARRY
AND R.L. SLATTERY

New Compact Dual-Band Handheld

ICOM has introduced an ultra-slim, dual-band handheld. The IC-W32A offers a total of 200 memories that may be displayed by either frequency or alpha name. Up to eight alphanumeric characters can be programmed for quick and easy identification on the LCD. Each band has 100 memory channels and four DTMF memories have up to 16-digit capability. The IC-W32A's memory management allows you to transfer memory contents to either VFO or to other memories while an EEPROM prevents memory loss if the battery runs low.

The ICOM IC-W32A can receive both VHF and UHF bands simultaneously with both frequencies displayed or you can use the V/V and U/U functions to receive two frequencies on the same band. You can transmit on either operating band. The unit has separate tuning and volume controls for each band on the top panel to allow independent adjustment of each band and the VHF/UHF exchange function allows you to assign VHF/UHF tuning and volume to either knob. Frequency coverage is 144–148 MHz and 440–450 MHz transmit, and 118–174 MHz and 400–470 MHz receive.

For further information, contact your local amateur radio dealer or ICOM America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004; or phone them at 206-454-8155.

Pocket Size Morse Code Tutor from MFJ

MFJ is now offering the MFJ-418 pocket size Morse Code Tutor™ with custom character sets, beginner's course

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The ONLY Commercially Available Computer Control Program for the Universal M-7000 & M-8000.
Also, AEA's PK-232 and the MFJ-1278.

COPYCAT-PRO FEATURES

- 32K incoming text buffer.
- Pull down menus.
- Mouse support (but not required).
- Runs on any 640K PC-Compatible.
- New improved online help.
- Control BOTH your TNC and radio simultaneously!
- Multiple pop-up windows for HELP, frequency files, and text editor.
- Supports ALL SCANCAT files.
- Easier, "Plain English" MACRO language for control of all radio and TNC functions.
- Supports most radios. Call for info!

Discover our revolutionary COMPUTER CONTROL PROGRAM for the M-7000, M-8000, PK-232, and MFJ-1278. Let COPYCAT-PRO free you FOREVER from remembering all those buttons and keys. COPYCAT-PRO does it all! Simple "PULL-DOWN" menus control all functions. ALL commands are in plain English *PLUS* COPYCAT-PRO has a fully editable text buffer, with cut & paste. 20 PROGRAMMABLE macros and much more. COPYCAT-PRO supports ALL of the above units within ONE program.

COPYCAT-PRO $79.95, UPGRADES $24.95
S/H $5.00 ($7.50 Foreign)
Specially wired cable for the M-7000/8000 $24.95

CAT-WHISKER

TIRED OF YOUR HANDHELD SCANNER ALWAYS FALLING OVER JUST TO KEEP THE ANTENNA "VERTICAL"?

Try our unique, swivel base, telescopic scanner antenna. Our new CAT-WHISKER lets you lay your handheld scanner on its back and still keep the antenna vertical!

- Swivels to ANY angle.
- Easily adjusts to any length AND frequency.
- Fits ANY scanner with a BNC antenna connector.
- Fits on BACK or TOP mount scanner antennas inputs.

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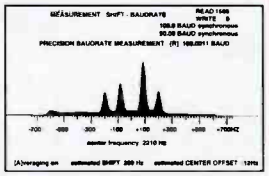
CAT-WHISKER #2 (6 to 36 inches) $24.95
(plus $2.50 S & H)

HOKA CODE-3 USA Version

"The Standard Against Which All Future Decoders Will Be Compared"

Many radio amateurs and SWLs are puzzled! Just what are all those strange signals you can hear but not identify on the Short Wave Bands? A few of them such as CW, RTTY, Packet and Amtor you'll know - but what about the many other signals?

There are some well known CW/RTTY Decoders but then there is CODE-3. It's up to you to make the choice, but it will be easy once you see CODE-3. CODE-3 has an exclusive auto-classification module that tells YOU what you're listening to AND automatically sets you up to start decoding. No other decoder can do this on ALL the modes listed below - and most more expensive decoders have no means of identifying ANY received signals! Why spend more money for other decoders with FEWER features? CODE-3 works on any IBM-compatible computer with MS-DOS with at least 640kb of RAM, and a CGA monitor. CODE-3 includes software, a complete audio to digital FSK converter with built-in 115V ac power supply, and a RS-232 cable, ready to use.


Simulated Speed Measurement Module

CODE-3 is the most sophisticated decoder available for ANY amount of money.

26 Modes included in STANDARD package include:

- Morse ★
- RTTY/Baudot/Murray ★
- Sitor CCIR 625/476-4 ARQ - Navtex ★
- AX25 Packet ★
- Facsimile all RPM (up to 16 gray shades at 1024 x 768 pixels ★
- Autospec - Mk's I and II
- DUP-ARQ Artrac
- Twinplex
- ASCII ★
- ARQ6-90/98
- SI-ARQ/ARQ-S
- SWED-ARQ-ARQ-SWE
- ARQ-E/ARQ1000 Duplex
- ARQ-N-ARQ1000 Duplex Variant
- ARQ-E3-CCIR519 Variant
- POL-ARQ 100 Baud Duplex ARQ
- TDM242/ARQ-M2/4-242
- TDM342/ARQ-M2/4
- FEC-A FEC100A/FEC101
- FEC-S • FEC1000 Simplex
- Sports info 300 baud ASCII
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	REG. PRICE
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- All modes in typical baud rates with possibility of changing to any desired value of speed and shift.
- User can save incoming data to disk in either ASCII or raw bit form.

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based on the ARRL method and Word Recognition Mode™. The new Morse Code Tutor allows users to learn Morse code anywhere.

MFJ's Word Recognition Mode gives you hundreds of commonly used words in amateur radio allowing you to learn whole word recognition instead of individual letters.

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For more information, contact MFJ Enterprises, Inc., 300 Industrial Park Road, Mississippi State, MS 39762; phone 601-323-5869; fax 601-323-6551; Visit their Web site at <http://mjfenterprises.com> or order toll-free by calling 1-800-647-1800.

New Add-On ADSP Unit from SGC

The new PowerClear add-on ADSP unit from SGC Inc. utilizes the same DSP technology found in the SG-2000 PowerTalk control head. This add-on unit can be used with any non-DSP transceiver (HF or VHF/UHF) or other audio device to improve audio quality and noise and interference reduction.

Two input jacks are provided for both low-impedance (8 or 16Ω) and high-impedance (600Ω) audio. This means audio from a variety of sources (e.g., transceiver, telephone, scanner, cassette tape recorder) can benefit from ADSP enhancement. High and low impedance jacks are provided for ADSP-enhanced audio as well. Inserting a plug into the rear-panel speaker jack disables the internal speaker, and a PTT connection mutes audio during transmit when used with transceivers.

The PowerClear offers operator-controlled tailoring of the low-, center-, and high-cut audio filters. Push-buttons activate the notch filter as well as noise reduction and SNS (Spectral Noise Subtraction). An internal audio amplifier (approx. 5W) with front-panel volume control allows room-filled audio even when driven from line-level sources. The unit measures approximately 3.75 x 605 inches and contains a built-in speaker, red and green LEDs that provide a precise visual tuning field for high, mid and low frequency corners; and preset and user-programmable memories that allow quick recall of ADSP, SNS, and high, center, and low notch filter settings.

For more information, contact your local SGC dealer; or call SGC directly at 1-800-259-7331, for the name of a dealer near you.

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INTRODUCING . . . SCANCAT GOLD for Windows

Since 1989, The Recognized Leader in Computer Control

Once you use SCANCAT with YOUR radio, you'll NEVER use your radio again WITHOUT SCANCAT!

SCANCAT supports almost ALL computer controlled radios by: AOR, DRAKE, KENWOOD, ICOM, YAESU and JRC (NRD) Plus PRO-2005/6/35/42 (with OS456/535), Lowe HF-150, and Watkins-Johnson.

SCANCAT'S BASIC FEATURES

- Search between any 2 frequencies.
- Search by ANY increment.
- Create Disk files.
- Import from most text formats to a working SCANCAT file.
- Unattended Logging of frequencies to files while scanning.
- Scan Disk Files.
- Spectrum Analysis to Screen OR Printer.
- Supports PerCon & Mr. Scanner CD Roms.

PLUS

- LINK up to 15 Disk files.
- Scan VHF & HF Icom's Simultaneously.
- Print to ANY printer or Disk files.
- MULTIPLE search filters for Diskfile Scanning.
- Search by CTCSS & DCS tones with OS456/535 or DC440 (ICOM only).
- INCLUDES several large shortwave and VHF/UHF databases

NEW! Windows Version Supports AR5000 and IC-R8500

POWERFUL COMMERCIAL FEATURES SUCH AS:

- Demographic search for frequency co-ordination and 2-way Usage Analysis.
- Detailed logging to ASCII type files with DATE, TIME, Sig Str., Air Time.
- UNLIMITED file sizes with our exclusive SCANCAT filing method.
- Exclusive "MACRO" control by frequency of Dwell, Hang, Resume, Sig. Treshhold and even 6 separate programmable, audible alarms.
- Command line options for TIMED ON/OFF (Unattended) logging/searches.

SCANCAT IS NOT COPY PROTECTED —USE ON AS MANY COMPUTERS AS YOU NEED • SCANCAT (DOS) will run on virtually ANY 640K computer, EVEN HP-100XLT PALMTOP!

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All the features you EXPECT from a true Windows application such as:

- NO MORE CONVERSION! DIRECT scanning of most DBASE, FOXPRO, ACCESS, BTRIEVE files WITHOUT "importing". Our Exclusive "AUTO-PLAN" even sets the mode and increment on the fly!
- UNIQUE database management system with moveable columns. Even SPLIT columns into doubles or triples for easy viewing of ALL important data on one screen.
- VERSATILE "Functional" spectrum analysis. NOT just a "pretty face". Spectrum is held in memory for long term accumulation. Simply "mouse over" to read frequency of spectrum location. "CLICK" to immediately tune your receiver. You can even accumulate a spectrum from scanning DISKFILES of random frequencies!
- Exclusive 'SLIDE RULE' tuner. Click or 'skate' your mouse over our Slide-Tuner to change frequencies effortlessly! OR use our graphical tuning knob.
- INTERACTIVELY have database, MAPS or Scanning functions on screen simultaneously.
- MAPS - Load virtually ANY map or GRAPHIC Image in "BMP" format (several included with Scancat). Program 'hot spots' with your favorite frequencies. Up to 1000 frequencies per map. Click on Hotspot to immediately tune your receiver.
- A Complete Modem/Terminal with support for most current modems. Full X-Y-Zmodem download upload support up to 28,800.

SCANCAT GOLD FOR DOS.....$94.95 + S & H* SCANCAT GOLD FOR WINDOWS.....$99.95 + S & H* UPGRADE from any version.....$29.95 + S & H* *$5 U.S. $7.50 FOREIGN

MAGIC for Windows

PUT SOME ORDER IN YOUR LIFE!

MAGIC takes any ASCII text file from virtually any source, and any format, and creates "frequency files" or ordered lists.

- Corrects Inconsistent column alignment
- "Looks for" single or multiple frequencies embedded in ASCII text.
- Print to file or printer.
- Reads or writes to: SCANCAT, plain text, comma delimited, and dBase.

MAGIC for Windows $34.95 (plus $5.00 S & H)

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- Supports ICOM, AR8000/2700, YAESU and SCOUT-40.
- Comes with 6 FOOT cable, and adapters to fit all units within a single package (Must Specify Yaesu)
- Unlike "single radio" adapters, can be used with ANY radio supported, simply change the adapter, then "Plug and Play."
- Expandable in future with a simple add on adapter.
- No external power required. Draws power from computer.
- "Reaction Tune" scout with NO modifications to radio.

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CB Scene

BY ED BARNAT
BY JOCK ELLIOTT, SSB-734

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Freebanding Stirs the Pot!

You folks sure know how to make a fella feel at home. Last time we had a chance to visit, we ran out of time and space before I could get around to addressing some of the mail you have sent since I started writing for *Pop'Comm*. I sincerely appreciate your questions, comments, suggestions and especially the words of encouragement. While I have already replied to each of you individually, I would like to share a few them with the rest of you.

Brave Vs Stupid

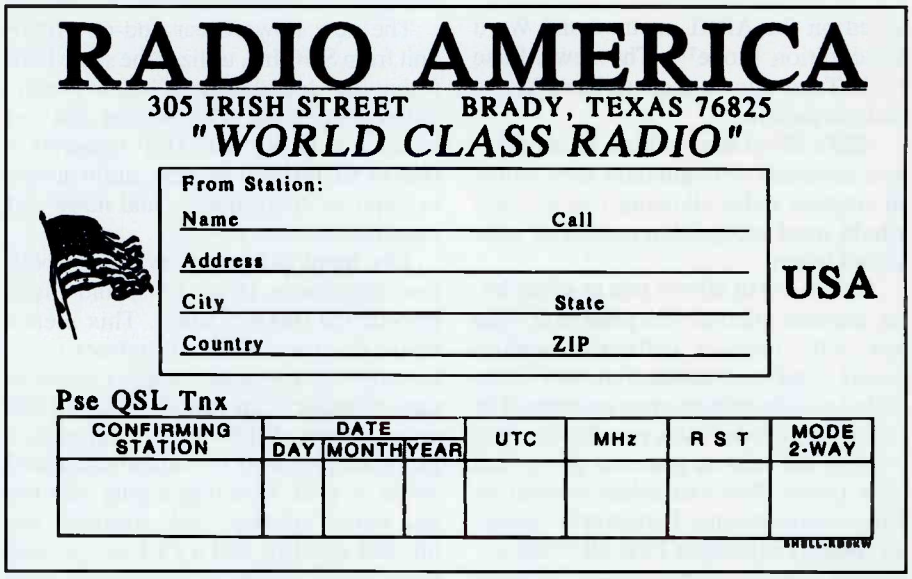
It appears that our two-part article on the Freeband (February and March) really got people talking and typing. At least it did for "Lil Mac" <lilmac@mail.tcbi.com> and the CBers in his area. "We think it is great," says Lil Mac, "that you had the guts to write about such a controversial subject. Most magazines try to stroll around it."

Well, Mac, there is a thin line between bravery and stupidity. I am glad you saw it as the former. The goal was to be honest and informative. Judging by your note and others, we hit the mark with that one. I'll do my best to do so in the future. Please hold me to it! I, however, can't claim all the credit. Much, if not most, of it belongs to editor Harold Ort and the *Pop'Comm* staff! Without them the article would have never made it into print.

CQ, CQ

Judging by all the mail I receive and personal experience, it seems that the biggest problem keeping most people from enjoying our hobby remains: Finding someone to talk to! That seems like a strange statement, especially when you consider that the hobby of radio is basically a one of communications! But it is true. All too often it is difficult or nearly impossible to strike up a conversation. So, if you find yourself with a radio and a little free time, don't feel alone even if you find yourself alone!

It doesn't matter what branch of the hobby you pursue. "Rebel," from the Washington/Baltimore area admits, "I really don't know how to initiate something with a callout on Ch. 19 while mobile, keeping in mind a prolonged chat there would not go over very well." He asks for guidance. Steve Horowitz <horowtz@mail.idt.net>, a sideband operator from Broward County, Florida is also looking for on-air contacts. Do you have any tips or suggestions? If so, please send them in and I'll pass them along in future columns.



Q-Codes

I was glad to hear from a number of SSB operators who were at least hearing, if not participating in, conversations. Several had questions about the Q-Codes. Q-Codes are three letter codes, most beginning with the letter Q, that early amateur radio operators developed as a kind of shorthand to help speed their "CW" or Morse code communications. A few of these codes have found their way into SSB. On SSB, plain English is preferred, although in some instances an occasional Q-Code may be helpful. But, they should be used sparingly.

Bill Smith, SSB-123Z <smitty@shol.com> has set up a home page on the World Wide Web <http://www.shol.com/smitty> which is dedicated to SSB operation. In addition to having links to a number of useful sites, Bill's page offers a list of the most popular SSB Q-codes:

- QRM: Man made interference (from other stations on frequency)
- QRN: Ignition noise, static, powerline noise
- QRT: Shutting down the station and NOT listening or replying
- QRX: Leaving the air briefly (QRX-1: Back in 1 minute)
- QRZ: Who is calling me? I missed your ID. Please repeat.
- QSX: Standing by for any calls
- QTH: Location
- CQ: Request for reply from any station

To these I would add two more. QSL: Written acknowledgment, usually a post or QSL card and the ever popular QRX alternative—QPP (nature call). For a complete list of Q-Codes and more, visit <http://www.arrl.org/field/forms/fsd218.html> at the ARRL's Web site.

Shopping Around

Of course I have received inquiries from folks looking for guidance on where to buy radios and related equipment. Both

"He and several others, are seeking advice on just how to 'encourage' some of their local problems to find that 'other hobby'."

from amateurs looking for CB and from CBers looking for amateur gear.

To amateurs looking to expand into CB I say go for it. You'll have a good time, and both branches of the hobby will benefit. CB needs more good operators to serve as examples and role models. Your time on CB could also help the amateur service lose its "snobbish old codger" image, not to mention inspiring folks to pursue their license!

As for the CBers looking for "exotic" equipment (translate foot warmers and out-of-band radios), I have mixed emotions. Everything they are looking for is probably as close as their nearest truck stop. Certainly anyone with access to the Internet can find all they want by following a few links on some of the CB/SSB home pages. I, however, refuse to be of assistance. Yes, I know many operators who use this type of equipment. Some of them you would never suspect, just by listening to them. These fine operators really know how to use a radio. Others, of course, are "Royal Pains." With them, the extra capabilities only amplify the problem. We would all be better off if they could be persuaded to find another hobby.

Let's Party

Obviously, quite a few of you know the kind of jerks I'm talking about. Chuck Stinson <crwchuck@shianet.org>, president of Community Radio Watch of Shiawassee County (state unknown) certainly does. He and several others, are seeking advice on just how to "encourage" some of their local problems to find that "other hobby".

Well, Chuck, as you are well aware, there are no easy, or for that matter quick, answers. The situation, however, is not hopeless! While it would take several articles the size of this one to even begin exploring the possibilities, here are a few brief insights I hope you will find useful.

Perhaps the most direct method is the traditional "antenna party". You know the type? A small group of dedicated operators arrive at the loudmouth's station in the wee small hours. Next, with no small amount of stealth and daring, a sturdy cable or rope is firmly affixed between your intended's coax and the bumper or trailer hitch of a waiting vehicle. Sufficient slack is left in the line to ensure a good running start. Then, once all are well clear of the cable, a short (500–1000 feet), quick (45–60 mph), drive down the road is usually sufficient to free the coax from the radio. That is unless the station has soldered, rather the crimped, connectors. In which case you could wind up with not only an antenna and coax, but a radio and several accessories as well! In rare cases, due to the shock induced by the sound of squealing tires, the whistle of coax in motion and the sudden and unexpected movement of equipment, some operators have been unable (or unwilling) to let go of the mic. It is this trip through the hole in the wall, originally designed to accommodate the coax, that accounts for some of the very tall and thin people seen at coffee breaks.

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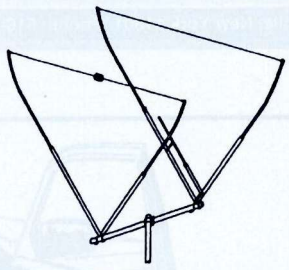

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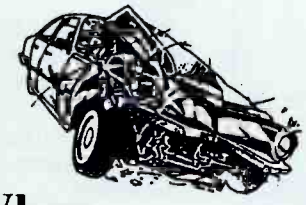

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"It is this trip through the hole in the wall, originally designed to accommodate the coax, that accounts for some of the very tall and thin people seen at coffee breaks."

affords, I can, of course, for a number of reasons, in no way recommend or endorse it. First, think how you would feel if you picked the wrong house. Second, your team's insurance may not cover this type of activity (better check the policy first). Third, I'll bet it is illegal.

What I would recommend is that you *locate, document and positively identify* the offending operators. Then have someone contact them. Keep the tone of the visit friendly and helpful. Sometimes, the mere fact that their anonymity is no longer ensured is enough to minimize or even eliminate the problem. You may find that they are unaware of the problem. Perhaps they are aware of the problem but don't know how to cure it. I am currently corresponding with just such an operator. He is running legal equipment, has installed filters, had the phone company in and is still interfering with some of his neighbor's electronics. Both he and I would welcome suggestions!

Check with your state and local government. They may have laws governing interference to communications or electronic entertainment equipment. If there are any threats of physical harm or damage being aired, then it's possible the regular criminal codes may apply. Find out who owns the property where the station is located, then let the owner know that they could be sued. This is especially true when there is interference to emergency public safety communications.

Finally, the FCC is still in the enforcement business. True, their actions are rare, but they do happen. Once you have located, identified and documented the offending operator, you have a much better chance of enticing the Commission to take the case. You can further increase the possibilities by appealing to your Congressman, Senator, the President or, as in one recent case, the First Lady!

Well, that's it for this month. I look forward to hearing from you. Please send your comments, questions and suggestions to me in care of the magazine. I can also be reached on the internet where my address is <edbarnat@global2000.net> (note new e-mail address). Better yet, if you can, catch me on the radio. ■

73—Ed.

The Old CB Shack

BY DON PATRICK

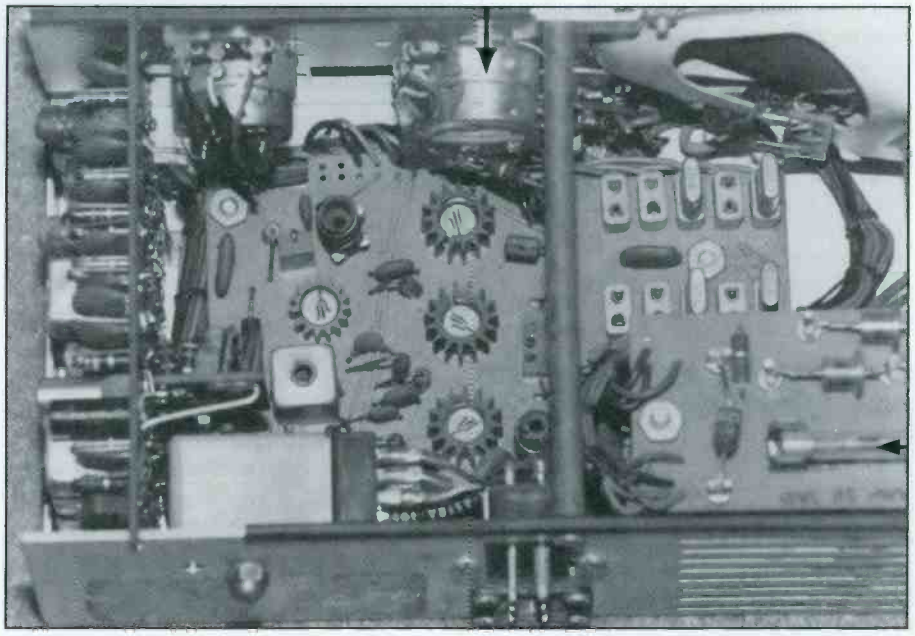
GIVING LIFE TO YESTERDAY'S RELICS

Working on Old Transistorized Cadre CBs

Sometimes change isn't always better, but is mainly a change for novelty sake or to achieve a very important single goal at the expense of other features. This was the case with the first transistorized CB radios.

The only need to utilize transistors in 1961 and '62 CB radios was in portable (walkie-talkie) units that could be operated with a dry-cell battery pack. Keep in mind that these were the days of carbon-zinc dry cell batteries; the rabbit didn't go nearly as far as today's alkalines, so battery drain on a walkie had to be low! The fact that the first walkies were very poor performers, bulky, unreliable and had few features was not really important. At least a walkie was available if you had a need for one. Back then, there was a small need for a few walkies.

But with the Genie out of the bottle, someone just had to make a transistorized CB mobile or base unit. The fact that the radio would only be marginally smaller than a tube unit was immaterial, and the fact that it had lower power output on transmit, poorer receive, lower reliability, and cost more than many good tube units was offset by the feeling of having a "state-of-the-art" radio. You see the same thing today, in many cases, with computers. The fact that the one you have now will do everything that you need to do, as fast as you need to do it, is offset by the fact that the new model will do things even faster. So you trade in your present unit thinking you're gaining performance. But the first transistorized CBs had *lower* performance. The early transistors were crude, large and slow in performance by most any standard today and the circuits were also poor. The first engineers simply tried to replace a tube with a transistor instead of re-designing the circuits in order to make use of all the devices good points and getting around the weak areas. However, like all new technology, the design engineers soon began to bring transistors into their own with new circuits. At the same time, the transistors were being improved quickly. Each month saw the introduction of new types that were faster, smaller and able to handle more power and operate efficiently at higher frequencies.



Note the 117 volt fuse at the right of the old Cadre CB and the three finals near the top of the photo.

The First Transistorized CBs

The first pretty good transistorized CB radio to hit the market was the Cadre model 510 made in Endicott, New York in 1962. It was a five-channel, crystal-controlled transmitter and receiver along with a tunable 23-channel receive capability. It would operate as a base with its built-in 117 volt power supply, as a mobile on 12 Vdc or as a portable with a Model 500-1 battery pack/carrying case with built-in antenna and charging circuit. It was bulky *but* it was portable.

First let's consider the transmitter portion of the CB. It was a three-stage (OSC, driver, finals) design using three transistors in parallel for the final amplifier stage. It was necessary to use three transistors to get five watts because an affordable single transistor that would handle the heat generated was not available. These three transistors operated real close to their limits, and any appreciable VSWR would cause their destruction. This was before the days of automatic excessive VSWR shutdown circuits that would have protected them.

With good voltage input (13.8–14.4 Vdc), the radio would develop its full 5 watts input power (FCC limit) and after efficiency factors and coupling losses, you had 2 1/2 to 3 1/2 watts at the antenna connector. The Cadre had a good audio/modulator design, but the engineers had to use speech clipping starting at 80 percent modulation which reduced your range. The clipping was necessary for two reasons: a non-linearity problem in the transistor itself, and the difference between one of the finals compared to either of the other two. Manufacturers could not hold tolerances as close as they are able to now. Without the speech clipping at 80 percent modulation (positive or negative), one of the three transistors would be driven outside of its operating envelope and cause distortion. Extreme overdriving could even result in wild swings in power and generate harmonics.

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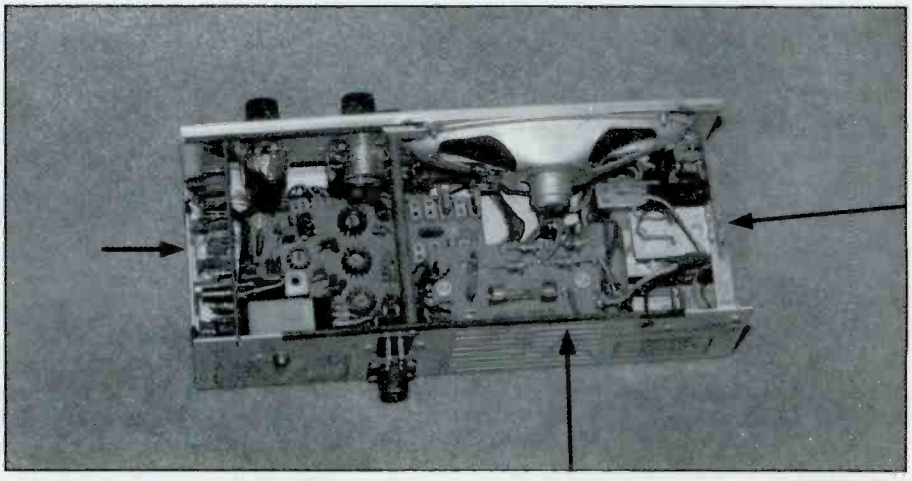
If your Cadre is a 510A it will have a tunable receive knob located here.

The receiver design was pretty good. It had dual conversion to reduce image signal interference, and three low IF amplifiers stages to reduce adjacent channel interference (bleed-over). Its sensitivity was good. The receiver had two weak points. First, a real strong signal (like another car or base within a few hundred feet) on the same channel would overdrive the receiver to the point of distortion or even to where no audio was developed. It would be like someone keying a microphone and not saying anything. This wasn't a serious problem and could be avoided by having your friend in the other car stay a quarter-mile behind you.

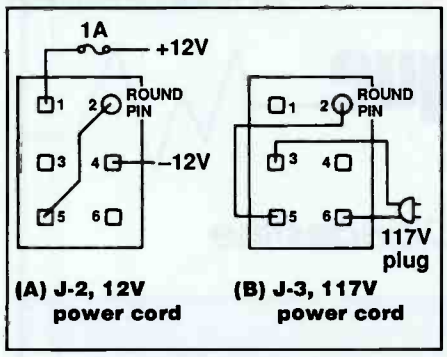
The second problem was serious. Cars in the 1960's and early '70s radiated a lot more ignition noise than cars of today. This is due to today's wide use of radio suppressive ignition (spark plug) wire and better bonding, grounding and design. The Cadre, with its poor automatic noise limiter circuit, gave the mobile CBer lots of unwanted noise—not only from your own vehicle, but from others around you.

Considering the limitations of the early transistors, coupled with a few design weaknesses, the Cadre 510 was the first serviceable all-transistor CB we came across. As long as you had a good antenna with low VSWR, avoided real strong signals and suppressed your car's ignition noise, it gave reasonable service. As you can see from the picture, it was not a small unit by today's standards (11 3/8" × 5 3/8" × 3 1/8"), but it was smaller than a tube unit.

Restoration of a Cadre 510 should only present a couple of problems because of the lack of a few parts that have been out of manufacture for quite some time. Most parts have standard replacements, but you might run into a problem with the modulation transformer and the transmitter



This inside view of the Cadre shows the receive section on the left, audio stages on the right and 117 volt power supply. (Photos by Don Patrick).



Plug wiring for both 12 and 117 volt power cords.

finals (Q9, 10 and 11). Outside of these, you can get either an exact replacement or a substitute that will work with some minor mounting or connection modifications. If you have to replace the radio's audio output speaker, be sure to use a 3.2 ohm one.

The tune-up and alignment is simple and straight forward if you have the service manual or the Sam's Photo-Fact for the unit. First, give the unit a good cleaning as described in the January issue with the additional step of giving the top side of the printed circuit board and parts a cleaning with plain old rubbing alcohol and a 1/4 to 1/2-inch paint brush, if needed. After cleaning, let it set for 12 to 24 hours to thoroughly dry out before applying any power. Don't try to clean the bottom side unless it's really dirty or contaminated. You have to remove the boards from the chassis to get to that side and it's quite a job.

Applying the Power

When you apply power, try 12 volts DC first if available. By the way, this unit used a 1/4-amp slow-blow fuse internally on 117 volts AC power and a regular one-amp fuse in the power cord externally on 12 volts DC. We have included drawings of the plug wiring for both cords in case you are missing one or both. Now ensure that the fuses aren't larger than specified. Connect to the 12 volt source carefully, positive to the fused lead going to pin 1 of the plug and negative going to pin 4. Either disconnect the microphone, in case it's defective or incorrectly wired, or connect the antenna connector to a suitable 50 ohm dummy load. It wouldn't make your day if it keyed up and destroyed the transmitter finals.

Turn it on and see if you get noise out of the speaker when the squelch control is turned down. If so, turn it off and if you don't have a signal generator, connect it to a good base/mobile antenna. Turn it back on and see if you can pick anything up on crystal receive and/or tunable receive. For proper operation of the tunable receive, you MUST have either a channel 9, 10, 11, 12, or 13 crystal in position "C." Channel 11 is best, because if any of the others are used, special alignment is required. If your unit does not have the variable tune knob in the lower right corner, then it is not a Model 510A. They deleted the variable tune because few CBers used it, and if you left it tuned to the wrong part of the dial, it hurt your receive on the crystal position. The models 510A, 510C, 515, 520 and 525 were all of the same general family, so most of what we've covered applies to all of them. Assuming the tunable works, if your unit has it, turn it off and connect to a watt meter. Turn it back on and see if it will transmit any power and if it will modulate. Be sure to have the channel selector on a position that has a crystal plugged into the transceiver properly.

If all the above were positive, now try it on 117 volts if you plan to use it that way. Repeat the above tests. Assuming it still checks OK, all you have to do now is use the proper test equipment or take it to someone for proper tuning and making sure it works to specification.

If the proceeding tests failed at some point, it's time to get out the test equipment or take it to a qualified shop. Transistorized units are not as easy to restore as a tube CB unit as there is less that you can do yourself especially if you are not technically qualified.

In the next article, we will look at some of the myths, senior married women's stories (old wive's tales) and funny/strange ideas or products that have been around over the life of the Class D CB radio service. Then we will get back to restoring the old tube-type CBs. I'm not sure which brand we'll do—maybe a Johnson I or II (white face, black face) or a Courier or such. When you write to me at Don W. Patrick, 3701 Old Jenny Lind, Fort Smith, AR 72901—and we are getting a lot of letters—and want a reply, be sure to include a SASE, preferably a No. 10 envelope. Right now, I'm able to answer most letters the same day I receive them. Special thanks to Walter Niemeyer of Shell Rock, IA for sending us a copy of his original Cadre operating manual. We have an original service manual, but did not have the owner's manual. Until next time, this is the Old Timer saying 73!

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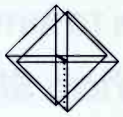
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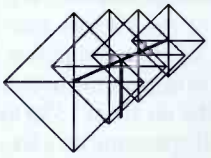
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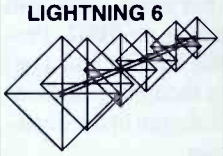
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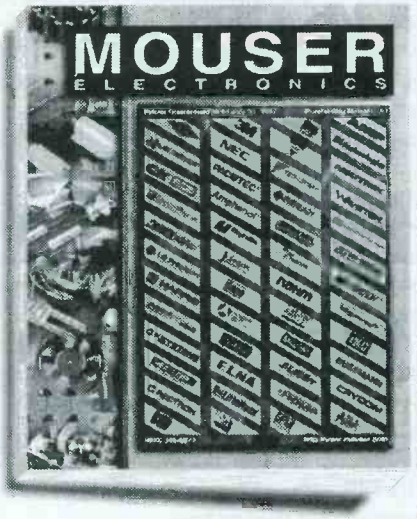

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BY GERRY L. DEXTER

Clandestine Communique

TUNING IN TO ANTI-GOVERNMENT RADIO

Afghan Stations and a New Kurdish Clandestine

There is a station which calls itself **Radio Afghanistan**, but which is not the voice of the current government run by the Talaban guerrillas. Instead, it broadcasts in opposition to that government. It is on the air from 1330 to 1430 and 0730 to 0830 operating on a frequency somewhere **between 7080 and 7100**, sometimes settling on **7082**. Programs are aired in the Pashto and Dari languages. This one is thought to be coming from the town of Taloqan in the northern part of Afghanistan.

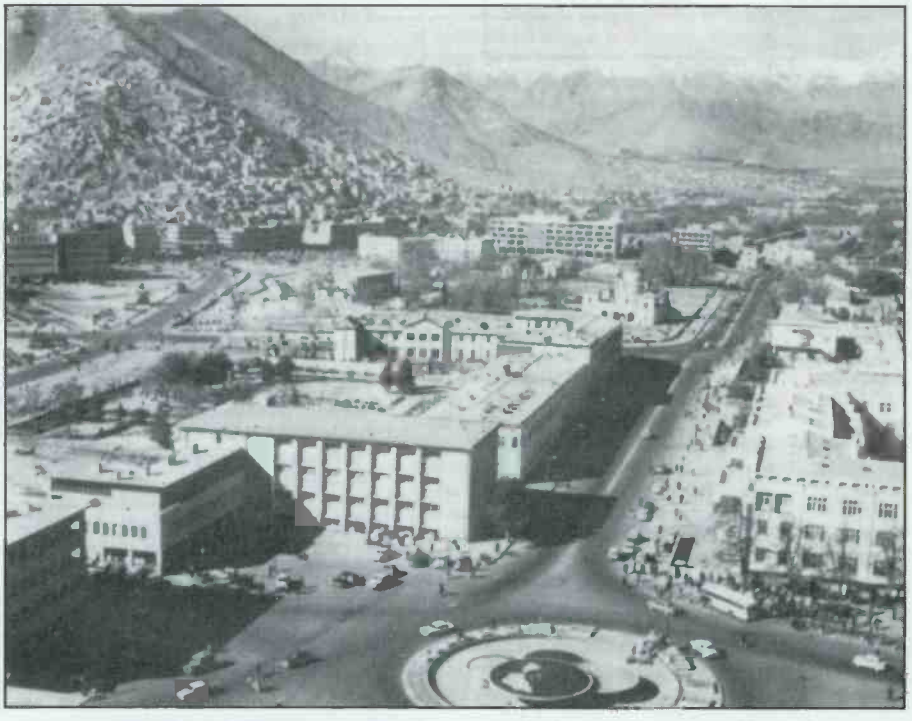
Another new anti-Afgan government station is Radio Balkh, operated by the anti-Talaban National Islamic Movement of Afghanistan, supposedly broadcasting from the Afghanistan town of the same name. The station may be receiving support from the government of Turkey. At this writing no information is available about times and frequencies being used by the new station.

The Voice of the Revolution of Tigray, which seeks independence for the Tigray (Tigre) province of Ethiopia, is now operating on **6315** (ex 7515), in addition to **5500.** Sign on is at 0400 or a minute or so prior to that, although the transmitter is often placed on the air quite some time before programming begins. The broadcasts are largely in the Tigray language and, although signal strengths are not what you'd call powerful, the station can be received in North America, given patience, the right conditions and a reasonably good receiving set up.

Perhaps a new Kurdish clandestine is on the air, calling itself **Harim Radio** Station—the Voice of the Regional Government of Iraqi Kurdistan. It is using **4070** around 1400 to 1530 and may actually be operated by the Kurdish government in that part of Iraq.

Another new Kurdish station is **Freedom Radio Station**—the voice of the Communist Party of Iraqi Kurdistan, which is operating **between 3905 to 3955**, and also on **7695**. Unfortunately, reception of both of these stations appears to be next to impossible for North American listeners.

The **Voice of Iranian Kordestan** is operating in Kurdish and Persian from 1300 to 1430 and 0230 to 0400 on a frequency varying **between 3942 and 4200**.



Two new clandestines are on the air opposing the Talaban government in Kabul.

The **Voice of Free Tajikstan** (a former Soviet republic) has changed its schedule so that broadcasts are now aired from 0300 on **5965** and at 0600 on 7100.

The **Voice of Free Azerbaijan** (another former Soviet republic) is operating between 1530 and 1630 on **7093.**

Iraq's government-run radio continues to carry some "services" which are semi-clandestine in nature. **Mother of Battles** radio is being aired on **3935** at 2000, which makes it impossible to receive in North America. It also claims to be using **9745** from 1700 to 2000. It may be aired on shortwave at other times as well. At its inception during the Gulf crisis it was widely heard using higher frequencies.

The **Voice of the Iraqi People**, which is the mouthpiece of the Iraqi Communist Party, is now scheduled from 0400 to 0530 and again at 1730 to 1830 on **7695** and on a frequency varying between **3905 and 3955**. Note the suspicious frequency match with the Kurdish Freedom Radio Station mentioned earlier. This almost certainly indicates that the two stations are using the same transmitter.

The **Democratic Voice of Burma** program continues to air via the facilities of Radio Norway. It's currently being broadcast on **15170** from 1100 (or slightly later) to closing at 1125. They confirm reports with a nice QSL card. Write to: Democratic Voice of Burma Radio, P.O. Box 6720, St. Olavs Plass, N-0130, Norway.

Here's the most recent schedule for the U.S. govt's **Radio Free Asia** broadcasts—In Vietnamese: 1400 to 1500 **on 9455, 9910, 9930, 11590, 11600, 13825 and 15660**; 2330 to 0030 on **9975, 11570, 11580, 13710**. In Mandarin: 1500 to 1600 on **9455, 9805, 9910, 11565, 11590, 11880;** 2100 to 2200 on **9395, 9420, 9455, 9910, 11765, 15515**; 2300-0000 on **9395, 9910, 11785, 13800 and 15515**. In Burmese at 0030 to 0130 on **11580, 11590, 11600, 13710, 13820**; 1500 to 1600 on **11605 and 13820**. In Tibetan: 1300-1400 on **11575 and 11590**; 2300-0000 on **7410**

on **11575 and 11590**; 2300-0000 on **7410 and 9365.** In Korean at 1530 to 1630 **on 5855, 9980, 13810 and 15660;** 2200-2300 on **7470, 9365, 9420, 9455 and 11590**. Radio Free Asia is transmitted from a number of sites, both in the USA and from various foreign countries. Reception reports should be sent to 1201 Connecticut Avenue, NW, 4th Floor, Washington, DC 20036.

The anti-Chinese **Voice of Tibet** program, aired from a Russian government transmitter, is now broadcasting on **11570** (formerly 7400). The Tibetan language broadcasts are aired from around 1230 to 1300, although the time sometimes slides five minutes earlier at both ends. The producers of this service can be reached at Welhavensgate 1, N-0166, Oslo, Norway.

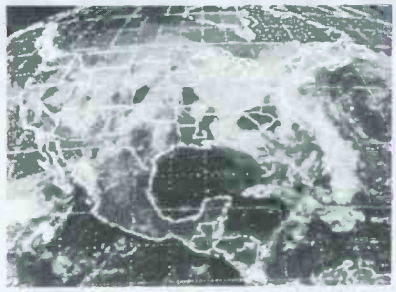
Commercial station WRMI in Florida continues to carry a couple of anti-Castro programs. La Voz de la Fundacion, presented by the Cuban-American National Foundation, airs in Spanish Monday through Saturdays at 1000 to 1300 on **9955**. The address is 7300 NW 35th Terrace, Miami, FL 33122. They verify with a QSL card.

Junta Patriotica Cubana is on from 0200 to 0230 Saturdays and Sundays (UTC) on **9955.** Also worth a check is something called Foro Militar Cubano, scheduled in Spanish on Saturdays at 1900 to 2000 and Sundays at 1400 to 1500. QSLs for these two can be had by writing to WRMI at P.O. Box 526852, Miami, FL 33152.

That covers things for this time. Remember that we always welcome your informational input on clandestine broadcasting subjects. This can be in the form of reception loggings, QSL information, (and copies of QSLs we can use as illustrations), broadcast schedules, general information about the stations and their backers and so on. Your interest, support and participation is greatly appreciated.

Until next month—good hunting! ■

Get A New Image



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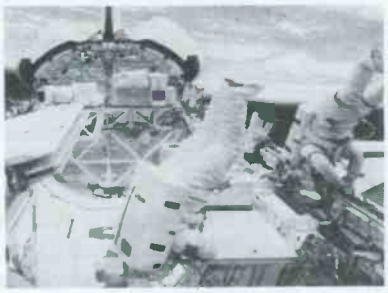

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BY TIM KRIDEL

Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Expanded AM Band: Third Time's The Charm?

The FCC's third attempt in four years to choose which stations can move to the expanded AM band is out, and broadcasters and commissioners alike must be hoping that this one will pass muster. The Commission's revised allocation plan, released in March, picked 88 stations in the United States, Puerto Rico and the Virgin Islands to move to the 10 new channels between 1605 kHz and 1705 kHz.

And what a difference a year makes: Although the 1996 plan listed 87 stations, nine stations who received allocations under the 1996 plan—KAPR, KDDR, KFVR, KIDR, KNRB, KRGI, KSVP, WONX and WWHL—were dropped from the 1997 plan. That made room for 10 new stations—KDSX, KENN, KILR, KKAR, KKSO, KLAT, KNST, KQXI and KXEX. Some 688 stations had originally applied for slots in the expanded band.

Another major difference is the 19 stations which survived both the 1996 and 1997 cuts, but with different channel assignments. Vallejo, CA's KXBT will have to move from its current home of 1630 kHz back to 1640 kHz, the frequency it originally used in March 1996 when it became the second station to broadcast in the expanded band. Elizabeth, N.J.'s WJDM, the first station to broadcast in the expanded band, will remain on 1660 kHz. Costa Mesa, CA's KNNZ, meanwhile, was supposed to have started up on 1650 kHz earlier this year. That move, which will include new calls KBTL, has been pushed back yet again, probably to this summer.

Eligible stations have until June 17 to apply for a construction permit for their new frequencies. Those stations will have a maximum of five years to use both their old and new frequencies before they must choose which of the two to call their permanent home. Stations broadcasting in the expanded band are limited to 10 kW days and 1 kW nights, both with a nondirectional antenna.

The 1994 and 1996 allocation plans were scrapped by the FCC after each generated complaints from stations not included—complaints that both times revealed flaws in the processes and databases the Commission used to determine which stations could migrate. All but one of eight separate petitions for reconsideration criticizing the 1996 plan were granted by the FCC.

Big Apple disco outlet WKTU has a nifty Web page at <www.wktu.com>, complete with a throbbing "Beat of New York" slogan. (Courtesy Bob Gilbert, Portland, Maine)

In its successful petition, Newburgh, N.Y.'s WGNY questioned the Second Harmonic Interference Standard, which attempts to prevent interference to stations operating on 1620, 1640, 1660, 1680 and 1700 kHz. For example, a station couldn't receive an allocation for 1640 kHz if there was a nearby station on 820 kHz. While acknowledging WGNY's charge that it had misapplied the standard, the Commission concluded that correctly applying the standard still wouldn't allow any more stations to migrate to the channels above 1600 kHz.

What did significantly change the allocations, however, were corrections in the software used to determine which stations could move. The FCC modified the program to account better for existing federal travelers information stations operating on 1610 kHz and for international treaties that restricted allotments for stations in Florida and the Virgin Islands.

Down For The Count

Alberta's provincial radio network CKUA finally shut down—probably forever—on March 20. It would have celebrated its 70th anniversary on Nov. 21.

"I walked in today to work and chatted with the manager and he said we're off the air as of midnight," CKUA DJ Tony Dillon-Davis told the Edmonton Journal. "All I can kind of figure from it is they want to shut it down at this point so they can have enough money to pay out the obligations of staff and whatever else is going on. The reason of course is that there wasn't sufficient money coming in. Of course, that begs the question why."

Indeed it does. As recently as February, station officials were optimistic—at least outwardly—about CKUA's future. "Changing CKUA into a cash-flow operation and adopting the disciplines of management has been a rigorous task," said Gail Hinchliffe, station board chairman and CEO, in February. "Our work is starting to pay off. This year will be a fundamental year for CKUA."

Unfortunately, 1997 instead turned out

WERZ is Exeter, N.H.'s Top-40 station. (Courtesy Bob Gilbert, Portland, Maine)

Seeking Permits to Construct New FM Stations

AR	Batesville	99.5 MHz	
AR	Fayetteville	90.1 MHz	16 kW
AR	Springdale	88.5 MHz	
AZ	Oraibi	98.9 MHz	
AZ	Tuba City	97.9 MHz	
CA	Livingston	88.3 MHz	6 kW
CA	Ukiah	100.7 MHz	
CO	Burlington	99.3 MHz	
CO	Glenwood Springs	88.9 MHz	2 kW
CO	Hayden	107.3 MHz	
CO	Lakewood	88.1 MHz	125 watts
CO	Westminster	88.1 MHz	130 watts
GA	Cairo	90.1 MHz	8 kW
GA	Elberton	105.1 MHz	
IA	Fairfield	88.1 MHz	250 watts
IA	St. Ansgar	105.1 MHz	
ID	Burley	88.5 MHz	
ID	Pocatello	91.1 MHz	
IL	E. St. Louis	89.7 MHz	250 watts
IL	Kewanee	91.1 MHz	21 kW
KS	El Dorado	88.1 MHz	400 watts
KS	Medicine Lodge	91.5 MHz	25 kW
LA	Broussard	91.9 MHz	25 kW
LA	Kaplan	91.9 MHz	50 kW
LA	Kinder	92.1 MHz	
MN	Sebeka	89.3 MHz	100 kW
MO	Cedar Hill	89.5 MHz	300 watts
MO	Otterville	107.7 MHz	
MO	Potosi	89.7 MHz	2.3 kW
MO	St. Joseph	91.9 MHz	750 watts
MO	Wheeling	105.9 MHz	
MS	Duck Hill	91.9 MHz	3 kW
MS	Indianola	88.7 MHz	
MS	Prentiss	104.9 MHz	
MT	Plains	91.5 MHz	
Mt	Shelby	97.9 MHz	
MT	Sidney	93.1 MHz	
NC	Ashokie	91.7 MHz	45 kW
ND	Tioga	104.1 MHz	
ND	Williston	98.5 MHz	
NH	Nashua	88.3 MHz	
NM	Peralta	90.5 MHz	100 kW
NM	Santa Rosa	95.9 MHz	
NY	Utica	90.3 MHz	
OH	Hicksville	106.7 MHz	
OH	Lima	89.3 MHz	
OH	Shelby	88.3 MHz	
OH	Steubenville	88.9 MHz	150 watts
OK	Lawton	91.1 MHz	16 kW
OK	Piedmont	88.5 MHz	60 watts
OK	Tishomingo	88.3 MHz	
PR	Pastillo	90.1 MHz	200 watts
SD	Redfield	97.7 MHz	
TN	Clarksville	88.3 MHz	6 kW
TN	Henry	104.7 MHz	
TN	Middleton	100.7 MHz	
TN	Parkers Crossroads	96.5 MHz	
TX	Big Lake	98.3 MHz	
TX	Charles City	89.7 MHz	2.9 kW
TX	Kerrville	91.1 MHz	300 watts
TX	Madisonville	91.5 MHz	6 kW
TX	McCamey	95.3 MHz	
TX	Plainview	90.5 MHz	
UT	Logan	107.5 MHz	
VA	Danville	91.1 MHz	18 kW
WA	Mt. Vernon	91.7 MHz	170 watts
WA	Wenatchee	88.1 MHz	100 watts
WI	Cuba City	89.7 MHz	
WI	Sister Bay	89.7 MHz	3.4 kW
WI	Sister Bay	91.9 MHz	3.4 kW
WI	Two Rivers	98.9 MHz	
WV	Beckley	88.1 MHz	600 watts
WY	Albin	107.3 MHz	
WY	Casper	91.3 MHz	420 watts
WY	Gillette	89.7 MHz	250 watts

Granted Permits to Construct New FM Stations

HI	Hilo	90.3 MHz	
IN	Hartford City	88.1 MHz	
MA	Nantucket	91.1 MHz	2 kW
NM	Jal	107.1 MHz	100 kW
TN	Lake City	90.7 MHz	
WY	Casper	97.3 MHz	900 watts

Granted Permit to Construct New International Broadcast Station

GA	Macon	(various)	

Granted Permit to Construct New AM Station

OH	Cincinnati	1660 kHz	Experimental DAB

Revoked, Cancelled, or Otherwise Deleted

KLZE	Owensville, MO	95.3 MHz	
KMRV	Blair, NE	97.3 MHz	
KRKL	Yountville, CA	840 kHz	2.5 kW/25 watts
KYEG	Canadian, TX	94.9 MHz	
WNRJ	Circleville, OH	1540 kHz	
WQQW	Waterbury, CT	1590 kHz	

Sent Notices of Apparent Liability for Monetary Forfeiture

KUAD-FM	Windsor, CO	$5,000; sponsorship ID rules.
WTEM	Bethesda, MD	$5,000; sponsorship ID rules.

Requesting Modifications to AM Facilities

KILE	Port Lavaca, TX	1560 kHz	Seeks move to Bellaire, 800 watts.
KSML	Diboli, TX	1260 kHz	Seeks increase to 1.8 kW.
KVSN	Tumwater, WA	1500 kHz	Seeks to change power, freq., add nights.
WMUF	Paris, TN	1000 kHz	Seeks to change power, freq., add nights.
WSTK	Colonial Hghts, VA	1290 kHz	Seeks to increase to 25 kW.

Modified AM Facilities

KOKE	Giddings, TX	1600 kHz	Moved to Pflugerville, 5 kW/500 watts.
WADO	New York, NY	1280 kHz	Increased to 50 kW.
WGBB	Freeport, NY	1240 kHz	Changed night power.
WLVN	Brantley, AL	1080 kHz	Moved to 1030 kHz, 3 kW/400 watts.
WRPT	Peterborough, NH	1050 kHz	Change power, freq., city.

AM Modification Rescinded

KTMG	Deer Trail, CO	1370 kHz	Frequency change.

Changed FM Facilities

KTKC	Springhill, LA	92.9 MHz	Frequency changed.
WIOV	Reading, PA	105.1 MHz	Relocated booster.

Pending AM Call Letter Changes

New	Old	
KTKZ	KMJI	Sacramento, CA
WLKY	WAVG	Louisville, KY

Changed AM Call Letters

KBLV	KXPA	Pasadena, CA
KCHN	KPXE	Liberty, TX
KDDS	KQDS	Duluth, MN
LGO:	KNNS	San Fernando, CA
KJOK	KEZC	Yuma, AZ
KKGO	KNNZ	Costa Mesa, CA
KKHI	KNOB	San Rafael, CA
KLTX	KGER	Long Beach, CA
KLVB	KRVC	Medford, OR
KLVP	KEZF	Tigard, OR
KNOB	KKGO	Costa Mesa, CA
KOCR	KFSB	Joplin, MO
KSFS	KCGN	Sioux Falls, SD
KXPA	KBLV	Bellevue, WA
WAQY	WMRE	E. Longmeadow, MA
WEZE	WBNW	Boston, MA
WJLT	WBIV	Natick, MA
WJZZ	WKNX	Frankenmuth, MI
WKNX	WJZZ	Bay City, MI
WKRE	WMAP	Monroe, NC
WNTF	WXRG	Mt. Dora, FL
WNWC	WMAD	Sun Prairie, WI
WODZ	WFRY	Rome, NY
WPZE	WEZE	Boston, MA
WWLZ	WQIX	Horseheads, NY

New FM Call Letters Issued

KAFN	Gould, AR
KAKA	Salina, KS
KASZ	Fairfield, CA
KAUB	Reedsport, OR
KAUF	Kennett, MO
KAUG	El Dorado, AR
KCVQ	Knob Noster, MO
KLVP-FM	Cherryville, OR
KPRB	Brush, CO
WAQV	Crystal River, FL
WAQW	Christiansted, VI
WARN	Culpeper, VA
WCAF	Carabelle, FL
WGBV	Glasgow, KY
WQKZ	Ferdinand, IN
WRBK	Richburg, SC
WTBF-FM	Brundige, AL
WZEA	Ogdensburg, NY

Changed FM Call Letters

Old	New	
KBON	KAHK	Mamou, La
KBUA	KYKF	San Fernando, CA
KCKK	KQKS	Longmont, CO
KDDG	KASM-FM	Albany, MN
KELE-FM	KCMG-FM	Mountain Grove, MO
KFAT	KWQJ	Anchorage, AK
KFSD	KOWF	Escondido, CA
KHQJ	KQNC	Susanville, CA
KLJZ	KJOK	Yuma, AZ
KLVK	KLVS	Kingsburg, CA
KMKX	KSIT	Rock Springs, WY
KPQZ	KPVY	Amarillo, TX
KPTY	KBZR	Gilbert, AZ
KQKS	KHHT	Lakewood, CO
KQTN	KXKK	Lordsburg, NM
KRTK	KOND	Cleveland, TX
KTBT	KDEA	New Iberia, LA
KXGL	KFSD-FM	San Diego, CA
WAKS	WUKS	Tampa, FL
WALC	WKBQ-FM	Jerseyville, IL
WATQ	WVXD	Chetek, WI
WCHA-FM	WKSL	Greencastle, PA
WCIZ-FM	WTNY-FM	Watertown, NY
WCRS-FM	WSCZ	Greenwood, SC
WGBK	WMWA	Glenbrook, IL
WGIC	WHUB-FM	Cookeville, TN
WGVT	WXGC	Milledgeville, GA
WHQK	WAKS	Marysville, OH
WIST-FM	WFAZ	Thomasville, NC
WJAE	WLPZ	Westbrook ME
WNWC-FM	WNWC	Madison, WI
WPCL	WXLJ	Spangler, PA
WRLT	WRLT-FM	Franklin, TN
WTBF-FM	WTDP	Brundige, AL
WTRY-FM	WYSR	Rotterdam, NY
WVPI	WIYC	Charlotte Amalie, VI
WVRR	WNBX	Lebanon, NH
WVTI	WAKX	Holland, MI
WVXI	WNDY	Crawfordsville, IN
WXJY	WSCA	Georgetown, SC
WZNG	WHAL	Shelbyville, TN

Rescinded FM Call Letter Change

New	Old	
KRLD	KOJJ	E. Porterville, CA

VERIFIED RECEPTION OF PROGRAMS

ON August 5, 1986

WJJD

1160 KHz 50,000 WATTS
180 NO. MICHIGAN AVE.
CHICAGO, ILLINOI 60601

BY John Thomas
CHIEF ENGINEER

to be what looks like the final year for the CKUA. Its most recent near-death experience was in 1994, when the Alberta government began weaning CKUA off public funds by cutting the station's 1995 budget in half. Layoffs ensued, and the salaries of remaining staffers were rolled back as much as 50 percent. Nearly all of CKUA's 1998 budget was to have come from advertising, program sponsors and listeners, who the station said donated over $600,000 a year.

"CKUA has a really fanatically loyal listenership," CKUA reporter Bill MacLoughlin told the Journal. "It was a unique product in Canada both in music and news, so one really has to wonder why we couldn't make a go of it."

CKUA, whose calls originally stood for the University of Alberta, served 85 percent of Alberta's population via 17 transmitters on AM and FM. Its format was an eclectic mix of classical, jazz and folk music, and news, information and educational programs. A February station press release noted several CKUA Canadian radio milestones, including first public broadcaster, first stereo broadcaster and first to simulcast real time over the Internet. Jann Arden and k.d. lang are two singer-songwriters who made their radio debuts on CKUA.

In Brief

In a sweeping move that privatizes the technical operations of one of the worlds most respected public broadcasters, the transmitters and antennas for BBC's Home Service were sold February 28 to Houston, Texas-based Castle Tower Corp. Price: 224 million British pounds, according to the London Daily Telegraph. The 738-transmitter domestic network includes television and AM, FM and long-wave radio outlets. Proceeds from the deal, which includes a 10-year contract to broadcast BBC programming, will go toward planned digital services. Castle Tower operates 1,200 similar facilities in the U.S. and the Caribbean.

Chicago's WJJD on April 6 ended nearly 73 years of service on 1160 kHz. Taking over its frequency is WSCR, in a move that will allow the all-sports station to expand to 24-hour programming and substantially increase its coverage area. Meanwhile, a "Personal Achievement Radio" format moved into WSCR's former home at 820 kHz. The moves were necessitated by Westinghouse's purchase of WJJD owner Infinity Broadcasting last year, which left the company with too many stations in the Chicago market. In order to get back under the FCC's cap of eight stations, Westinghouse sold WSCR's frequency to Douglas Broadcasting.

Call it sleeping with the enemy. Philadelphia's WYSP had to share a studio with rival WMMR for four hours while WYSP was making the move to its new home downtown with new sister station KYW. The two stations swapped studios on March 29 following a trade between CBS Radio and Greater Media. WMMR moved from Philadelphia's Independence Mall into WYSP's old home in Bala-Cynwyd, which it will share with WMGK and WPEN.

Thanks

The May column included an incorrect caption for "The Edge" ad. It should have read, " 'The Edge' is one of seven Australian expanded AM band stations. They run 400 watts with a format of techno-pop dance music. *Pop'Comm* reader Gary V. Jackson heard them at his monitoring post in Sacramento, CA." *Pop'Comm* regrets the error.

Your news clippings, bumper stickers, station and shack photos and QSLs are always welcome, as are your questions and comments. Send 'em to "Broadcast DXing" at *Pop'Comm's* Hicksville address. Until next month, 73. ■

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CIRCLE 69 ON READER SERVICE CARD

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

QSL Cards: Printing, Sending and Receiving

With the present solar cycle starting its relatively brisk journey toward outstanding propagation, now is the perfect time to get your QSL cards printed. It's also a great time to learn the do's and dont's of getting them and sending them. Here are some tips to make the process a little easier.

Your QSL Card Printer

Many QSL card printers advertise in amateur radio publications. The larger companies have display ads—but don't forget to look in the classifieds; it's where you'll find ads for most printers. Spend a few dollars and send away for information kits and samples. Looking through sample kits is fun and educational! It can also make choosing a design more difficult, so be prepared.

Choosing a QSL card printer may be trickier than you think. Most commercial printers produce "stock" cards; that is, the only customized part is your name, call sign and other personal information. The design of the card may be used by hundreds or even thousands of other hams!

If that's not a problem, you're in luck. Most beginning hams start this way. The cards are inexpensive, and you're sure to end up with a QSL card that contains all the necessary information—something that may not happen if you "go it alone."

Whether you choose a standard card, a photographic card or a one-of-a-kind masterpiece, make sure you don't buy too many right off the bat. Beginning hams have a habit of upgrading! And although the discount on 3,000 cards may seem attractive, buy with caution!

"Choosing a QSL card printer may be trickier than you think."

To reduce costs, consider putting together a group order with your friends or fellow ham club members. Try limiting your cards to plain white stock and blank ink. Starting out with a plain vanilla QSL card is perfectly acceptable.

Here's the information that should appear on whatever card you choose: Call sign, name, mailing address, and your country. You may also want to include your county to please the many county hunting hams you'll encounter on the air. The blanks where you fill in QSO information should be large enough to easily write in the other operator's call sign, date, year, time (in UTC), band, mode and signal report. Most hams also include a "PSE QSL TNX" line; circle either PSE or TNX to indicate whether you're requesting a card or responding to a received card.

Feel free to include other personal data, too—but don't get carried away. Junky, cluttered QSL cards complicate matters. Clean, straightforward designs work best. Be sensible about the artwork and forget about stuff that may be offensive or humorous. Something that's funny in sunny California may not play in Peoria—much less Persia! Think twice about graphic themes that are overly political or religious.

Do yourself and your QSL recipients one last favor and make sure all QSO information is on the front side of your QSL card. Remember: The easier you make the QSL card process, the greater your chance of getting a card in return.

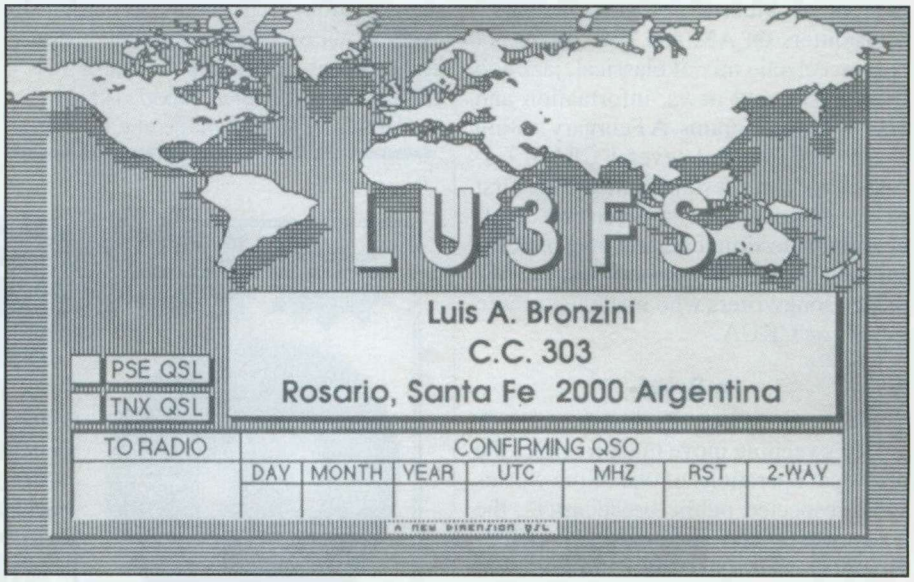
Filling Out a QSL

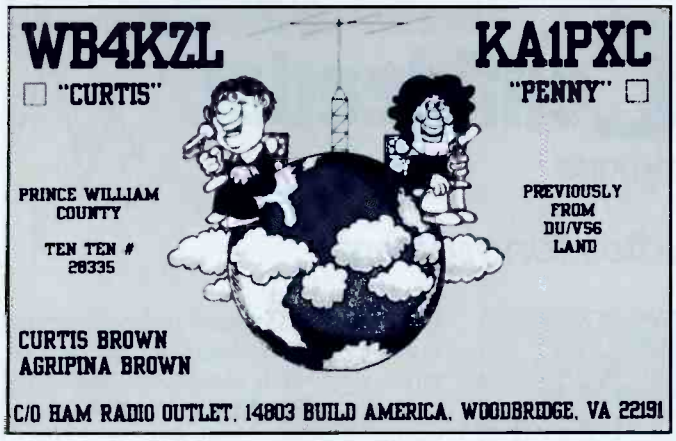
By the way, there are two ways to fill out a QSL card—perfect and wrong. Be careful, be accurate and be neat. If you make a mistake, toss the card into the trash and start over. Marked-over or altered cards—even if made in good faith—do not count for awards programs. What if you're that op's only New Hampshire contact?

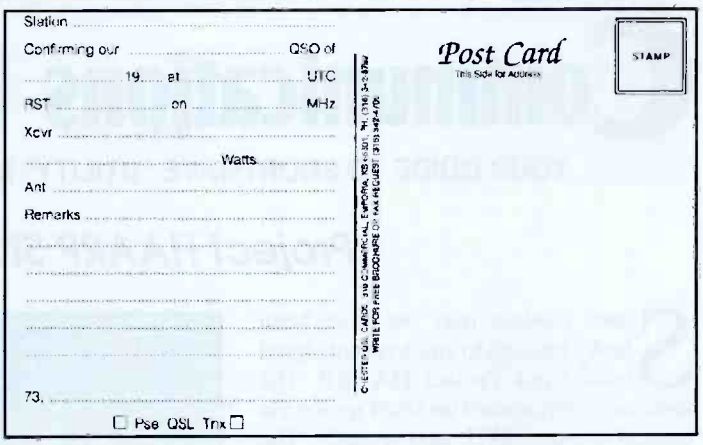
Sending and Receiving

Want to improve your QSL return rate? Remember that hams in rare states (and rare places) are often inundated with QSL card requests. Make sure yours is sent with a self-addressed, stamped envelope. Being patient also helps, especially with cards sent overseas or via the QSL bureau.

In case you haven't used it yet, the "bureau" is an excellent, cost-effective way to send and receive QSL cards to and from DX stations. Instead of going







through the tedious and expensive process of sending QSL cards directly to overseas operators, you can simply sort your "outgoing" cards and send them to the ARRL Outgoing QSL Bureau for $4 per pound (or 10 cards for $1). Within a week or so of arrival, the Bureau forwards your cards to hundreds of other similar bureaus in most foreign countries. This route, while inexpensive, does take time (two months to two years), but it's quite popular among hams the world over.

To use the Outgoing Bureau, U.S. hams must be ARRL members, but the services of its counterpart—the Incoming Bureaus—are available to members and nonmembers alike. Separate Incoming Bureaus are maintained for each call sign district in the U.S. and Canada. Cards arrive from overseas and are sorted by the first letter of the call sign suffix.

To get your cards, you send a few 5 × 7-inch SASEs to your bureau, which will forward cards to you every month or two, depending on your QSL card volume. The bureau system exchanges millions of QSL cards each year to hams almost everywhere. And with propagation picking up over the next few years, if you haven't yet, it's time you "QSL via the bureau."

For complete information on how to use the bureau system, point your Web browser to: <http://www.arrl.org/qsl/qslout.html> and <http://www.arrl.org/qsl/qslin.html>. Your suggestions, letters—and QSL cards—are always welcome. Write to me at ARRL HQ, Department PCN, 225 Main St., Newington, CT 06111. See you on the bands or at the print shop! ■

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Visit our Internet Web Page or Phone/FAX us for program features, new product releases and pricing schedule. DELTACOMM is available for ICOM R9000, R7100, R7000, R71, R72, IC-735 (features vary with type of radio). Also check out our DELTATONE 2.0 repeater programmer.

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CIRCLE 75 ON READER SERVICE CARD

BY RICHARD "RD" BAKER
<utelistener@msn.com>]

Communications Confidential

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Project HAARP Studies Ionosphere

Some readers may be have been lucky enough to catch recent signal tests from Project HAARP. The tests were announced on short notice via several amateur/SWL nets recently. The HAARP facility transmitted a signal on 3400.0 kHz and 6990.0 kHz to allow listeners the opportunity to listen for the HAARP signal, and then send in a signal strength for a QSL card. The transmission consisted of a carrier and CW transmission. The signals seemingly were widely heard, although I didn't catch them drifting into Ohio that night. Since HAARP cannot transmit above 10 MHz, they scheduled this listening test after sunset in Alaska so that propagation conditions were best for listeners in the "lower 48." The transmission beginning at 0450 was primarily devoted to Alaskan hams and SWL's.

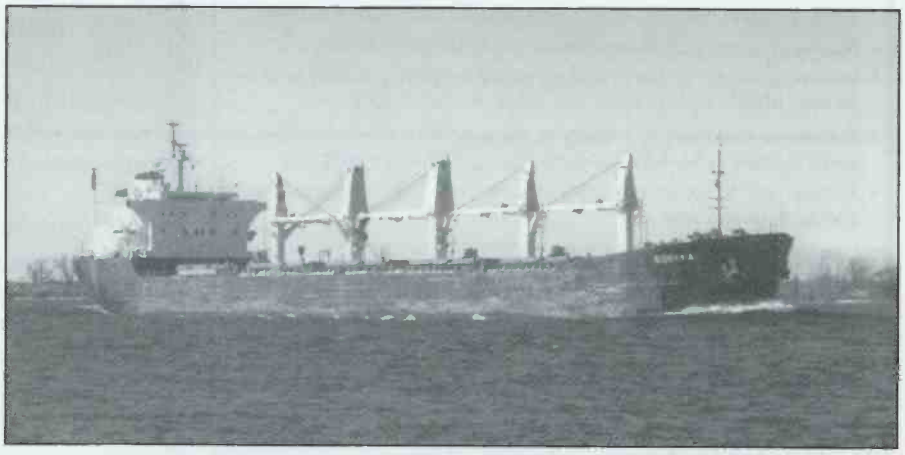
What is HAARP? The HAARP (High frequency Active Auroral Research Program) facility will be used for basic and applied research related to the study of the Earth's ionosphere. According to a release, HAARP is to be a major Arctic facility for upper atmospheric and solar-terrestrial research. Scheduled for completion in 2002, HAARP is being built on a Department of Defense-owned site near Gakona, Alaska. Technical expertise and procurement services as required for the management, administration and evaluation of the program are being provided cooperatively by the Air Force (Phillips Laboratory) and Navy (Office of Naval Research and Naval Research Laboratory). Since HAARP consists of many individual items of scientific equipment, both large and small, there is a "considerable list" of commercial, academic and government organizations which are contributing to the building of the facility by developing scientific diagnostic instrumentation and by providing guidance in the specification, design and development of the IRI. Other organizations which have contributed to the program include the University of Alaska, University of Massachusetts, UCLA, MIT, Stanford University, Clemson University, University of Tulsa, University of Maryland, Cornell University, SRI International, and Geospace, Inc. Despite DoD involvement, the HAARP program is completely unclassified.

Prototype antenna array at Project HAARP (Photo courtesy Project HAARP web site).

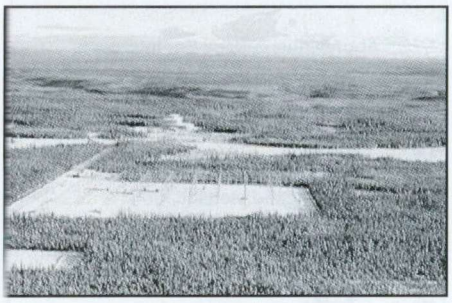
Principal instruments to be used in the project include a high power, high-frequency (HF) phased array radio transmitter (known as the Ionospheric Research Instrument, or IRI), used to stimulate small, well-defined volumes of ionosphere, and an ultra-high frequency (UHF) incoherent scatter radar (ISR), used to measure electron densities, electron and ion temperatures, and Doppler velocities in the stimulated region and in the natural ionosphere. To further the scientific capabilities and usefulness of the IRI and ISR, HAARP is supporting the design and installation of the latest in modern geophysical research instruments, including an HF ionosonde, ELF and VLF receivers, magnetometers, riometers, a LIDAR (LIght Detection And Ranging) and optical and infrared spectrometers and cameras which will be used to observe the complex natural variations of Alaska's ionosphere as well as to detect artificial effects produced by the IRI.

At the present time the U.S. operates two ionospheric research sites, one in Puerto Rico, near the Arecibo Observatory, the other (known as HIPAS) in Alaska near Fairbanks. Both of these employ active and passive radio instrumentation similar to that being built at HAARP. Interest in the ionosphere is not limited to the U.S.: a five-country consortium runs the European Incoherent Scatter Radar site (EISCAT), a premier world-class ionospheric research facility located in northern Norway near Troms. Facilities also are located at Jicamarca, Peru; near Moscow, Nizhny Novgorod ("SURA") and Apatity, Russia; near Kharkov, Ukraine and in Dushanbe, Tadzhikistan. All of these installations have as their primary purpose the study of the ionosphere.

If you would like to learn more about



Reader John Whitehead saw the log of the M/V Gunay A a few months back and thought readers would like to see her. John lives near the St. Lawrence and photographs ships as they travel by. (Photo courtesy John Whitehead's Color Prints).



Overhead view of Project HAARP site, Gakona, Alaska (Photo courtesy Project HAARP web site).

this project and have internet availability, check the HAARP Home Page out at: <http://server5550.itd.nrl.navy.mil/haarp.html>. Hopefully we'll get a little more notice for future tests.

More News

STS-85 with the space shuttle Discovery (OV-103) is still scheduled for launch July 17 at 1406 UTC (10:06 a.m. EDT). The mission is to last 10 days, 20 hours, 48 minutes. Monitoring 10780.0 USB (Cape Radio primary) as early as 1100 UTC could net you the working frequencies for the range safety and booster recovery nets. The assets that will be working these nets (U.S. Navy vessel, USCG cutter, booster recovery ships, etc.) usually check in with Cape early on to obtain their frequencies. I have found them checking in as early as 16 hours prior to the scheduled launch time.

The U.S. Air Force has realigned all stateside C-130's from Air Combat Command (ACC) to Air Mobility Command (AMC) as of April 1. The shift is part of an effort to create a "seamless mobility system". Overseas theater mobility assets, including KC-135s, theater airlift C-130s and operational support airlift fleets, will continue to be assigned to Pacific Air Forces and U.S. Air Forces in Europe. The 60th Air Mobility Wing's last scheduled mission to Antarctica lifted off March 2, closing the books on Travis Air Force Base's role in one of the Air Force's most unique missions. For more than 40 years, Travis crews have flown Operation Deep Freeze supply missions from Christchurch, New Zealand, to McMurdo Station, on Ross Island near the southern polar ice cap. But the ongoing retirement of the C-141 Starlifter from the Air Force inventory means Travis will give up this mission while remaining Starlifters at McChord AFB, WA will take over. McChord is to have C-141's for several more years. Two EC-135 aircraft will be moving to MacDill AFB, FL, when they transfer from Robins AFB, GA, by this month. The Office of the Secretary of the Air Force announced the aircraft will transfer to the 91st Air Refueling Squadron, 6th Air Refueling Wing, from their current unit, the 99th Air Refueling Squadron. The two aircraft support the commander in chief of United States Central Command. Since the primary mission of these aircraft is to support USCENTCOM, the move will improve airlift support responsiveness and save money. Last October the 6th Air Refueling Wing (ARW) activated at MacDill with 12 KC-135R Stratotankers you may recall. These aircraft have been noted using the call sign "BOLT" on GHFS while their command post became "LIGHTENING OP's".

On the U.S. Navy side of things, the F/A-18E/F "Super Hornet" test program continues on track. Carrier suitability trials were recently conducted aboard the USS John C. Stennis (CVN-74). A total of seven Super Hornets (three single-seat F/A-18E models and four F/A-18F models) are operating from Naval Air Station Patuxent River in the three-year program that will verify the aircraft's capabilities and performance.The Navy plans to buy 1,000 of the new long-range, all-weather, day-and-night, multi-mission strike fighter aircraft by the year 2016.

The first operational F/A-18F squadron will take the place an F-14A squadron in 2001. The F/A-18 community will consist of 10 active and one reserve squadrons, each with fourteen aircraft assigned. Normally this would not be of interest to us HF fans, however reportedly the HF radio package in these aircraft has survived budget cuts. So it may be possible to hear a "Super Hornet" on HF soon. The Coastal Mine Hunter USS Falcon (MHC-59) was commissioned early February at Port Arthur, Texas. Falcon is the 9th ship of the Osprey-class. Falcon measures 188 feet long, 36 feet wide and displaces approximately 895 tons when fully loaded. Falcon will join the Atlantic Fleet and will be homeported in Ingleside, Texas. No call sign information yet on her. The A-6 Intruder was retired from the Navy's inventory of combat aircraft at a ceremony recently. There had been two A-6 squadrons in active service. Both were retired on the same day. VA-75 stood down on the East Coast at NAS Oceana, VA and VA-196 at NAS Whidbey Island. The aircraft had been in service for more than 30 years. The guided-missile frigate USS Oliver Hazard Perry (FFG-7) was decommissioned in late February. The ship was lead ship of the Navy's largest ship class, and was named for Commodore Oliver Hazard Perry. So you can scratch her from your lists on U.S. Navy ships as well as your A-6 call signs.

I caught the end of a NMC, USCG CAMSPAC Point Reyes sitor broadcast. Included was this announcement **"AS PART OF THE USCG COMMUNICATIONS SYSTEM 2000 PLAN, COMMSTA HONOLULU (NMO) IS SCHEDULED TO RELINQUISH OPERATIONAL CONTROL OF ALL MF/HF ASSETS TO CAMSPAC POINT REYES CA (NMC) BY 01JUL97. ALL OF THE SERVICES CURRENTLY PERFORMED BY NMO WILL CONTINUE BUT WILL BE PERFORMED REMOTELY BY NMC. THE REMOTING OF NMO CIRCUITS TO NMC WILL BE ACCOMPLISHED IN SEVERAL PLANNED PHASES STARTING 19MAY97. DURING THIS SERVICE-BY-SERVICE CUTOVER, NMO WILL CONTINUE TO MONITOR ALL CIRCUITS AND BE READY TO ANSWER CALLS OR PERFORM BROADCASTS IN THE EVENT THAT NMC CANNOT. AS SERVICES ARE REMOTED TO NMC, VOICE CALLS TO COMMSTA HONOLULU WILL BE RESPONDED TO AS CG CAMSPAC PT REYES, NON-VOICE CALLS WILL BE ANSWERED AS NMO/NMC."** That will leave NMG, CommSta New Orleans, La. and NOJ, CommSta Kodiak, AK as the only remaining non-remoted CommSta's.

Recent monitoring has revealed an added station using 11175.0 kHz on the USAF Global High Frequency System (GHFS) system. Thule GHFS, Greenland, is now using the frequency 24-hours-a-day. This was confirmed per the latest DoD Flight Information Publication (Enroute), Flight Information Handbook (FIH). Meanwhile, Croughton, England, which had been a 24 hour station, is now listed as 2300 to 0500 UTC only. Next month we'll look at the GHFS system, and the various unclassified DoD aero publications which you Air Force/aero fans may purchase.

Reader Mail

Scott Diback, MI uses a RadioShack DX-390 and a Grundig Satellit 700 to

cover his specialty area of Longwave. Scott has been making some fine catches recently. Craig MacKinnon in Halifax, Nova Scotia writes about an interesting frequency he has found. Craig found Eastern Canada Towing (ECTUG), a tug company based in Halifax on 5403.0 USB (see log). Since Craig uses an analog tuner he would like to confirm this as the correct frequency. Anyone?

Steve Fisher, OH noted GIANT KILLER, the Virginia Capes FACSFAC (Fleet Area Control and Surveillance Facility) at Naval Air Station Oceana heard regularly on 4372.0 USB was recently in the news. Steve sent an article in the Virginia Pilot Ledger Star newspaper website by columnist Tom Holden that detailed the incident involving New Jersey Air National Guard F-16s and a Nations Air 727 commercial aircraft off the East Coast of the U.S. that recently occurred. The article indicated that investigators from the National Transportation Safety Board were to do an inquiry into the incident and that "the civilian inspectors will interview officials at the Fleet Area Control and Surveillance Facility Virginia Capes, whose personnel had control of the fighters during the encounters." The article goes on to describe GIANT KILLER as "an unremarkable block of a building, two towers topped with dimpled domes, and an array of antennas on poles. But inside is enough electronic equipment to monitor a whopping 94,000 square-mile chunk of airspace off the eastern seaboard. From Narragansett Bay, RI to Charleston, SC, the powerful radar beams that sweep from the facility can track all traffic - civilian and military - and monitor ship and submarine movement up to 200 miles from shore."

Ian Julian has been a ute monitor for nearly 20 years and was recently connected to "cyberspace" via the internet. His monitoring station is located in Hamilton, New Zealand and consists of an ICOM R72, Sony 6800w and a Sangean ATS 803A. HF Antennas are a 47Ft T2fd and a 62-foot longwire, while his decoders are a Wavecom 4010 and a Universal M400. Ian has sent some logs and news of a mystery signal that he heard late last year on 17925, 18042, 18160, 18278, 18396, 18514, 18631, 18749 and 18866 at 2230 UTC, and a week later another group on 15677, 15912, 16030, 16266 and 16384 at 0630 UTC. They made a kind of "gurgling oscillating" kind of sound and all freqs were active together. Ian wonders if it might be a frequency hopping system.

Allan Rosewarne has taken on the duties as utility station columnist for the Chicago Area DXers (CADX) club. If you would like more info on CADX, write: Chicago Area DXers, c/o Ed Stroh, 53 Arrowhead Dr., Thornton, IL 60470. Membership is open to anyone in the greater Chicago area.

Jim McLeod, MD checks in for the first time using a Yaesu FRG100, Drake R4, and a DX440 for his military monitoring. Thanks for the note, Jim.

Tom Sevart (KS) notes that the mystery "quick brown fox" RTTY station reported last month has gone off the air. No ID was ever noted on any of the frequencies. Tom has started a new column for ACE (Association of Clandestine Radio Enthusiasts) called "Covert Comms" as of the May issue. The column will cover numbers stations and other unidentified communications. For more information about ACE, write Association of Clandestine Radio Enthusiasts, P.O. Box 12112, Norfolk VA 23541. A tip of the old ute hat to Allan and Tom for their club efforts. Now, on with the show...

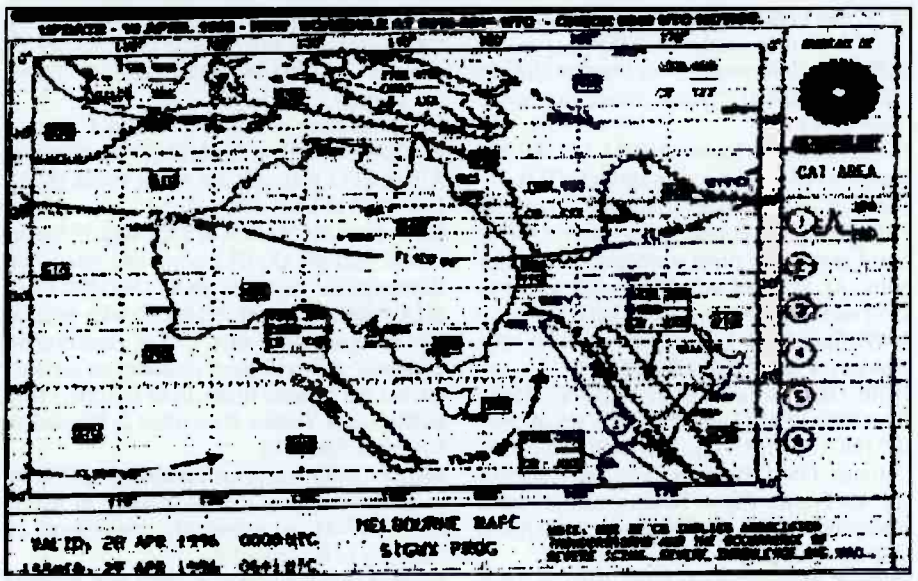
UTE Logging's SSB/CW/DIGITAL
All Times in UTC

212: UCF, NDB Cienfuegos, Cuba heard at 0455. (WP)
224: GVA, NDB Henderson (Geneva) Ky at 0503. (WP)
227: SNL, Shawnee, OK at 0443. (RH) SZO, Freyburg, Me at 0709, 145m. (AH)
230: Unid NDB VA in CW at 0355. (SD)
259: YLP, Mingan, PQ at 0440. (RH)
284: TEH, Bogota, Col at 0716, 2556m. (AH)
290: YNP, Managua, Nic heard at 1016, 2222m. (AH)
310: MCR, Manicore, B heard at 0859, 3332m. (AH)
330: A9– Liverpool, NS, Can heard at 0920, 374m. (AH)
338: Unid B in CW, w/space between the 2nd/3rd dash at 0400. (SD) **340:** BOG, Bogota, Col at 0437, 2542m. (AH)
342: At 0404, "Y", Gallantry Head LS, STPM, 831m. (AH)
346: LI, NDB Logan Airport Boston MA 2122. (FD)
350: 1F– Anta-Bathurst, NB, Can at 0928, 501m. (AH)
353: QQ in CW at 0402, last dash in the second Q is very long. (SD)
354: UUV, NDB Sullivan, MO at 0037. (RH)
356: AR, NDB TF Green Airport, Providence RI at 2135. (FD)
359: AMT, NDB West Union, OH at 2225. (RH) TPX, Tepexan, Mexico at 0943. (WP)
368: IMR, NDB Marshfield, MA heard at 2050. (FD)
375: BO, NDB Logan, Boston, MA heard at 2040. (FD)

Abbreviations Used For Intercepts

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

382: LQ, NDB w/voiceover a/c wx, Logan, Boston, MA at 2025. (FD)
371: TZT, NDB Belle Plaine, IA at 0203. (RH)
373: UQN, NDB Vidalia, Ga (where the Vidalia onions come from) at 0525. NDB 2R, Tyendinaga, PQ, Canada at 0525. (WP)
375: BO, NDB Logan, Boston, MA heard at 2040. (FD)
402: MQ– Miquelon, STPM at 0657, 829m. SJE, San Jose del Guaviare, Col at 1015, 2694m. (AH)
407: LET, Leticia, Col at 0622, 3160m. (AH)
420: CFY, NDB Lake City, SC at 0403. (RH)
423: AU, NDB Auburn, AL at 0306. (RH)
1619.5: PCH, Scheveningen Radio, The Netherlands at 0415 w/sitor free signal & CW ID. (KS)
1620: Unid, male voice TIS, call letters were WDBF404 (or at least it sounded like it) and it mentioned Interstate 64 being clear and later something about "Fine Dining and Accommodations" at 0415 in AM. (KS)
2182: Unid stn, sounded like 'Manchako Radio', at 0325 w/'PAN-PAN' broadcast re poss vsl in distress, location appeared to be in the Bay of Biscay (43052N/00325W). (RK)
2201: VIM, Melbourne Radio, Aus, at 0945 in USB w/wx forecast for Victorian coast. (EW)
2354.6: FOXTROT TANGO, USN Link-11 Coordination NCS at 0535 in USB wkg INDIA re track 2743 is call sign N3D; other SLC's in net also. (Ed.)
2429: MKL, British Military, UK at 0607 in CW w/METAR wx. (AWH)
2670: NQSP, USCGC Vigorous (WMEC-617) at 0740 in USB wkg Group Moriches (NY), adv getting underway momentarily re F/V James Michael; at 0752 wkg F/V James Michael re on-scene wx, POB, etc...vsl has unid distress. (Ed.)
2844: BRAVO WHISKEY, USN Net at 0700 in USB w/BW as NCS w/USS John F. Kennedy battlegroup comms, H+00 net summary. Comms were hrd over a week as the JFK group went thru work-ups prior to deployment. Also see 5338.6 & 7988.6 logs. (Ed.)
3116: Irkutsk Volmet (YL/RR) in USB mode at 1456. "Irkutsk Mityor" ident & down at 1459. Weaker & mostly unreadable YL up at 1500. Believe this is Russian language Volmet



WeFax from the collection of Ronald Tull of AXM34, Melbourne Meteo on 11030.0 kHz.

"Network D". On another occasion, Khabarovsk Volmet signing on in RR, USB at 1515. Was YL/RR, w/very clear "Khabarovsk Mityor" ID. //5691, caught the sign-off ident on both freqs at 1520. (DS) Khabarovsk Volmet at 1225 and Irkutsk Volmet at 1245, both in USB w/avian wx report in RR. (TY)

3407: YL/RR Volmet in USB mode from 1838-1839. Weak, unid. (DS) (poss Aktyubinsk, Kaz at this time slot -Ed.)

3438.5: Unid CW stn 2RC8 rptng "V 8L6S DE 2RC8" at 1135. (TY)

3440; Unid stn 4XML Rptng "V BFR7 DE 4XML" at 1450 in CW. At 1045, U/i CW stn 6PXJ rptng "V ABYZ DE 6PXJ". (TY)

3455: Tokyo Radio wkg Japan Air flights 777 & 74 at 1412; Flight 74, selcall EG-JK, reported would be at 31N/160E at 1500. At 1413, Qantas-60 notified Tokyo that he had reached FL 370. All USB mode, great copy on all stations. (DS)

4214: ZSC, Capetown Rdo, RSA at 1705 in FEC w/Navarea warnings. \\ 12601.0 & 16816.0 kHz. (RH2)

4268: VTG4, Bombay Comcen rdo, India at 1325 in CW w/marker. (EW)

4326: "R", Russian Navy, Ustinov, RUS at 2246 in CW w/channel marker. (AB)

4357; WAH, St.Thomas Radio, U.S. Virgin Islands at 0211 in USB w/Caribbean wx in progress read by YL to 0221. (Ed.)

4416: P7X in CW at 0221 w/5L msgs. Sent numerous msgs, but never sent all 120 grps of any of them. (TS)

4447: Unid French Forces C.I. UMF (Souge) at 2132 in ARQ-E 72/400. (DG)

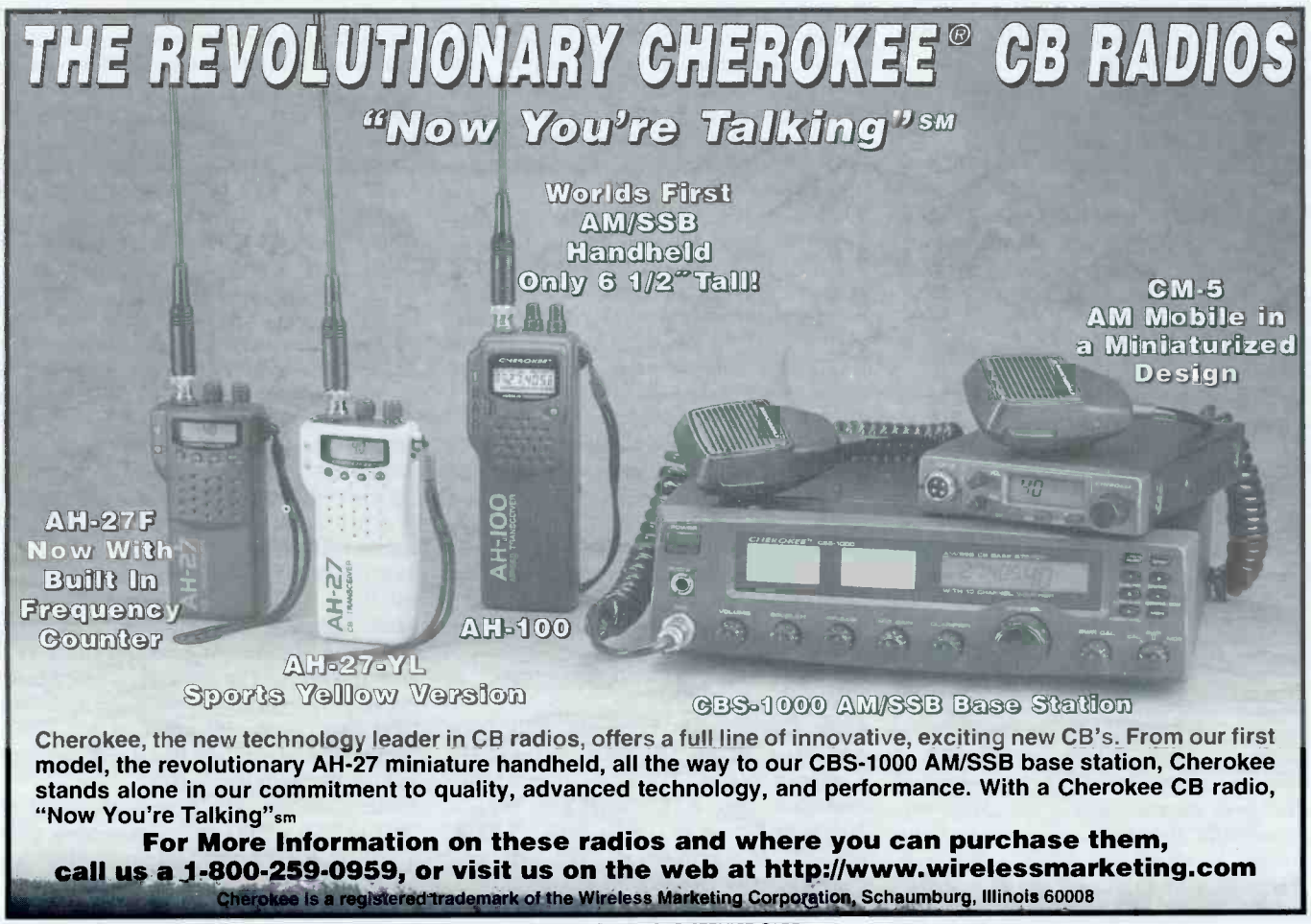
4478: YL/SS in AM at 0415 to 0420 weak but Readable. (GS)

4610: SAM 31681 heard at 2116 in USB w/pp CROWN via Andrews AFB (AN) (C-9C 73-1681 -Ed.)

4663: Khabarovsk Volmet in USB w/avian wx report in heavily accented EE at 1205. (TY)

4724: REACH 241 at 0606 wkg McClellan. At 0632 NAVY PF675 w/pp Tinker Ops via McClellan. Both in USB. (AN)

4745: 'Andrews' in USB at 0800 clg 'SPAR 99,' no joy. (TS)



CIRCLE 89 ON READER SERVICE CARD

5018: France? RFFEDFE (GROUPFORCE ALFA) at 0630 in ARQ-E 72/400, w/test tlxs to RFFEDFM (GROUPFORCE BRAVO) on ckt UMF; another station same mode noted on 5243, no tfc though. (AWH)

5064: 9MB, Malaysian Navy, Georgetown w/CW marker at 1825. (IJ)

5095: Unid French Forces, C.I. UFE/ RFFEDFE, unlocated, at 2055 in ARQ-E 72/400. (DG)

5291: Cuba? CW net at 1415 w/"CCN" wkg "IJK" w/SS plaintext, didn't copy enough of it to figure out the subject matter. First time this net noted in a while, though the callsigns have literally been around for years and years. Also noted the peculiar SELCAL or tune-up pulsing noted on other Cuban freqs. (AWH)

5331: Cuban voice net at 1602 in USB, QSO w/251, 252, 075, 700, all weak. The typical Cuban SELCAL or tuneup pulsing noted here also. (AWH)

5338.6: BRAVO WHISKEY, USN Net at 2125 in USB wkg LIMA WHISKEY (a 2nd NCS station on freq) relaying tfc from c/s LIMA. USS John F. Kennedy battlegroup comms as JFK performed work-up's prior to deployment. (Ed.)

5340: Unid CW stn L9CC rptng "V CP17 DE L9CC" at 1425. (TY)

5403: Eastern Canada Towing (ECTUG) "Tug Office" at 0335 in USB wkg tug Point Carroll. They are based in Halifax & rarely use HF. (CM)

5407: ZKST, New Zealand Civil Defence, Christchurch net control, w/weekly check-ins clg ZKST33 Chatham Islands at 2230 Thursdays in USB. (IJ)

5427.8: Unid G-TOR connect mode at 2334, EBMBPT clg PAPIPO, no reply. Has been here frequently since. (AWH)

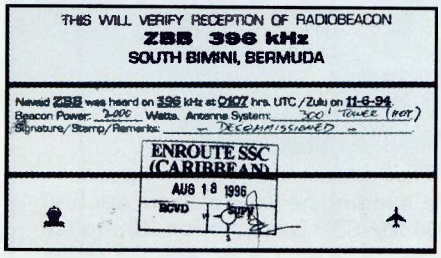
5450: RAF Drayton volmet, UK at 2029 in USB w/wx info for European airports. (EW)

5468.9: RFHWWO, French Forces Tahiti at 1230 in ARQ-M2 128.5/85, w/Ch.B running SYNOP wx to Muraroa. (AWH) (circuits to the Muraroa test site all seem to use this odd 128.5 baud -Ed.)

5502: PBC, Dutch Navy, Goeree Island at 2222 in 75/850 RTTY. (DG)

5541: N480EV at 2200 in USB wkg Stockholm, (selcal CJ-LM) departed Rota 2113, ETA OBBI/Bahrain 0347. (TO)

5547: Philippines 105 at 0830 in USB wkg San Francisco rdo, ARP DOLFF at 0828, FL 310, est 46N140W 0909, spd mach .85. (TO)



PFC from the collection of Jill Dybka for Beacon ZBB. Beacon fans on the internet are invited to check out Jill's website at <http://funnelweb.utcc.utk.edu/~jtdybka>

5574: San Francisco rdo at 0929 in USB wkg DELTA 16 re posn report. (EW)

5629: SYN2, Mossad, Israel heard at 2047 in USB, YL repeats "sierra yankee november two." (EW)

5634: Mauritius Radio at 0211 in USB clg Mauritius 057 no joy, very strong!. (TO)

5637: Cuban Spook?, Babbler at 1256, SS/OM w/long counts, poss same OM as heard testing on 5688 a couple of minutes prior. At 1532 SS w/babbler, still going at 1552 recheck. Both in USB. (AWH)

5649: Speedbird 179 at 2131 in USB wkg Gander for selcal (BP-CE). (TO)

5670: THAI 307 at 1617 w/Madras @ "PPB" (Port Blair VOR 11-40N/92-46E), selcal "FH-JL" (DC10-30ER), reg. HS-TMB, Bangkok-Colombo (JSM) Bombay radio, India at 2014 clg Air France flight. Kuala Lumpur radio, Malaysia at 1318 clg Singapore 747. All in USB mode. (EW)

5680: Kinloss Rescue, G at 1050 in USB w/SRG 128. RC and pos.rep. (AB)

5687: BOLT 64 (or DOLT?) at 0248 in USB wkg PLANTATION OPS (USAF 16th SOW Hurlburt Field). (AWH)

5693: ARCHITECT, RAF Strike Command at 0800 in USB w/H+00 pressure readings. New here. (Ed.)

5696: RESCUE 2104 at 0300 in USB wkg CAMSLANT re at 2225 local spotted two strobes at location 1402.8N/06041.9W. Made two low passes, saw a small boat with sail, 2-3 people on board w/white flashing signal. Reported vsl in distress to "Emergency 44", a French-accented operator who needed many repeats. Emergency 44 offered help by 1:00 AM but 2104 had contacted Coast Guard "Protector" out of St. Lucia on 7850.0 MHz and reported they could be on site within one hour. (BN) (7850.0 is a Caribbean Police frequency - Ed.)

5700.5: 'Habitat' in USB at 0500 wkg U0A. USN Link-11 coordination comms. (TS)

5841: At 1815, 205 wkg PANTHER in USB re the intercept of a vsl, PANTHER reqs 51 ALPHA pass the posn, heading & speed of the vsl they are tracking. 51 ALPHA ltr reqs PANTHER to have duty agent stop & board vessel as enters marina. (MF)

5879.5: P7X here at 0922 // w/ 4416. (TS)

6224: KCE270 wkg vsl Atlantic Breeze at 1250 in USB, latter near Great Inagua. (AWH) (Maritime Enterprises Inc., N. Miami, Fl -Ed.)

6344: Unid at 2041 in FEC w/traffic list, unable to determine ID because of multiple call signs, gave WLO/WSC/KLB as calls. (SW) (WLO here - Ed.)

6382: TBA6, Turkish Navy, Ankara, Turkey at 2204 in CW. (DG)

6397: JMC3, Tokyo meteo, Japan at 0923 in CW w/wx info. (EW)

6556: Qantas 62 at 1715 wkg Bali, posn KEONG 1710, FL 370, selcal ck (LQ-CD). Koreanair 981 at 1716 wkg Calcutta, can't read each other. ATC req QSY to 3491??. Singapore 229 at 1722 wkg Perth, FL 370, posn PD. Mandarin 801 at 1723 clg Ujung Pandang, no joy. All in USB mode. (TO)

6589: Cuban strange relay was active again, 1600+ w/mostly just hum, at 1615 USTACA (?) clg ROMANO, otherwise very little activity. (AWH)

6628: Cubana 473 at 2102 wkg Canarias w/ARP, 29N25W at 2102, FL 310. Lufthansa 537 at 2143 wkg NY for selcal check (CM-LS). Both in USB. (TO)

6637: Fine Air N44UA at 0537 wkg Houston LDOC (selcal AK-HL) posn 140 mis S. of Barranquilla: departed BOG 0445/59 ETA MIA 0800. At 0540, N160GC wkg Miami LDOC re arrival at dest. CYGK, mention of Canpass? and will need customs on arrival. Global Air Charter flight. Both in USB. (TO)

6658: Sierra Yankee November 2, Mossad at 0147 in USB. (CS)

6661.7: Unid Egyptian Embassy w/ATU-A msgs & selcalling TVVM at 1830 in ARQ. (IJ) (TVVM is reportedly the Egyptian embassy in Kuwait - Ed.)

6676: Bankok Volmet at 0940 and Sydney Volmet at 1000 both in USB w/avian wx report in EE. (TY)

6683: SAM 787, E-4B tail 74-0787 at 2359 in USB wkg Andy VIP on "731" for incoming pp, had SecDef on board. (Ed.)

6715: SPAR 63 at 2359 in USB w/pp via Thule. (AN) (VIP flt -Ed.)

6745: "UNII" AFTN Yenisek Air, Russia, w/Wx synopsis at 0900 in 50/425 RTTY. (IJ)

6760: "Tired Hand" spook station in CW, heard from 1920-1930 repeating "540 540 540 65897 65897", 20wpm keyboard send, 0 as long T, first time heard in months, at least they finally bought the poor sap something other than an old brass manual key. Off w/out fanfare. (AWH)

6768: SS/YL at 0428 in AM w/5FG# Station (Fri). (AN)

6780: Russian Man, in progress at 0208 in USB. (CS) Unid ETS w/RYRY at 1810 in 50/425 RTTY. (IJ) (Addis Ababa Air -ED.)

6786: YL/SS at 0659 in AM w/5FG# Station (Wed). (AN)

6823: "SA" and "KE" Tongan Defence Force mentioned that U.S. Marines arriving Tonga'tapu for exercise at 1930 in USB. (IJ)

6826: YL/SS w/5FG 0300 to 0338, Atencion x3, w/3 5FG's in between each Atencion. The carrier remained open for approximately 20 minutes after the numbers ceased. (GS)

6840: Unknown YL 'Counting' station at 2005 in USB w/7LG. Broadcast ended abruptly at 2010Z. (BOZ) (should be Mossad "JSR" station here - Ed.)

6855: SS/YL at 1600 in USB w/5FG, poor signal. (CS)

6869: SS/OM in progress at 1506 in USB, "Atencion Atencion Atencion 7 2 29 7 2 29 1 2 3 4 5 6 7 8 9 10" The 29 was one word "biente nueve". Then at 1509 heard "Atencion 7 2 90 final final" w/the 90 again as one word, "noventa". Curious how this station does not just use the digits 0 to 9. (CS)

6900: Unknown YL 'Counting' station at 2011 in USB w/5FG. Different operator than 6840KHz. (BOZ) (poss Lincolnshire Poacher here - Ed.)

6908: Philippines Army counter-insurgency net gave a large list of names and mentioned they all belonged to the Christian Liberation Front at 1100 in USB. (IJ)
6925: KKN50 in CW (USB) on WED, Hrd from 0611 to 0612. (KM) (c/s officially listed as U.S. Department of State on 6925.5, real user? - Ed.)
6936.7: RFLI, French Forces, Fort de France at 0640 in ARQ-E3 192/342 idling. (RH2) (circuit ID "LIJ" - Ed.)
6986: Andrews at 1855 in USB conducting radio check NAVY 511, 511 also he was carrying code 2 plus 5. (MF) (VP-3A bureau #150511 used by USMC HQ - Ed.)
7070: Unid CW stn L9CC rptng "V CP17 DE L9CC" at 1415. (TY)
7535: USS Portland (LSD-37) at 1451 wkg Norfolk SESEF for transmitter tests. At 1550 SESEF wkg "Magnolia" (unheard). Poss went to ANDVT type comms. At 1656 USS Normandy (CG-60) working SESEF for xmitter tests. (MK) Other ships hrd wkg SESEF: NEBP, USS Wasp (LHD-1) at 1825; NIGP, USNS Apache (T-ATF-172) at 1815; NKID, USS Kidd (DDG-993) at 1540; NKSZ, USNS Capable (T-AGOS-16) at 1639; NRAR, USS Monterey (CG-61) at 1420; PCU Hopper (DDG-70) at 1520 (Pre-Commissioned Unit); NBTC, USCGC Aquidneck (WPB-1309) at 1800; USS Barry (DDG-52) at 1935; USS Firebolt (PC-10) at 1401. Primary mode is USB. (Ed.)
7540: YL/EE in USB mode at 1432 repeats "JSR"copied in NATO phonetics until 1433, then announces 2 messages, has been heard //5091, and also at 1200, 1300, and 1530 skeds. (DS)
7634: P6Z, France at 0553 in FEC-A 192/400 for P8C, O9B, etc, 5LG telexes from RFGW. (AWH)
7685: Telecom, Tokelau Islands, caught one of the last phone calls on HF before closing down. Have now switched to Satellite at 0400 in USB. (IJ)
7693: 3BT3, Vacaos Meteo, Mauritius, w/WX synopsis at 1830 in 75/425 RTTY. (IJ)
7841.7: RFFXI, French Forces Bangui, Central African Empire at 2047in ARQ-E3 96/425 idle. (EW)
7878: 4XZ, Israeli Navy, Haifa, w/CW marker at 1810. (IJ) Same at 0145 w/"NR.6 JJJJ KDJKD", into 5LG's, fol by CQ marker "DE 4XZ". (Ed.)
7890: YL/SS in AM at 0211 w/5F msg. (TS)
7988.6: Unid at 1510 BW wkg T, ments Halley 41, Scale 31, others. USN tracking net of some sort, strong. (AWH) BRAVO WHISKEY at 2357 wkg GULF, others w/USS John F. Kennedy battlegroup work-up comms. (Ed.)
8001.7: RFLI, French Forces, Fort de France, Martinique at 1122 in ARQ-E3 96/425 idling. (EW)
8014: YL/EE in AM mode at 1103 repeats 1-0 counts & "345-345- 345". Noted with 3/2F groups at 1115 //10597. On another day, YL/EE in AM mode at 1514 with 3/2F groups. At 1530, "repeat... count 215 . . . count 215" and into 3/2F again. "End" at 1550. (DS)
8016.7: MFA Cairo, Egypt at 2004 in ARQ msgs in Arabic atu-80. (EW)
8020: HMF85, KCNA Pyongyang, N.Korea at 1545 in 50/250 RTTY w/nx. (DG)
8026: Air Force One at 2206 in USB w/Andrews, rx ck (a couple of times thereafter) as Bill made his way back from Helsinki. (HO)
8039.5: P7X in CW at 0455 w/5L msgs & data burst xmissions. QRM'ed by WEFAX. (TS)
8150: Unid OM/SS at 0110 in USB clg SAN CLEMENTE 54 (callword is a maybe). (DW)
8157: Unid spook, interesting CW one; 1630 had 50 wpm autokeyed 5FGs w/cut zero=T; then into hand-keyed 5LG tfc around 20 wpm. VERY strong. Mid msg at 1646 threw in a "QSY 5814" but kept going here. At 1650 w/out warning suddenly QSY'd to 5814 w/little interruption, then soon back into fast (now 41 wpm) 5FGs. Couldn't stick with it, but checking capture file after-the-fact found another "QSY 6866" a few minutes later, followed by several minutes more traffic again before the actual QSY. (AWH)
8390: UWEC, NISP Professor Khromov at 0133 in 50/170 RTTY, Ukrainian Antarctic hydrometeorlogical research vsl w/RYRY to RNO, Moscow meteo Antarctica section, & passes sev admin TG's. (Ed.)
8423.5: DAN, Norddeich Radio, Ger at 1759 in FEC. (DG)
8445: XSX, Keelung radio, Taiwan at 1044 w/CW wx broadcast. (EW)
8525: WNU33, Slidell Radio at 2159 in CW clg CQ. (SW)
8819: Alma Ata Volmet w/avian wx report in RR at 1219. (TY)
8846: TANK 19 at 1807 in USB wkg NY reporting FL 210 & below, still Due Regard and squawking. (TO)
8879: United 917 at 1532 in USB wkg Iceland Radio posn 6145N/ 3057W; ETA Keflavik 1609Z. 'Requesting decent ASAP' re medical emergency on board. (BOZ)
8891: Speedbird 283 at 1744 w/Churchill rdo @ 80W polar track "GULF", selcal BP-AK, reg. G-BNLE, 747-400. (JSM)
8903: Nigeria 9909 heard at 2317 in USB w/Kano @ "SEMIT" (13-44.5N/ 008-2.3E) FL330, reg 9G-MKE, DC-8 Freighter (self-ID'd). (JSM)
8906: United 917 at 1445 in USB wkg Gander re medical emergency; posn 58N/034W, diverting to Gander. After a few minutes, pilot adv have re-considered & will divert to Keflavik, Iceland. They wish to turn ASAP & climb. Gander adv them to standby. After waiting a few minutes, 917 asks reason for delay, must turn now, if necessary he will declare a medical emergency. Again, Gander adv them to standby. 917 promptly declares a medical emergency. Gander asks nature of emergency & services required upon arrival. Pilot adv emergency was heart attack. (see 8879 log also) (BOZ)
8948: Air-to-ground traffic heard in EE in USB mode from 1212-1216. Based on the accents of the stations heard, probably India domestic/regional network, but copy wasn't good enough to hear any firm idents. (DS)
8968: CHUCK 96 at 2056 in USB wkg Thule GHFS w/pp to 440 DSN. 96 asked for TOMCAT 02 who was not available. Asked for rescheduling of AR02. (BOZ)
8971: BLUE STAR (?) clg TRIDENT 04 (?). No joy. FIGHTING TIGER 720 wkg Hotel 4 Romeo. Both parties having a hard time hearing ea other. (RK) (BLUE STAR is NAS Roosevelt Roads, PR; TRIDENT calls are P-3C's of VP-26 "Tridents" at NAS Brunswick, Me; F.Tiger is most likely P-3C of VP-8 "Tigers" also at NAS Brunswick -Ed.) **9063:** YL/SS w/5FG 0220 to 0242. (GS)
9126.7: RFTJD, French Forces, Libreville, GAB at 0501 in ARQ-E3 192/385 w/FF tfc to unid sta. (RH2) (is C.I. HAI to Paris -Ed.)
9152: GYU, Gibraltar at 2340 in Piccolo-6 w/op chat "BLUE DE GYU LO PAL CIP CIP" into idle. (AWH)
9251: Lincolnshire Poacher at 2111 in USB w/5FG's, // 6959 (Jamming), // 5746. (BOZ)

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Same, YL/EE 5F msg at 2004 //11545. (TS)
9438: JMJ3, Tokyo meteo, Japan, at 0913 w/120/576 FAX wx map.(EW)
9865: SS/YL at 0811 in AM w/5FG# Station (Sun). (AN)
9927.5: RXA76, Almaty Meteo, KAZ at 1045 w/60/576 FAX, chart.(DG)
10051: New York Radio with aviation wx at 2005 in USB. (SW)
10121: SUU, Cairo meteo, Egypt at 1850 w/120/576 FAX wx map. (EW)
10126: SS/YL at 0135 in AM w/5FG# Station (Thu). (AN)
10314: SNN299, MFA Warsaw, POL at 1110 in POL-ARQ 100bd w/msg to Madrid. (AB)
10420: "MUH6", MUH6B" & various units Australian Army exercise at 0600 in USB. (IJ)
10426: Lincolnshire Poacher at 1630 in USB // 11545. (CS)
10452: Lincolnshire Poacher nbr stn in USB at 1005 in EE, also on 17499 kHz. (TY)
10456.6: CLP1 MFA Havana Cuba w/circulars at 0430 in 50/500 RTTY. (IJ)
10529: YL/EE in AM at 1323 w/3+2FG's, also on 7547 kHz. (TY)
10536: CHF, Canadian Forces, Halifax at 1546 w/75 bd RTTY aviation wx, followed by coastal wx forecasts, off at 1552. (SW)
10584: Russian FAPSI station KUL, unlocated, at 1539 in 75/500 RTTY. (DG)
10626: "RFFXL" French Forces Naquora, Lebanon w/Controle de Voie at 0630 in ARQ-E 184Bd. (IJ)
10639: NPX, South Pole, Antarctica w/daily Meteo reports at 0700 in USB. (IJ)
10650: BJZ23, Wuhan meteo, China copied at 0945 in 75/425 RTTY w/wx info for Chinese cities. (EW)
11175: SAM 31682 at 2235 w/pp via MacDill. GORDO 12 at 1653 w/pp NIGHTWATCH 01 via unid GHFS. EXECUTIVE ONE FOXTROT at 2012 w/pp via Ascension. (AN) (31682 is C-9C 73-1682 -Ed.) DRAGNET TANGO at 1930 in USB wkg Offutt w/pp to 339 DSN, adv Offutt to use C/S "Charlie Flight", was given the go ahead on the pp, but terminated because signal quality was poor. (BOZ) REACH 67956 at 1800 w/flt info & "basic & nav mode of auto pilot is inop in lateral axis. Can hold altitude but must steer plane manually. (HO) Navy JA05 (P-3) at 1741 wkg Offutt w/pp to Patrick Ops. ADMO (Army boat?) at 1509 clg any station w/no joy. (MK) (ADMO is the USAV El Chaney (LCU-2017), This is a Army Transportation Corp Runneymeade-class 'Landing Craft Utility' - Ed)
11176: Unid British operator at 1952 in USB testing xmitter in a jovial voice. Followed by un-encrypted RYRYRY. Two different xmtrs were tested. (BOZ)
11177: Belgian Navy in USB at 2358, u/i patrol in EE "we are altering course to intercept fishing vessel. other OM/EE replies "Oostende out." (RK)
11220: SPAR 63 at 2029 in USB clg Andrews AFB (AN)
11244: Andrews at 1755 in USB advising an unknown station of the NIGHTWATCH frequencies: Z165 6757KHz (Primary) & Z175 9016KHz (Secondary). (BOZ)
11309: 'New York' wkg 'Speedbird 257' in USB at 1610 w/selcal check. (TS)
11342: USAir 1970 at 2100 in USB wkg NY ARINC re selcal ck PQ-FM, SJU-BWI/737-400. (TO)
11460: Andrews at 2100 in USB wkg SAM 365 re VIP flight. Mention was made of a different A/C meeting them. (BOZ) (C-20H tail 92-0375 - Ed)
11476: HMF52, KCNA Pyongyang, N. Korea received at 0015 w/FAX in 60/288, wirephoto of person seated at radio, Korean text to 0020. (Ed.)
11570: YL/EE "Cherry Ripe" stn rptng 09828 & 5F msg at 1300. (TS)
11585: VZ8SK, School for Distant Education, Katherine NT, Australia, w/kids doing their lessons at 0400 in USB. (IJ)
11631.7: RFTJ, French Forces, Dakar, SEN at 1230 in ARQ-E3 192/400, idle, at 1312 Controle de Voie message w/C.I. TJI. (AWH)
12134.2: DOR, MFA Sofia, Bulgaria at 0956 in 212/500 RTTY. (DG)
12196: Unid stn copied in RTTY 75/425 w/5LG's at 1951. Stn ended msg w/NIL, then sent CFM TKS GB SK SK. Poss SOUD stn. (TS) (should be link 00125 MIG Havana to WFO Managua - Ed.)
12568: UUZC, BATM Admiral Padorin at 1709 in 50/170 RTTY, Ukrainian-flagged "Bolshoj Avtonomnyj Tral'shchik Murilzhnik" (BATM) or Large Autonomous Trawler, Freezer, w/admin tfc to Murmansk Tralflot FRPZ from master KMD Korsakov, using hull#/ID MA-0065. (Ed.)
12709: FJP23, Noumea radio, New Caledonia at 0821 in CW w/cq de fjp23. (EW)
12950: Fishing vessel comms in USB at 2137. (TS)
13158: OM/cc w/repeating ann for Beijing (?) Radio, blurb went something like, "Cho li shieh Beijing ontai (2X), shen dai wu shieh (2X), chon tai (3x)." Medium sigz and not very clear, but strong, clean sigz on //8812. Was USB mode, and abruptly down in mid-sentence at 1439. (DS)
13212: OZU25, MFA Copenhagen, Denmark w/Msgs to various embassies at 0730 in Twinplex-ARQ. (IJ)
13264: Shannon Volmet in USB at 2151 w/WX. (TS)
13538: ZRO3, Pretoria Meteo at 0813 in FAX w/120/576 excellent Antarctic ice chart analysis. (RH2)
13621: Cuba? probably ex-SOUD, at 2242, in 75/500 RTTY, w/5LGs into SK SK and gone. (AWH)
14363: DKR, unid Russian FAPSI station at 0841 in 75/500 RTTY. (DG)
14469: Lincolnshire Poacher nbr stn in USE at 1120 w/5FG's. (TY)
14708.5: MKK, British Military, copied at 1330 in Piccolo-6, mostly idle, finally ID'd at 1611. (AWH)
14734: Polish Embassy, Algeria at 1130 in POL-ARQ 100/250. (DG)
14871: Lincolnshire Poacher nbr stn in USB at 1015 w/5FG's in EE, also on 15682 kHz. (TY)
14941.7: FJY3, DTRE Durmont D'urville, Antarctica w/Msgs at 0300 ARQ-E 96Bd. (IJ)
15034: Trenton Military at 1930 in USB w/wx broadcast. (AN)
15682: Lincolnshire Poacher nbr stn in USE at 1015 w/5FG's in EE, also on 14871 kHz. (TY)
15970.5: KKN50 in CW at 1809 w/ QRA DE KKN50 mrkr. (TS)
16118: HBD20, MFA Berne at 1650 in ARQ w/5LG'S to unk. (RH2)
16313: CLP1, MFA Havana, Cuba w/nx in EE at 2045 in 50/500 RTTY. (IJ)
16432: 3EIMC, Zanzibar Rdo at 0830 in USB clg MV Pina, no reply. (RH2)
16801.6: UUIV, RKTS General Petrov at 1153 in 50/170 RTTY reporting fish catch from Las Palmas. (RH2)
16956: XVS, Hochiminhville radio, Vietnam copied at 0952 in CW w/de xvs traffic list at 0950. (EW)
17428.5: SAM, MFA Stockholm at 1203 in SWED-ARQ 100/400 w/Swede tfc to Ambassador, Kampala. (RH2)
18173.5: STK, "HSSS" AFTN Khartoum air, Sudan w/RYRY copied at 0130 in 50/425 RTTY. (IJ)
18552: MFA Bucharest at 1151 in ROU-FEC 164.5/400 w/circulara tfc. (RH2)
18801.7: MFA Jakarta, Indonesia w/Msgs to Hanoi, Vietnam in 50/250 RTTY. (IJ)
19095: YL/EE in AM mode at 0015 passes 3/2F groups. "Repeat, repeat" at 0030. Strong! //16198. (DS)
19692.5: ZSC, Capetown Rdo copied at 1054 w/ARQ & CW ID, new frequency. (RH2)
19961: Two unid white noise signals at 2000, one in USB & the other in LSB. (TS)
20140: SOUD stn in RTTY 75/500 w/ 5L grp msgs for YBU. Had better copy on this stn on its repeat freq of 17480. (TS)
22589.5: SVA7, Athens radio, Greece at 0906 in CW w/cq de sva7. (EW)

This months contributors: (AB) Ary Boender, The Netherlands; (AH) Al Hemmalin, RI; (AN) Anonymous, Midwest USA; (AWH) Albert W. Hussein, FL; (BN) Bob Nickels, IL; (BOZ) Richard in Iceland; (CM) Craig J. MacKinnon, NS, Canada; (CS) Chris Smolinski, MD; (DG) Dave Gentile, UK; (DS) Dave Sabo, South Korea; (EW) Eddy Waters, Australia; (FD) Francis D. Donovan, MA; (GS) Gary Seven, NY; (HO) Harold Ort, NJ; (IJ) Ian Julian, New Zealand; (JSM) Steve McDonald, BC, Canada; (KM) Ken McWatters, TX; (MF) Mike Fink, FL; (MK) Mark Kirker, NY; (RH) Russ Hill, MI; (RH2) Robert Hall, Capetown, South Africa; (RK) Rich Klingman, NY; (SD) Scott Diback, MI; (SW) Sue Wilden, IN; (TO) Tony Orr, VA; (TS) Tom Sevart, KS; (TY) Takashi Yamaguchi, Nagasaki, Japan; (WP) Walt Petersen, Fl; and (Ed.) ye editor in Ohio. Thanks to all. ■

BY TOM KNEITEL, K2AES

Communications Enroute

YOUR LINK TO PERSONAL COMMUNICATIONS

Has Your Number Come Up?

A few weeks ago I called a fishing buddy at home from my boat's cellphone. He asked where I was calling from. I was surprised at the question because he'd never before asked. He went on to explain that when he gets cellphone calls, his Caller ID always reads out "Unavailable," which is also how most long-distance calls show up. What confused him with my call that day, was the appearance of a phone number displayed on his Caller ID box. He thought I might be calling from a pay phone or other exotic locale.

When I asked him to read back the number being displayed, it was my cellphone number! I was curious. No, actually the operative word was flabbergasted. I then tried my handheld and confirmed that number appeared on the Caller ID, too.

A fellow who keeps his boat in a slip near mine has his cellphone account with the service reseller I use. I asked him if he knew about this, but he didn't. He called his home to check, only to find out that his cellular number suddenly appeared on the Caller ID. Talk about freaking out! He didn't enjoy learning his number had become so readily available to everyone he called. He told me he's on his cellular a lot.

For whatever reasons, our cellular service supplier had obviously instituted a new policy whereby this data became available on-line when customers placed calls. Customers were never told! What a dirty trick. Given all of the media attention about cellphone numbers being stolen, this stunt seemed all the worse.

My understanding has always been that cellphone numbers are the same as "unpublished" numbers. Directory Assistance won't give them out. Users, themselves, reveal them very sparingly to avoid receiving and paying for calls from people they can wait to hear from later by landline.

Promptly, I called my service supplier and presented a litany of reasons why I didn't want my cellphone number transmitted to Caller ID machines. The customer rep offered no explanation, defense, or argument about why the numbers were made available in this manner. I was politely told that the company would accommodate my wishes if I wanted my number blocked so that it would no longer appear on Caller IDs. I told them to sign me up, pronto. But why should someone need to *specifically* request their cellular number be blocked this way?

The Panasonic RY-P1000 alphanumeric pager not only receives your personal messages, but can bring you sports, news, stock prices, weather, and other services.

The next day I checked to see if the change was made. It was, and the call came through reading "Anonymous." This is the way blocked landline calls show up. My friend with the Caller ID box keeps his own cellphone account with another local service reseller and (so far) his cellphone calls go through shown as "Unavailable."

This incident is passed along for whatever interest and possible relevance it might have to you. I can't imagine that anyone would want their service supplier to freely disseminate their car phone number to all of their callers. It was only because of an observant friend that my company's changed policy even came to my attention.

Hopefully your service supplier or reseller isn't a weasel like mine, and you will have nothing to worry about. It's worth occasionally checking to see if your cell phone number pops up on a Caller ID box. Doesn't cost anything to dial-up, let it ring a couple of times, and find out. If your number appears, my suggestion is to demand that it be blocked. We're interested in your opinion of these matters, also in learning if you have had a similar experience.

The Beat Goes On

A Mayo Clinic medical researcher conducted a survey and determined that persons with heart pacemakers should be aware that digital cell phones could cause the pacers to malfunction or turn off. The

"My understanding has always been that cellphone numbers are the same as 'unpublished' numbers."

problem is most serious when the antenna is near the chest area, such as if the cell phone is carried in a shirt pocket, although it was still noted to be a potential risk even when held at ear-level.

In the survey, digital cellulars used at chest or ear level, produced interference to pacemakers in nearly 54 percent of the 975 patients tested. Analog cellulars caused interference to slightly more than three percent. The Mayo Clinic recommended that persons wearing pacemakers avoid carrying either digital or analog cellulars in their shirt pockets.

This information from the Mayo Clinic, useful as it is, stopped short of being as helpful as it might have been. For instance, can pacemaker wearers safely use digital 900 MHz cordless telephones? Also, do digital cell phones affect implanted heart defibrilators?

In light of the Mayo Clinic's test results with digital cell phones on pacemakers, certainly further study is warranted.

These cautions appear reasonable. Twenty years ago we were warning CBers with pacemakers about the possible dangers of using big juice linear amplifiers with their radios.

Additional information about radiofrequency (RF) emission hazards can be obtained through several FCC sources, such as the on Web at <http://www.fcc.gov/oet/faqs>. RF safety questions are answered and further RF documents and information are contained under the Cellular Telephony Section.

FCC OET Bulletins 56 and 65 concerning effects and potential RF hazards may be requested through the Radiofrequency Safety Program at (202) 418-2464. Additionally, when you call, the FCC will respond to any specific questions about RF hazards.

The FCC maintains a Communications and Crisis Management Center which is staffed 24-hours-a-day, seven days a week. In the event of an emergency, such as an RF hazard threat to the general public's safety or health, you may call (202) 632-6975. The watch officer at that number can contact compliance personnel in your area and dispatch them within a matter of hours.

The FCC uses RF exposure standards and guidelines developed by those with the appropriate expertise. Since 1985, the FCC had relied upon the RF exposure guidelines set in 1982 by the American National Standards Institute (ANSI). In 1991, the Institute of Electrical and Electronic Engineers (IEEE) issued guidelines intended to replace the 1982 ANSI guidelines. ANSI adopted them, and the newer guidelines were recently adopted by the FCC.

Getting Rooked, and Enjoying it!

What with beepers so popular and plentiful, and the service so inexpensive, there are now some quirky things being done with them. This takes them far beyond their original purpose of asking for calls to be returned. Remember, messages don't need to be phone numbers!

A reader in Minn., who gave only the initials W.L., tells us about the nationwide paging service that he and several of his friends subscribe to. Paging messages are placed by dialing up a toll-free telephone number. That allows W.L. and his pals to play long-distance chess, with all the moves specified over the pagers. Great idea. With a bit of imagination, this could easily be adapted to many other games or even sports endeavors.

Here's an idea I picked up from a reader: A couple of other area scanner freaks and I use beepers to instantly alert one another to active frequencies when we discover something especially hot taking place on police, fire, federal, aero, maritime, media, military, or other bands. Their beeper dial-up numbers are programmed into my speed dialer, and then all I need do is simply enter a frequency instead of a call-back number. They do the same. They learn the frequency wherever they are located. This way, all can keep current even if someone's scanner was turned off, or if that frequency was missed, or if someone is at or in the mobile with the handheld. A couple of these people have nitty-gritty jobs, and have turned up very wild frequencies to feed into our little *scannerlert* net.

This is such a simple and inexpensive convenience that we use it frequently. The more we use it, the better it becomes. With beeper service available in many areas for only a couple of bucks a month, this is something any local group of scanner enthusiasts can readily put to use.

If you have a new or novel use for beepers, let us know.

An Odd Idea

We regularly receive catalogs from many communications related companies, plus mailings from companies like J.C. Whitney auto supplies, Johnson Smith & Co., even one offering marine hardware. Few catalogs equal the trendy array of pricey trinkets shown in the Hammacher Schlemmer catalog. The items are presented so dazzlingly that you may have to think hard to decide if something is actually going to be the best way to meet your needs. One such item was brought to our attention by Louis E. Hitchcock, of Wake Island, Hawaii. It's called the *SOS Quick Rescue Phone*, and it sells for about $100.

According to the clipping Louis sent, this is essentially a portable cellular emergency callbox designed to summon aid. It's an attractive gizmo, even designed to look like a highway callbox. It doesn't receive calls, but it can make outgoing calls to three factory preset numbers. It has potentials for use by motorists, cyclists, campers, hunters, backpackers, mountain climbers, or as a backup safety system on small boats in case the VHF-FM fails. It will work anywhere cellular service is available.

In an emergency, you flip it open, turn it on, and press one of its three automatic dial-up buttons. You can then talk with 9-1-1, or a tow truck, or an "SOS Agent." The SOS Agent is an operator who can put you in touch with a family member, friend, physician, or other person on your list (you may specify 10 numbers).

The simple unit has a volume control, a low battery light, a roaming light, and a "no service available" light. The catalog states there is a one-time $35 service activation charge. It says there is a nominal (unspecified) monthly charge.

Here's an emergency-only portable personal callbox for persons who don't want to yak, but will feel reassured at knowing they can summon help with the simple press of a panic button. I quickly thought of several friends and relatives who would consider this a safety device they would definitely want to own.

The catalog mentioned that calls to 9-1-1 are free. But wait! Does that make you wonder about the other calls? Why weren't they mentioned? It was a clue to give this a closer look. When we spoke to Hammacher Schlemmer, they said that all

other calls require payment for air time. Whoa! That turns out to be at a staggering $1.45 per minute. Oh, and the nominal monthly charge to have the service, they revealed, was $10.

Think about it. When you add it up, you are paying about $100 to buy a limited-function no frills cell phone. You pay $35 to activate it, $120 per year in service fees, plus $1.45 per minute for air time, AND . . . you can't receive incoming calls on the thing. All it's good for is to dial-up only three factory pre-programmed numbers, one of which puts you through to an operator. That operator will connect you to no more than 10 other numbers, with the meter running while it happens.

For a fraction of the cost of buying and using *The SOS Quick Rescue Phone*, a person would probably be better served signing a one year service contract package deal with any local carrier. Just shop around and see what they're offering.

Compare this against the SOS phone. My local paper today has the following special cell phone package offer: A full featured cell phone for 95 cents, with no activation fee. It can receive incoming calls, and also directly dial-up any numbers you wanted. Calls to 9-1-1 are free. You pay a $20 monthly service charge. This package includes a year's worth of unlimited local weekend air time, 20 minutes air time per month, with additional air time no more than 49 cents per minute depending upon day/hour. They sweeten the deal with a cigarette lighter adapter, 20 hour nickel hydride battery, and hands-free package.

Everyone knows what emergency highway callboxes are, so the public is pre-sold on their usefulness. The novel perception of carrying around one's own personal emergency callbox as a safety measure has a valid logic that will appeal to many. It's an excellent marketing approach. Yet, it seems to me that most SOS phone users are probably people who remain uninformed about the significantly better potentials at lower cost of full cell phone service.

Wireless E-Mail

Panasonic is now offering three new multi-function alphanumeric pagers, the RY-P1000, RY-P700 and RY-P500. The devices are marketed in collaboration with Axcess Global Communications Corp., a pioneer in the field of Radio Broadcast Data System (RBDS).

In addition to typical business and personal messages left by subscribers, the new pagers can scroll extended messages, with the RY-P1000 able to store up to 2,000 characters in its mailbox memory. Owners of the units can call a toll-free number shown on the units and request subscription activation of various services that will be sent to their pagers. These include stock market news (NYSE/NASDAQ), Reuters news headlines, NWS weather, sports and entertainment, plus others.

The Panasonic units can be programmed to accept programming for various combinations of services. For instance, the RY-P1000 has 10 service codes which the user can designate for personal messages, business messages, or different information services. The RY-P700 has five slots, while the RY-P500 offers two.

These units have extensive memory storages. Each memory slot can store up to 80 characters. The RY-P1000 has 120 memory storage slots, while the RY-P700 can store up to 60 messages. The RY-P500 can store 20 messages of up to 32 characters per message. Messages can be locked in to protect against overwriting. In addition, the RY-P1000 can store and alphabetically sort up to 100 phone numbers, names and addresses. Each incoming message is provided with a date/time stamp by the station sending the message.

Axcess Global provides the radio paging and will ultimately have the service nationwide, so that the same pager device would work in New York, or Los Angeles, or anywhere there is an RBDS signal. RBDS is sent out over subcarriers of FM broadcast station signals.

MSRP of the three units ranges between about $100 and $150. The units are being introduced in the Western states. They might be available in all areas by the time you read this. To receive more information, contact Panasonic Consumer Electronics Company, One Panasonic Way, Secaucus, NJ 07094. Phone (800) 489-8989.

You are invited to provide any comments, opinions, news clippings and product information relating to cell phones, cordless phones, beepers, air/ ground phones, PCS or any of the personal communications services. Please indicate your submission is for "Communications Enroute" in the address of any mail sent to the column. Our direct e-mail address is <K2AES@juno.com>. ■

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CIRCLE 65 ON READER SERVICE CARD

The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Monitor Radio News Operation and Two SW Stations For Sale

The shortwave broadcasting scene never lacks for news, and sometimes the happenings really pin the needle on the Humdinger Meter. Here's what we mean: The Christian Science Monitor has announced its intention to sell its "Monitor Radio" news operation and to sell or lease its two shortwave stations—WSHB in Cyrpress Creek, SC and KBHI on the island of Saipan.

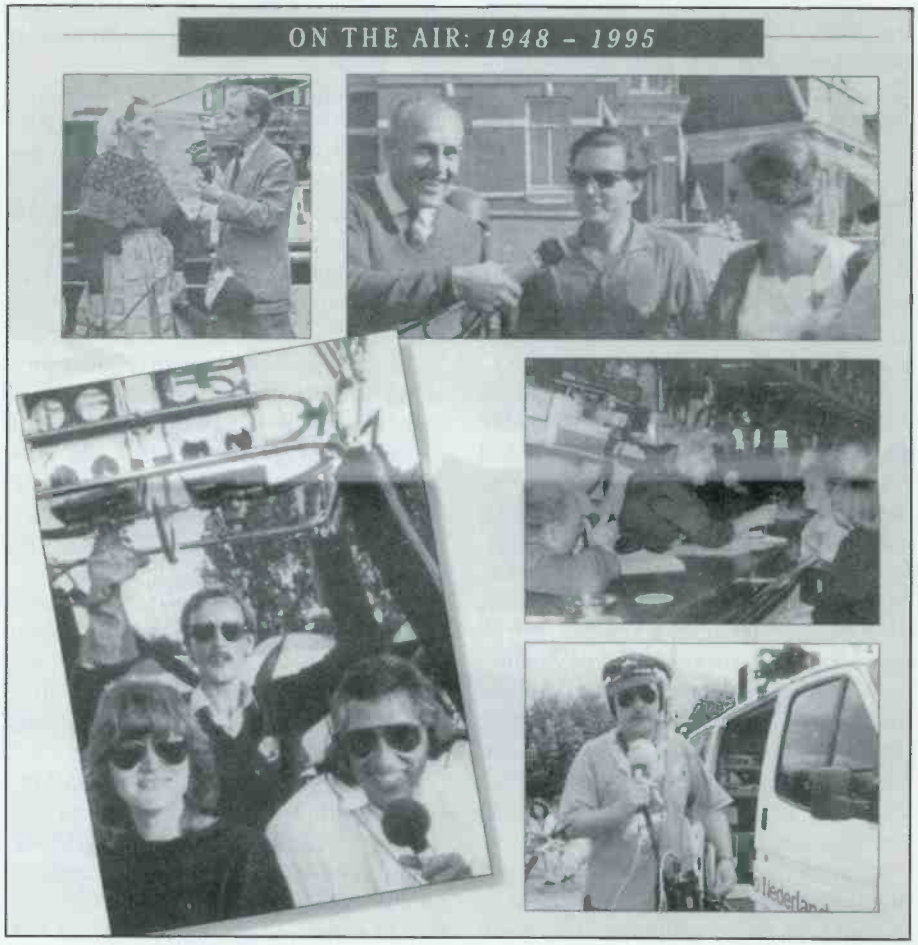
In a news release to *Pop'Comm*, Monitor Editor, David Cook said that the church had to "balance its desire to service a radio audience with the need to support its worldwide healing ministry and strengthen our newspaper."

Monitor Radio began in 1984 and is the second largest provider (behind National Public Radio) of news broadcasts to some 200 radio stations with a combined audience of over one million. Monitor Radio will continue with its current schedule at least through the end of June. Any future radio efforts of the Christian Science Church will be on a smaller scale, with the aim of making them self-supporting.

Discussions are underway with several buyers. The "Monitor Radio" name will not be a part of any deal. The sale or lease of the two shortwave stations is a move separate from the sale of the news operation and will be handled by George Jacobs and Associates. If the news operations are sold before the stations, the Church will continue to air its religious programs on its shortwave stations until they are sold or leased. After that, the programs will be placed via paid time on shortwave stations in Africa, South America and Asia.

The first Christian Science shortwave station, WCSN, Scotts Corners, ME went on the air in 1987 and was sold off a couple of years ago.

Twenty years ago privately owned United States shortwave broadcasters could claim to be one of the world's most exclusive clubs, there being exactly three such animals in existence back then. Today, U.S. private shortwavers are about as hard to find as guitar players in a rock group. And there is yet another one on the way!



Congratulations to one of the best of the best—Radio Netherlands celebrating its golden anniversary this year!

Another Privately-Owned U.S. SW Broadcaster?

Charles C. Josey, who holds ham license K4LNL, has been granted a license for a new shortwave station at Macon, Georgia, targeted to go on the air early in 1998. The new station will use a 50 kW transmitter and is scheduled to operate on **11910**. The format is expected to be commercial religion (how'd you guess?) and it's planned the station will start with a schedule of 1900 to 0700. No call letters have been assigned. The name of the company is Oil and Wine Ministries and they can be reached at P.O. Box 18174, Macon, GA 31209.

The Investment Channel is On The Air

The Investment Channel, mentioned a couple of months ago, is now on the air via South African government transmitters at Meyerton. The broadcasts are scheduled at 0200–0555 on **6195, 7175, 9775, 11985, 15225**; 0530–0755 on **11985, 15225, 17735**; 0600–0725 on **9670;** 0930–1130 on **17735, 21745**;

Abbreviations Used in Listening Post

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

Vatican Radio's 1997 calendar cover has all the station basics. (Thanks to Andy Johns, TX)

0930–1225 on **11985**; 1130 to 1355 on **17735** and **21745**; 1500–1725 on **17735 and 21745**; 1800 to 2055 on **7270** and **9670** and 1800–2155 on **15240, 17735** and **17890**. Programming consists of business news items about various companies around the world, investment information and the like. (They've referred to themselves as the Home Shopping Network of the financial world.) The address is P.O. Box 1250, FL-9490, Vaduz, Liechtenstein. The broadcasts are being heard very well on some channels, especially during our evening hours.

Other SW News

The California-based High Adventure Ministries, which operates the Voice of Hope in Lebanon, KVOH in California and KHBN, Palau Island is now being aired over a transmitter in the former Soviet Republic of Georgia. The broadcasts are running from 1800 to 2000 or later on **9310** (they were using 7520 briefly) serving a European audience. The transmitter is 100 kw, located at Dusheti, Georgia. The address for this service is Voice of Hope, P.O. Box 109, Hereford, HR4 9XR, England.

Colombian station Radio Mira has been reactivated on **6015** (slightly lower). The station is located in Tumaco and is a member of the Caracol network.

The crisis in Albania caused Radio Tirana to be off shortwave for two or three days. For monitors who want to try to track the situation there, here's the station's current English language schedule: 0145 to 0200 on **6115** and **7160**; 0230 to 0300 on **6140** and **7160**; 1845 to 1900 on **7270** and **9570** and 2100 to 2130 on **7110** and **9515**. Another example of the shortwave activity shrinkage of a former Communist government broadcaster.

The Sudan Interior Mission, which operated the now destroyed ELWA in Liberia, is part of a group attempting to get a license to put a station on the air from the Ivory Coast. It's proving to be very slow going, however, so it's a coin toss as to whether this will ever really happen. If it were to happen, however, it would mean at lot of folks would finally be able to verify this country. The government station is notorious in that department.

The recently reactivated Radio Guaira in Paraguay on **5975** signs on as early as 1000 and as late as 1200, and runs until 0000 or so (sometimes later). Fall/winter are probably better than summer to log this one.

Radio Miami International (WRMI) has received the OK to add a new antenna which will beam signals to North America beginning in just a few months. Once the new antenna is in operation the station will add a second 50 kw transmitter. WRMI's current broadcasts (on **9955**) are beamed from Miami towards the Caribbean and Latin America. The facility additions should allow WRMI to cover the entire Western Hemisphere.

Remember that we always welcome your informational input for this column. Shortwave loggings should be listed by country, be double spaced, and include your last name and state abbreviation after each. We also seek station schedules, news, news of changes in station QSL policies or addresses, other station items (brochures and the like), photos of you and your shack and anything else you think would be of interest.

Here are this month's loggings. All times are in UTC, which is five hours ahead of EST, i.e. 0000 (midnight) UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST. Double letters such as SS, PP, AA, RR, etc. are language abbreviations (Spanish, Portuguese, Arabic, Russian, etc.) If no abbreviation is given the broadcast is assumed to have been in English.

ALASKA—KNLS, **6150** with Diana Ross songs at 0845. (Barton, AZ)

ANGOLA—Radio Nacional, **3375** at 0500 in PP. (Johns, TX)

ANGUILLA—Caribbean Beacon, **11775** at 1540 with Gene Scott. (Jeffery, NY)

ARMENIA—Voice of Armenia, **9965** heard at 2139 with Armenian history feature. (Miller, WA)

ASCENSION ISLAND—VOA relay to Africa at 0300 on **7105**. (Provencher, ME) BBC relay to Africa on **9600** at 0324, 9825 with English by Radio (EE/SS) at 2344 and **11750** to the Americas at 0030. (Jeffery, NY)

AUSTRALIA—Radio Australia, **5995** at 1623. (Miller, WA) **6020** at 0915 in Pidgin with pops. Hit hard by Radio Netherlands IS at 0928. (Barton, AZ)

BENIN—Radiodiffusion du Benin, Cotonou, **4870** at 0511 in FF. Music, man announcer. (Jeffery, NY)

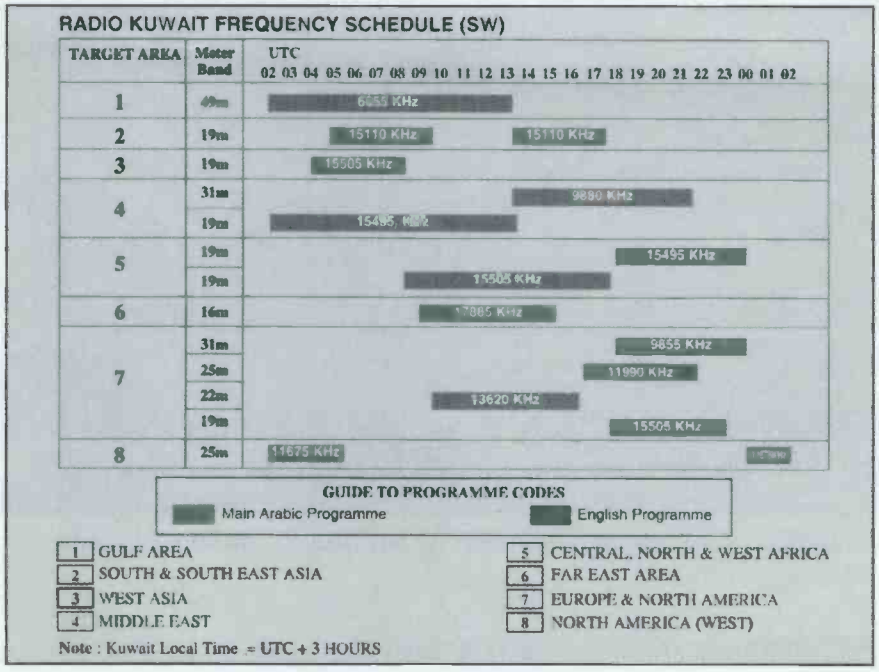
BOLIVIA—Radio Fides, **4845** at 0450 in SS with ranchera music, anthem, ID. (Rausch, NJ) **9625** in SS at 0500 sign off. (Johns, NY)

BOTSWANA—VOA relay, **7340** to Africa at 0330. (Provencher, ME) **7415** at 0432 with Africa news. (Foss, AK)

BRAZIL—Radio Marajoara, **4955** at 0000 in PP. (Johns, TX)

Radio Educacao Rural, **4755** at 0100 in PP. (Johns, TX)

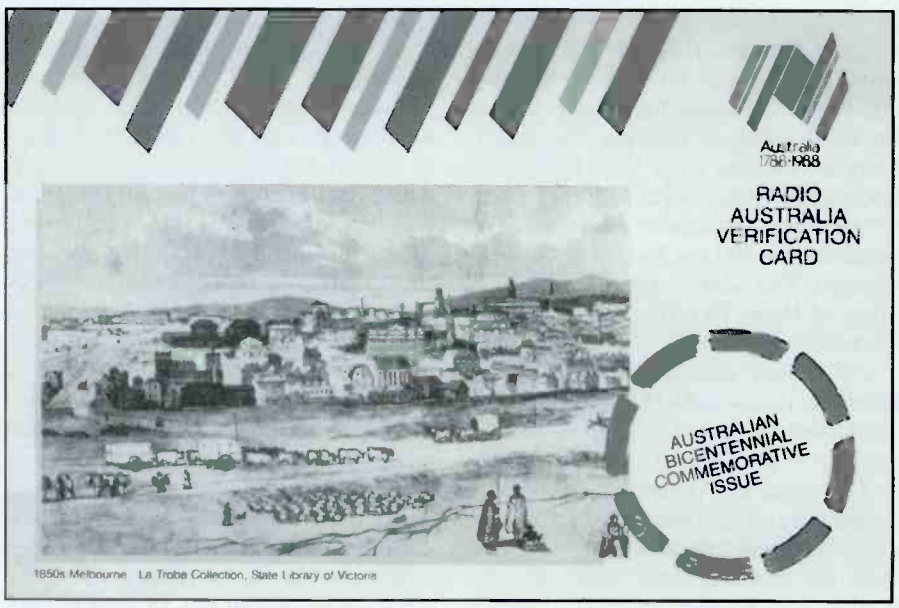
Radio Bandeirantes, **11925** in PP at 2330. (Johns, TX)



Radio Kuwait's frequency schedule fits in your vest pocket. (Thanks to Andy Johns, TX)

Radio Liberal, **4775** at 0700 in PP. (Johns, TX)
Radiodifusora de Roraima, **4875** at 0000 in PP. (Johns, TX)
Radio Brazil Central, **4985** at 0000 in PP. (Johns, TX)
Radio Clube do Para, **4885** at 0000 in PP. (Johns, TX)
Radio Gaucha, **11915** heard at 2330 in PP. (Johns, TX)
Radio Anhaanguera, **4915** in PP at 0000. (Johns, TX)
Radiodifusora de Amazonas, **4805** at 0000 to 0059 in PP with continuous music and a couple of possible IDs. (silvi, OH)
Radio Gazeta, presumed, **15325** at 0011 in what sounded like PP with talk by a man. (Jeffery, NY)
Radio National San Gabriel da Cachoeira, **3375.3** at 1025 in PP with time check, ID and mention of transmitter power. (Rausch, NJ)
Radio Nacional da Amazonia, **11780** at 2355 in PP with music. (Miller, WA)
CAMBODIA—National Voice of Cambodia, **11940.4** at 1250 in language with SE Asian vocals by woman, 2 plus 1 time pips to ID by woman. (Rausch, NJ)
CANADA—CHNX, **6130** at 1629 to 1830. Relaying local "Oldies 96." (Silvi, OH)
CKZN, St. Johns, **6160** at 1800 with talk show, CBC news. (Silvi, OH) 0338 with "As It Happens." (Miller, WA)
CHAD—Radiodiffusion National Tchadienne, **4904** heard at 0529 with talk in FF. (Jeffery, NY)
CHILE—Radio Patagonia Chilena, tentative, **6080** at 1118 in SS with Latin music. (Miller, WA)
CHINA—CPBS, **12120** at 0542 in CC with Chinese songs. (Foss, AK)
China Radio Int'l, **6110** at 1537 with folk music, CC. (Foss, AK) 11875 (via Mali, editor) in SS at 2236. (Moser, IL)
COLOMBIA—Caracol bogota, **5077** in SS at 0150. (Miller, WA)
Ondas del Orteguaza, 0025 in SS with futbol pregame show, national and provincial anthems prior to the start of the match. (Rausch, NJ) (Presume on **4975**, editor)
COSTA RICA—Adventist World Radio, **5030** at 1112. (Boulden, CA)
RFPI, **7385** at 0520. (Foss, AK)
Radio Reloj, **4832** at 0505 in SS with ID, music, man announcer. (Jeffery, NY)

CROATIA—Croatian Radio, **5895** at 0402 with ID, IS, news. (Bannar, FL)
CUBA—Radio Havana Cuba, **6000** in EE at 0232. (Miller, WA)
CYPRUS—BBC relay, **7140** in AA at 0410. (Foss, AK)
ECUADOR—Radio Oriental, **4779.8** in SS with romantic ballads and listener greetings. "Radio Oriental sintonia mas popular." (Rausch, NJ)
Radio Centinella del Sur, **4770** at 2350 in SS with religious ballads, time check, ID. (Rausch, NJ)
Radio El Buen Pastor, **4815** at 0130 in SS with romantic ballads, ID and anthem at 0205 sigh off—one hour later than before. (Rausch, NJ)
ENGLAND—BBC, **6175**, via US, at 0526. (Foss, AK) **6195** (listed via Singapore, Editor) at 1607 with news. (Miller, WA)
FRANCE—Radio France Int'l, **3965** in FF at 0644. (Foss, AK)
FRENCH GUIANA—Radio France Int'l relay, **9790** at 1045 in FF. (Barton, AZ)
Radio Japan relay, **9660** at 0343 in JJ with Japanese music (Jeffery, NY)
GABON—Radio Japan NHK relay, **15355** at 1510 to South Africa, **//9535** to Western North America. (Silvi, OH)
GEORGIA—Voice of Hope, on new **7520** at 1900–2100 "You are listening to the European broadcast service of High Adventure Ministries." Transmitter site was confirmed via fax from the station. Voice of Hope, P.O. Box 109, Hereford, NH4 9XR, England. (Rausch, NJ)
GERMANY—Voice of Germany, **6170** via Sri Lanka at 1605 with news. 7195 via Rwanda at 1614 with news. (Miller, WA) 6185 (via Antigua) in GG at 0735. (Barton, AZ)
GREECE—VOA relay, Dodecanese Islands, **7115** at 0400 with EE ID; AA ID "Huna VOA" and into news. (Rausch, NJ)
GUATEMALA—Radio Mam, **4825** at 0235



Back in 1998 Radio Australia celebrated the country's bicentennial with this special QSL. (Thanks to Michael Matus, NM)

Radio Mexico International, which formerly verified with a printed letter, now has a multicolor QSL card. (Thanks to Andy Johns, TX)

with a live band, ID, applause, some religious talk. On late. (Paszkiewicz, WI) (Presume SS or local Indian language. Editor)

GUYANA—Guyana Broadcasting Corporation, **3290** at 0530. (Johns, TX)

HAWAII—KWHR, **9930** at 0500 with ID. (Bannar, FL)

HONDURAS—Radio MI, Tegucigalpa, **5890** at 0247 in SS with religious message. (Miller, WA)

HUNGARY—Radio Budapest, **9840** at 0350 with DX program. (Paszkiewicz, WI)

ICELAND—ICBS, **11402** at 2300 in Icelandic. (Johns, TX)

INDIA—All India Radio, Delhi, **4860** at 0030 with IS, ID, news, subcontinental music. (Rausch, NJ) **15075** at 1705 in presumed Swahili. Mostly talk. (Silvi, OH)

AIR—Guwahti, **4940** at 0020 with sitar music, 5+2 time pips, ID by man to presumed Delhi news. Parallel to Shillong on **4970**. (Rausch, NJ)

AIR-Shillong, **4970** at 0025 with men's chorus which sounded more mideastern than subcontinental. Pips to ID by woman to Delhi news. (Rausch, NJ)

AIR-Bangalore, **11585** heard at 1512 in local language, with Indian music, talk by man. (Jeffery, NY)

AIR, Lucknow, tentative, **4880** at 0039 with IS. Poor. (Paszkiewicz, WI)

INDONESIA—Radio Republik Indonesia, Jambi, heard at 1140 on 4927 in II with EE pop program, ID by woman, "Song of the Coconut Islands" (SCI) at 1159. (Rausch, NJ) (**4927**? Editor)

RRI Ujung Pandang, **4753** at 1420 in II. (Barton, AZ) 2300 in II with SCI IS and Jakarta news. (Rausch, NJ)

RRI Jakarta, **15150** at 2325 in II with man talking. (Miller, WA)

RRI Bangkulu on **3625** at 1230 in II with rock. (Miller, WA)

RRI Ternate, **3345** at 1236 in II with rock. (Miller, WA)

Voice of Indonesia, presumed, **9525** at 1905 in what sounded like FF with religious music, what appeared to be regional music, then an interview. Off at 2000. (Jeffery, NY)

IRELAND—West Coast Radio, via Julich, Germany, Wednesdays at 0100 (Thurs. UTC) with English to North America. Also Thursdays at 1800 to Africa, Australia, New Zealand on **11665** and to Europe Saturdays at 1500 on **5970**. (Provencher, ME)

ITALY—RAI, **9685** at 2230 with sign on in II to South America. **11800** at 2326 with Italian opera. **Parallel 6010**. (Moser, IL)

IVORY COAST—RTV Ivoirienne, **7215** in FF at 0600. (Johns, TX)

JAPAN—Radio Tampa, **3925** in JJ heard at 1125. (Barton, AZ) **6055** at 1544 in JJ with heavy splatter from Radio Australia-6060. (Foss, AK)

Radio Japan NHK, **9535** at 1429 with EE to Western North America, **//12045** to Asia. (Silvi, OH) 1449 with "Media Roundup." (Miller, WA)

KENYA—Kenya Broadcasting Corporation, **4935** at 0345 with stock market report. (Paszkiewicz, WI)

LITHUANIA—Radio Vilnius, **5890** to North America via Germany at 0000 in Lithuanian and 0030 in English. (Ceplius, PA)

MADAGASCAR—RTV Malagasy, **5009.5** at 0030 in FF. (Johns, TX)

MALAYSIA—Radio Malaysia, Kajang, **7295** heard at 1618 with western style pops. (Miller, WA)

MALI—China Radio Int'l relay, **9710** at 0000 with ID, news. (Jeffery, NY)

MEXICO—Radio Mexico Int'l, **9705** at 1600 with talk show in EE. (Silvi, OH) 2332 in SS with IDs, music. (Jeffery, NY)

MOROCCO—Radio Medi Un **9575** at 0500 with ID in FF, listener greetings in AA. (Rausch, NJ) Tentative, 1824 to 1900 in FF with music in English, French and possible Arabic. (Silvi, OH) (Counts as Spanish Morocco on the North American SW Association's Country List—editor)

RTV Marocaine, **17595** heard at 1530 in FF. (Johns, TX)

NAMIBIA—Namibian Broadcasting Corp., **3270//3290** at 0430. (Johns, TX)

NETHERLANDS—Radio Netherlands, **6020** at 0030. (Wallesen, IL) **9895** at 0711 in Dutch. (Foss, AK)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, **9820** at 1037 with news in DD. (Barton, AZ)

NEW ZEALAND—Radio New Zealand Int'l, **11905** at 0532. (Foss, AK) **15115** at 2300 with news. (Moser, IL) 0001 with sports and 0433 with live cricket match. (Jeffery, NY)

NIGER—La Voz du Sahel, **5020** at 0500 with Koran in AA, ID in FF. (Rausch, NJ)

0535 in FF with music, man announcer. (Jeffery, NY)

NIGERIA—Voice of Nigeria, presumed, **15120** at 1729 with African-sounding music. No apparent IDs. (Silvi, OH)

Radio Nigeria, Kaduna, **4770** at 0505 in EE with ID, news. (Jeffery, NY)

NORTH KOREA—Radio Pyongyang, **11700** at 2300. (Johns, TX) 2310 with talk on agreements with the South. (Moser, IL)

NORWAY—Radio Norway Int'l, **9650** at 0800 with ID and announcement in EE, into NN. (Foss, AK)

PAKISTAN—Radio Pakistan, **9545** at 1453. (Miller, WA)

PALAU—KHBN, **9985** at 1433 with religious programming. (Silvi, OH)

PARAGUAY—Radio Nacional, **9737.1, nominal 9735**, concertina music and SS announcer at 0742. (Barton, AZ)

PORTUGAL—Deutsche Welle relay, **6120** at 0539. (Foss, AK)

PAPUA NEW GUINEA—NBC, Port Morseby, **4890** at 1104 with news, weather, ID. (Boulden, CA) "National Service" ID at 1200. (Barton, AZ)

Radio East New Britain, **3385** at 1020 with pidgin preacher, tribal drums to ID by woman, and provincial news. (Rausch, NJ)

Radio Manaus, **3315** at 1120 with preacher, ID 1130. (Rausch, NJ)

Radio Madang, **3260** at 1130 with 40s country/western, time check, ID by woman. (Rausch, NJ)

Radio East Sepik, **3335**at 1120 with man and woman in pidgin with public service announcements, ID. (Rausch, NJ)

PERU—Radio Atlantida, presumed, **4790** in SS at 0230 to 0323 close. (Silvi, OH)

Radio Lider, presumed, **4845** at 1027 in SS with talk by woman followed by talk by a man. No ID. (Jeffery, NY)

Radio Tarma, **4775**, presumed, at 0501 in SS with music and talk. No ID. (Jeffery, NY)

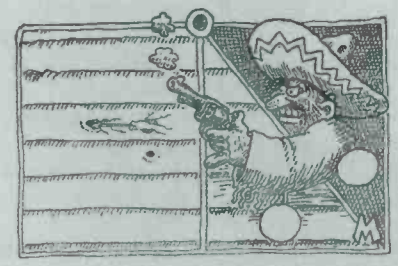
Radio San Juan, **5775.2** in SS heard at 0300 with ballads, ID and anthem at 0330 sign off. (Rausch, NJ)

Radio Horizonte, **5020** at 1000 in SS with

THE 10TH ANNUAL WINTER SWL FEST

March 13-15, 1997

Holiday Inn
Kulpsville, Pennsylvania
United States of America



Pancho dice, "¡Hola Oyentes!"

Some 200 SWLs, DXers, hams and scanner buffs attended the 10th annual Winter SWL Fest. The 1998 Fest will be March 13-15.

national anthem, canned ID. (Rausch, NJ) **5019.8** at 0100 in SS. (Johns, NY)
Radio Bambamarca, **4419.5** in SS at 0235 with Peruvian folk music, concert promo, ID. (Rausch, NJ)
Radio Union, **6115** in SS heard at 0536. (Miller, WA)
RUSSIA—Voice of Russia, **5930**(via Petropavlovsk) at 0553 with pop/rock.**7330** at 0550 interview with classical singer/composer. (Foss, AK) 6145 (Khabarovsk) in CC at 1557. **7330** (Yekaterinburg) in EE heard at 1620. (Miller, WA) **7125** at 0500 with news. (Moser, IL)
Radio Rossi, **7335** at 0421 in RR. (Foss, AK)

"The California-based High Adventure Ministries . . . is now being aired over a transmitter in the former Soviet Republic of Georgia."

RWANDA—Deutsche Welle relay, **7195** at 0453 in GG. (Foss, AK) **15275** at 0004 in GG. (Jeffery, NY)
SAO TOME—VOA relay, **6035** at 2100 to Africa. (Provencher, ME) QSL received from Charles L. Lewis at the relay site who notes he had been replying (on his own time) to reports with return postage but has now left Sao Tome so further direct replies may not be forthcoming. Address is Voice of America, Sao Tome Relay Station, Box 522, Sao Tome e Principe, West Africa. (Silvi, OH)
SAUDI ARABIA—BSKSA, **11870** at 0528 in AA. (Foss, AK)
SEYCHELLES ISLANDS—BBC relay African stream, **9610** at 0332 with "Network Africa." (Jeffery, NY)
SINGAPORE—Radio Singapore, **6015** at 1340 with discussion. (Foss, AK) **6155** (Kranji) at 1603. (Miller, WA)
SLOVAKIA—Radio Slovakia Int'l, **5930** in unidentified language at 0146. (Miller, WA)
SOUTH AFRICA—Channel Africa, **15240** heard at 1623 with news, features, sports. (Moser, IL)
The Investment Channel (new) **6195 and 7175** at 0200 sign on with business news in slow EE. 6195 wiped out by budapest at 0230. Also **9775** at 0300 sign on. (Rausch, NJ)
SOLOMON ISLANDS—SIBC, **5020** at 0733 with music. (Foss, AK) 1115 with pops and warning about a tropical storm for Guadacanal province in EE and Pidgin. (Rausch, NJ) 1105 with news. (Barton, AZ)
SWITZERLAND—Swiss Radio Int'l, **9885** at 0708 in Italian. (Foss, AK)
SYRIA—Radio Damascus, **12085** at 2020 with news, EE/AA music, ID. (Bannar, FL)
TAIWAN—Voice of Free China (via WYFR) **9985** at 2200 in EE with ID, anthem, news, "Music Box." (Jeffery, NY)
THAILAND—Radio Thailand, **9530** at 1400 to 1429 close, news and festival info. (Silvi, OH) **11905** at 0030. (Johns, TX)
VANUATU—Radio Vanuatu, **3945** at 0700 with ID, news of Vanuatu and the South Pacific. (Foss, AK)
VATICAN—Vatican Radio, **6095** at 0313 in FF with IS and religious program. (Miller, WA)
VENEZUELA—Ecos del Torbes, **4980** heard at 1115 in SS with doorbell-like chime. (Barton, AZ)
YVTO time station, **5000** at 1050 with time checks. Usually overpowered by WWV. (Boulden, CA) Time announcements in SS and IDs at random times every minute. Clearly audible over WWV/WWVH from 0400 to 0430. (Silvi, OH)
VIETNAM—Voice of Vietnam, **4960** in VV with Asian music at 1120. (Barton, AZ) **5950** at 0337 with ID, news. (Bannar, FL (Via Russia, editor)**15009.9** at 1230 with ID, news, cultural program. (Rausch, NJ)
YUGOSLAVIA—Radio Belgrade, **7115** at 0051 in Slavic language with apparent regional news. **7130** at 0220 in EE. QRM from co-channel DW. (Miller, WA)
ZAMBIA—Radio One, **4910** at 0250 with national anthem. Also at 0500 with news. (Johns, TX)
Radio Christian Voice, **3330** heard at 0400. (Johns, TX)

And that's the lot! Hat's off and a high-rise toast to the folks who did the good thing this month: Lee Silvi, Mentor, OH; Sheryl Paszkiewicz, Manitowoc, WI; Brian Boulden, Fairfield, CA; Michael J. Miller, Issaquah, WA; Andy Johns, Mansfield, TX; Ed Rausch, Cedar Grove, NJ; David Bannar, Ormand Beach, FL; Marty Foss, Talkeetna, AK; Al Cepulis, Philadelphia, PA; Elmer Wallensen, LaGrange, IL; Edouard S. Provencher, Biddeford, ME; Dave Jeffery, Niagara Falls, NY and Rick Barton, Phoenix, AZ. Thanks to each of you!

Until next month, good listening! ■

China Radio International marks its 55th anniversary this year. The station dates back to the beginning of the revolution when the New China Broadcasting Station operated from Yan'an. Then, for years, Radio Peking, later Radio Beijing and still later CRI operated from the building shown in the center photo. Now, CRI has a brand new building. (right)

BY EDWARD TEACH

The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

Pirates Take to the Airwaves During Daytime!

Let's see what's in the mail bin this month: **Radio Garbonzo, 6956** at 2145 to 2150, closing their broadcast with the phrase "tuning down our antenna and up yours!" (Eric Hudgins—location unknown)

WWWLIS, 6957 USB at 0120 with a mention that reception reports should be sent to P.O. Box 28413, Providence, RI 02908. (Hudgins)

Radio Three, 6955 USB at 1917 to 1935 with alternative selections including "Everything Falls Apart" by Dogs Eye View. (Hudgins) 2109 with music of Village People, big band music, plenty of songs from "Barney and Friends." Reports requested to the ACE. Off at 2125. (Jeffery, NY)

WMPR 6955 at 1641 with electronic/ techno music to sign off. No QSL address given. (Hudgins) 1609 playing what the ACE calls techno dance music. (Dick Pearce, VT)

Radio Free Speech, 6955 at 2310 to 2343 sign off, announced as a farewell broadcast. They read the name of nearly every listener who had ever sent a report. (Jerry Coatsworth, Ontario) Around 1430 with "Bill 'O Rights" announcing it was his final program. I was so dumfounded I didn't even note the time. He thanked everybody for a total of 350 reception reports and said he will still relay programs. (Pearce)

Radio Azteca, 6955 USB at 1914 with listener's letters, DX program spoof, funny news stories and "Dr. Radio" answering funny radio questions, gave Belfast address. Off at 1943. (Jeffery) 1430 to 1435 close. They signed off with gunfire sound effects and the standard "Rocky and Bullwinkle" interval signal. (Coatsworth) 0035 with Bram Stoker. Repeat of an earlier show. (Kenny Love, SC) 1637 and 2220 with listener mail. (Pearce)

WLIS, 6955 USB at 2239 to 2304 sign off with a different interval signal. Most of the broadcast was lost in an illegal sideband QSO on the same frequency. Also their 7th anniversary broadcast heard from 1558 and featuring interval signals of All India Radio and Deutsche Welle. (Coatsworth) 0000 with anniversary special. Super signal and audio. (Love)

Stereo Sound Radio, 6955 USB at 0001 to fade at 0004. Colonel Billy Bob said they were broadcasting to North America and the Caribbean on the 43 meter band. (Coatsworth)

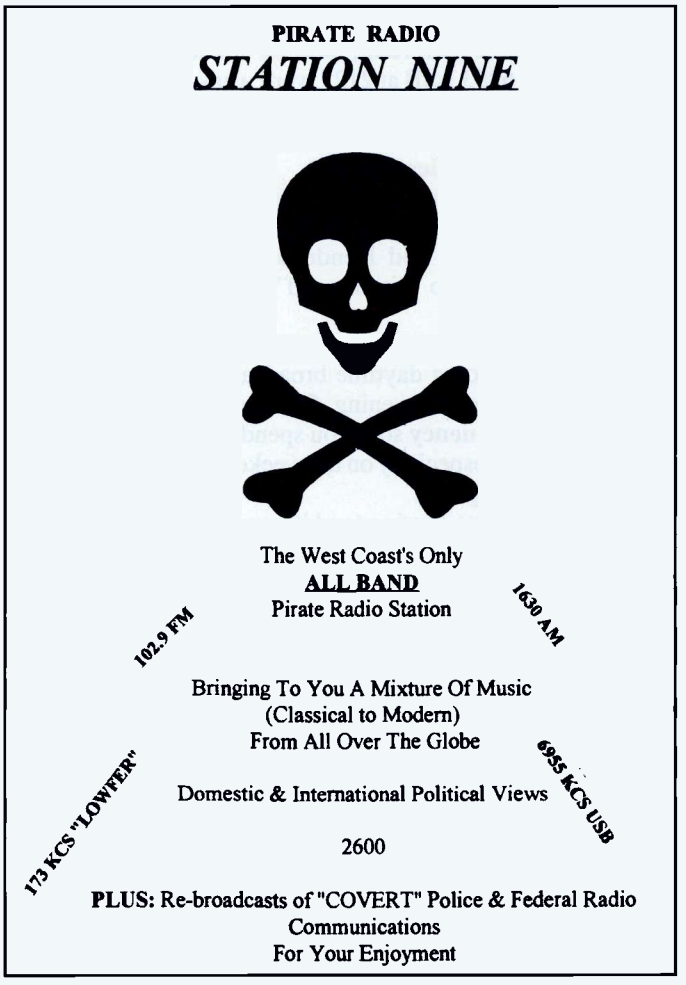
KAOS, 6955 at 0052 tune with a '70s retro tribute program featuring snippets of Presidents Nixon and Carter, music by the Doors. (Coatsworth)

Radio Tellus, 6955 USB heard at 0115 with ID as "Radio Tellus, the Earth station." Music by Fleetwood Mac. Deep fades and unsure if sign off was 0130 or 0140. (Coatsworth)

Free Hope Experience, 6955 USB at 2221 to 2233. The announcer signed off but the programming continued. A bit over modulated. (Coatsworth)

WAERR, 6955 USB at 0006 with a feature on how to modify your VCR so it can be used as a transmitter. They gave the Belfast address (P.O. Box 1, Belfast, NY 14711) and closed at 0051. (Jeffery)

Voice of Helium, 6955 USB at 2148 to 2215 sign off. (Jeffery)



Station 9 is active from the west coast on longwave, medium wave, FM and shortwave and says they hope to have QSL cards and "various goodies to give away" in the future.

Radio Doomsday, 6955 USB at 2218 with rock, rap, funny sound effects. Reports requested to Box 1122, Brampton, MO. Off at 2244. (Jeffery) **6955 LSB** at 1926 with a cacophony of sounds and I was unsure if I was hearing one station or two. Heard a Radio Doomsday ID and then Quantum States Lab and someone saying "that's great" repeatedly while Nemesis was talking and lots of chicken sounds were heard in the background. Said "you've been listening to Radio Doomsday, Spam Radio, Radio Free OJ, Outhouse Radio, Freedom 40, Radio 43. The loud sound effects made the address uncopyable. (Pearce)

K-2000, 6955 USB at 2215 with comedy skits, funny commercials. Off at 2050. (Jeffery)

Radio Free East Coast, 6955 USB at 1817 with hard rock, funny commercials, parodies of rock and roll songs. Reports to either the Belfast or Blue Ridge Summit addresses. (Jeffery)

Radio Anteater, 6955 USB at 0117 testing signals and audio. "Peter" made some reception report checks. (Love, SC) 1900 with parodies on Ginsu, Mr. Whipple. "You're listening to the 50 watt blowtorch of Anteater Radio." and to "include three stamps or a single female daughter with your report." (Pearce)

WREC, 6955 USB at 1441 with Doors tune, telephone busy signal, talk about Michael Jackson. Repeated several days later at 1855. (Pearce)

Lounge Lizard Radio, 6955 USB at 1545 with host Dean Soundgarden from the Flamingo lounge playing selections including Dean Martin "Volare." He gave the Providence, RI address for reports. (Bill Kent, location unknown)

Void Radio, 6953 LSB at 2127, very weak, with Morse IDs, comments, parodies. Dropped out for about five minutes near the beginning. This broadcast was a repeat of a test broadcast heard about a year earlier. (Pearce)

WKND, 6954.8 heard at 1810 with the "Plymouth Rock" program. "Now preparing to broadcast from a wrecked ship." They played Santana and Hendricks tunes, among others. Finally said they had to "hit the road" but would be back later. (Pearce)

Thanks for the great support again this month. It appears that lately pirates are doing daytime broadcasts as much, or more than they are during the evening. Of course **6955 remains the most popular frequency** so if you spend as much time as possible parked there, especially on the weekends, you should manage some great loggings.

Keep those reports coming (and if you are sending reports to HQ via e-mail please let me know where you're located). Thanks for participating!

More next month! ■

Final Survey Results Are Here!

(from page 38)

while you and I should be seeing an opportunity to make new friends and help others join our hobby, whether it's ham radio or scanning!

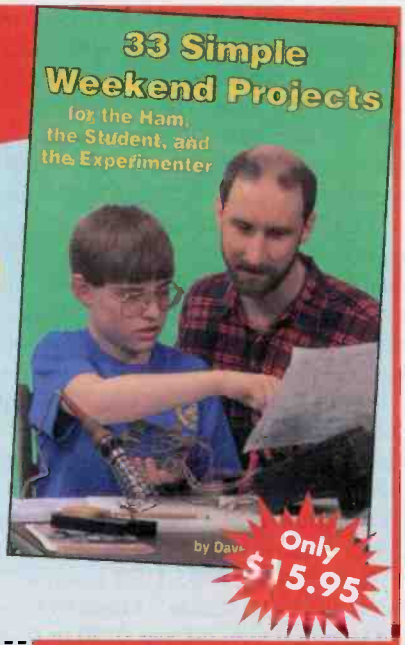
Thanks for Responding!

We've asked lots of questions over the past few months, and we'll be getting to those answers again next month. As usual, we invite your comments, ideas and suggestions for future issues of *Popular Communications*. Most of the letters we've received during the past year have been very positive, indeed. Still others believe we could devote even more pages to reader's letters, expand the magazine to give more CB coverage, more frequencies, loggings and photos, QSL photos, and much more. If it were possible, we'd love to add pages to *Pop'Comm*, but it isn't that simple. We'd also like to give everyone more loggings, but in order to give more loggings, our columnists need to *get more loggings*. So, send in good photocopies of your QSLs, shortwave broadcast, utility, broadcast band and pirate loggings, and anything else you would like to see in *your* magazine. While we can't beef up the page count, we can tweak *Pop'Comm*, giving "something to everyone" as we mold and shape your magazine into the best monitoring publication around! See you next month. ■

New from CQ

33 Simple Weekend Projects

ALL NEW FUN FROM DAVE INGRAM, K4TWJ!



"33 Simple Weekend Projects for the Ham, the Student, and the Experimenter" gives only a hint at the fun and satisfaction to be found between the covers of this little book. Dave Ingram, K4TWJ, has pulled together a wide ranging collection of do-it-yourself electronics projects from the most basic to the fairly sophisticated, and even touching on the frivolous.

You'll find an interesting and very do-able array of useful devices: station accessories for VHF FMing, working OSCAR satellites, joining the fun on HF, trying CW, building simple antennas, even a complete working HF station you can build for $100.

Add a measure of practical tips and techniques on how to build electronic projects yourself, and you've got an information-packed book that will keep the newcomer or the most experienced home-brewer busy for many a pleasant weekend.

Please send me _____ copies of 33 Simple Weekend Projects.

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Tuning In *(from page 4)*

up the repeater, but you'd never know it unless you were listening with a scanner to the repeater's output frequency. Or you could simply stay away from FRS channels 8–14 completely and cool off at the pool. That would be the *right* thing to do, and it's a whole lot more fun!

Our Not-So-Technical Tests

Both RadioShack and Midland were kind enough to provide me with their versions of the FRS transceivers to use for a couple of months. Each performed very well; range was about a mile in a suburban environment. The radios are simple to operate and audio was excellent considering their small size. Over a period of nearly two months I put the little gems through their paces and during that time heard no other users on *any* of the 14 frequencies! True communications heaven!

After talking to Corwin Moore, Administrative Coordinator for the Personal Radio Steering Group, I took my scanner, searching between 462.55 and 462.725 MHz (repeater output frequencies) while using the FRS transceivers at a nearby city that has a licensed GMRS repeater on 462.70 MHz. I didn't spend time looking for the actual repeater site, but went to one of the highest points in the city and still nothing. We live about an hour south of New York City in a heavily populated suburban town, where, on the CB frequencies, it's frequently mayhem, but on the FRS frequencies it was dead! My family and I talked on several FRS channels until the batteries died.

So knowing about the possible interference problem with licensed users of the spectrum, why would the FCC even *consider* such a frequency scheme? Well, it turns out that the Personal Radio Steering Group—the national user advocacy organization for GMRS raised the red flag back in 1994, informing the FCC of their concerns. According to Moore, "GMRS was mugged. We don't have the resources to bring in a lobby representing our interest," he told me, continuing "... the decisions the FCC makes are no longer based on the public interest, but rather on what private enterprise wants . . ." What he's talking about is what he called "the FCC's general abandonment of the concept of a disciplined and structured personal radio service." It's got the GMRS folks all fired up, the FCC pulling its head into it's bureaucratic shell, and the FRS manufacturers seeing dollar signs.

Moore feels that the handwriting is on the wall; that most of the Steering Group's recommendations to the FCC went unheeded and that the FCC has, for the first time, allowed a licensed and unlicensed user to share co-primary status without protection being afforded to licensed users. You can't help wondering if the FCC is, in their own bureaucratic bungling way, nudging GMRS into a completely license-free service. After all, the Commission has made it perfectly clear that by licensing users of the spectrum comes the direct message: "Hey, get licensed, or keep out; licensing is there to protect the current users." But has the FCC turned a deaf ear on the GMRS? It would seem so, given the fact that the Steering Group's concerns went in one bureaucrats ear and out anothers. We won't give names here, but they know who they are; the old fuddy-duddies that were around when the FCC abandoned real rules compliance issues in the early '70s on the Citizens Band. The same authors of the language are at it again!

So sit back and wait. Give it a couple of years and there's a good bet that the GMRS will become unlicensed with its users running the gamut from Jack's Pizza to Dom's Delivery Service. In the meantime, the new FRS has been positioned by the manufacturers to be the hottest communications tool to come along in years.

What about the often-heard argument about the FRS stealing potential hams? Nonsense! If anything, the FRS might help the ham community get much-needed newcomers when FRS users find they really can't use repeaters and talk further than across town. FRS users, like many CB walkie-talkie users will buy the radios for short-range communications to stay in touch while hiking, shopping, camping, boating, and for avoiding Uncle Ralph at his 50th birthday party—but not as a substitute for ham radio.

But the marketplace is, as Moore correctly points out, " . . . too young to demonstrate or disprove repeater interference." But one thing is for sure: While GMRS users around the country scream from the top of the highest repeater sites they can find, the FRS, like CB channel 14 walkie-talkies, is reality, although I wouldn't like it one bit if the FCC suddenly let unlicensed users set up shop on 2-meters. But then again the FCC would never do that, would they? ■

HF-VHF Receiver Multicouplers

****100 KHz to 1 GHz range****

Are you using several HF radios or VHF/UHF scanners at your monitoring site??
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The Loose Connection

RADIO COMMUNICATIONS HUMOR

BY BILL PRICE, N3AVY

Bill's Phonetic Alphabet

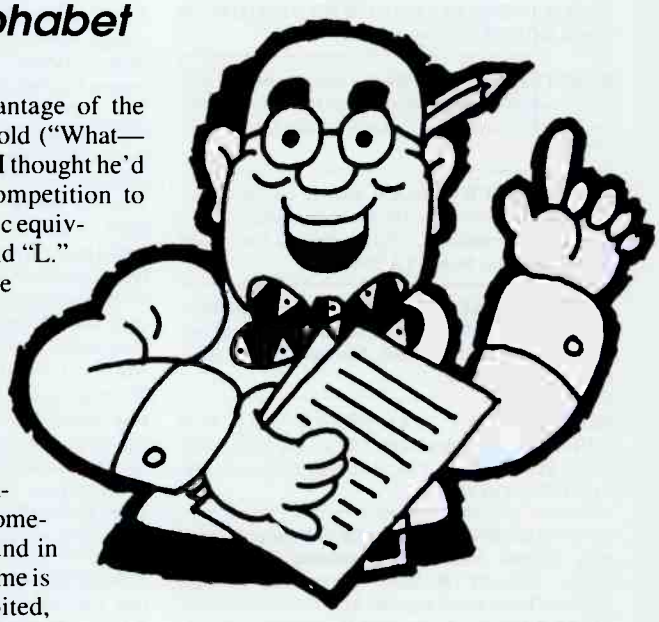
Before we begin this month's example of how any fool with a beard and a word-processor can write a column, please allow me to rise to a point of personal privilege and publicly apologize to our Associate Editor, Nancy Barry, for calling her on April 1 and trying to imitate Steve Stoddard, who appeared on the May '97 cover. As my contribution to the April Fool's Day tradition, I tried to convince her that she'd run the wrong cover photo, and I went on to tell her (as Steve) that I'd surely be fired for appearing on a magazine cover with aviator sunglasses and my shirt-collar unbuttoned. If the truth be known, it was our editor, Harold ("I'll act innocent; you take the blame") Ort who made me do it. Since he's out of the office as I drop this column into the basket for typesetting, it'll probably make it into the magazine un-noticed. As an aside, the best voice I could make up to imitate Steve sounded like Uncle Joe from the Hooterville Hotel, and I doubt it was very convincing. [*Bill, on any other day, under any other editor, you would have been* very *convincing—Nancy*]

Moving right along, many of you have written and asked me, "Bill, can you give us an alternative to the ICAO phonetic alphabet used by pilots, hams, and the military? That "Alfa, Bravo, Charlie" stuff is boring—got any ideas to liven it up?"

Well, indeed I do. Based on an idea given me years ago by Cushcraft's own K1GW (Knife One Gnat Wrench) and my friend Dave at George Mason University, I have searched the world (and many dictionaries) to give *Pop'Comm* readers a phonetic alphabet that's a bit more fun than the one our Civil Aeronautics folks came up with.

Now you've all heard the alphabet that the local police use ("L-Lincoln, N-Nora, I-Ida), and you've heard hams use "Boston" instead of Bravo, but I doubt you've heard one quite like this. Remember, as boring as it might be, *Pop'Comm's* Dr. Safety still recommends you always use the *standard* ICAO phonetic alphabet during any *real* emergency.

And again, taking advantage of the absence of our editor, Harold ("What—and break a quarter?") Ort, I thought he'd like to sponsor a little competition to come up with better phonetic equivalents for the letters "F" and "L." Interesting answers will be published in a future issue, and the first entrants who submit the chosen winners will receive our undying gratitude (for about a week) and a copy of the latest something or other, or something else neat that I can find in Harold's desk. Decision of me is final; void where prohibited, taxed, or regulated in any way. So there.



A	AYE	(say "EYE")
B	BDELLIUM	(say buh-DELL-ee-um)
C	CAY	(say "KAY")
D	DJIBOUTI	(say juh-BOO-tee)
E	EWE	(say "YOO")
F	FEW	(say "FYOO")
G	GNUS	(say "NOOZ"—exception—broadcasters say "NYOOZ")
H	HORS D'OEUVRE	(say "orr-DERV")
I	IGOR	(say "EE-gor")
J	JUNTA	(say HOON-tah)
K	KNEW	(say "NOO"—broadcasters see "GNUS")
L	LESS	(say "LESS")
M	MNEMONIC	(say "nuh-MOHN-ik)
N	NEWS	(say "NOOZ"—broadcasters see "GNUS")
O	OEDIPUS	(say "ED-uh-puss")
P	PNEUMATIC	(say "NOO-mah-tic"—except for those annoying broadcasters)
Q	QUEUE	(say "KEW")
R	RWANDA	(say "ruh-WAND-uh")
S	SEE	(say "SEE") see?
T	TSUNAMI	(a tough one—spit out the S when you say "soo-NAHM-ee")
U	USBEKISTAN	(say "iz-BEK-ih-stan)
V	VENI, VIDI, VICI	(say WEN-ee WID-ee WIK-ee")
W	WHY	(say "WI")
X	XERXES	(say ZERK-zeez")
Y	YVES	(say "EEV")
Z	ZERO	(say "ZEE-ro") (also "ZIP, NAH-duh, or in Northeastern PA, say "stoo-GAAHTZ"

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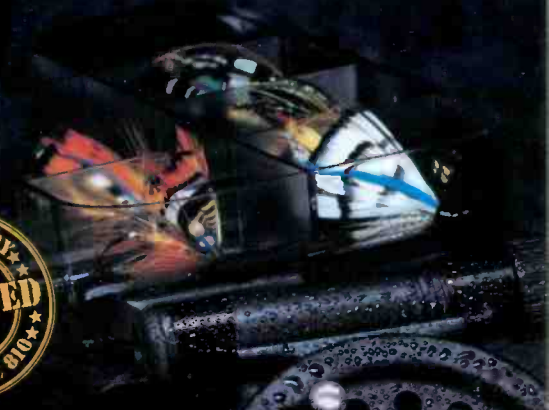

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