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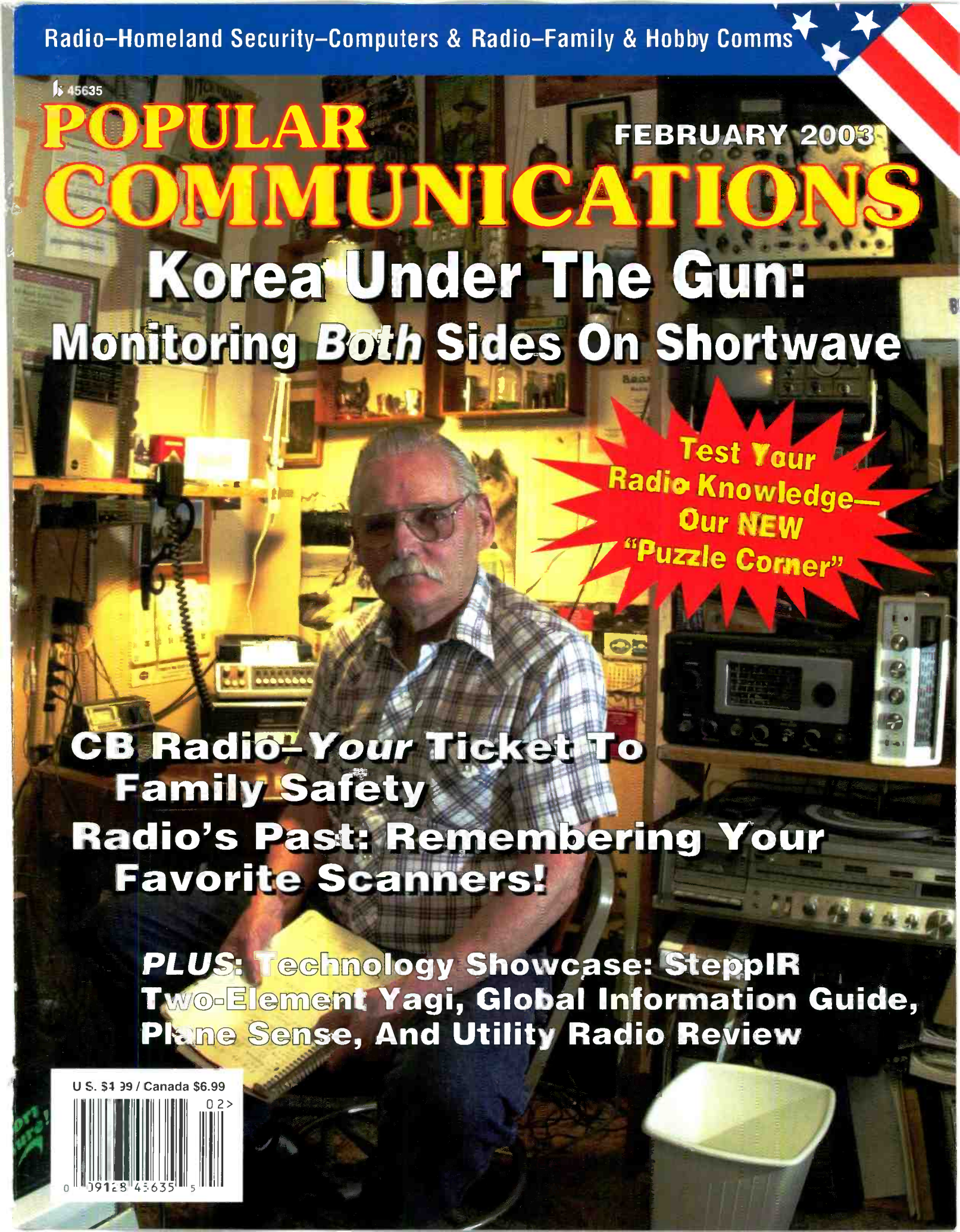
45635

POPULAR COMMUNICATIONS

FEBRUARY 2003



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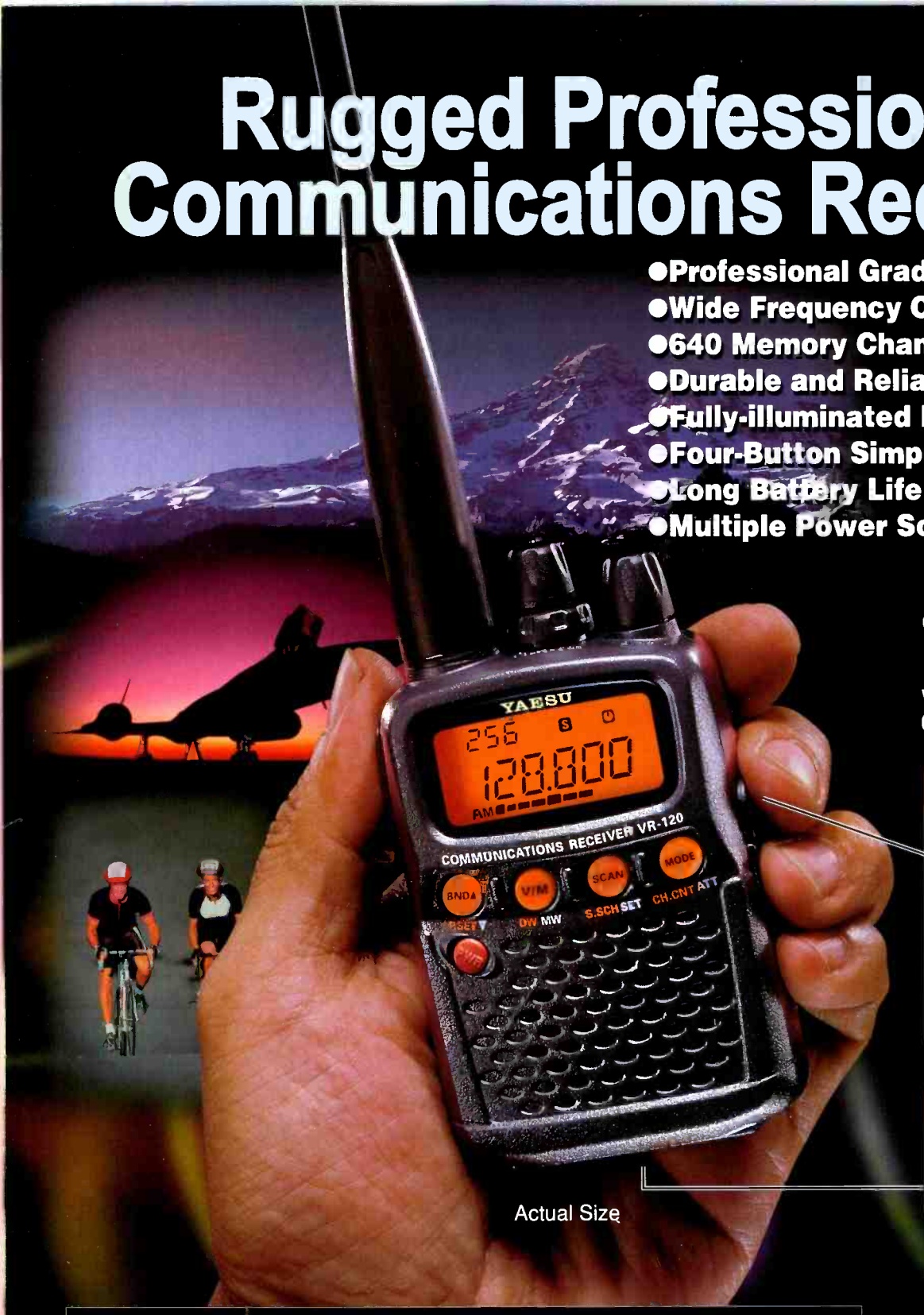

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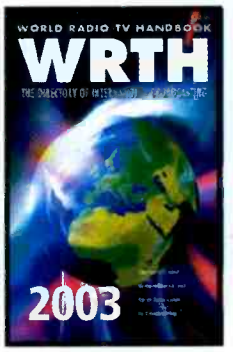

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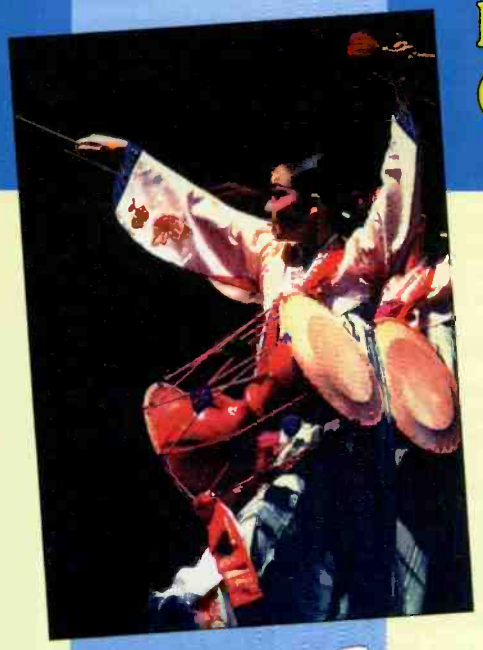
Volume 21, Number 6 February 2003



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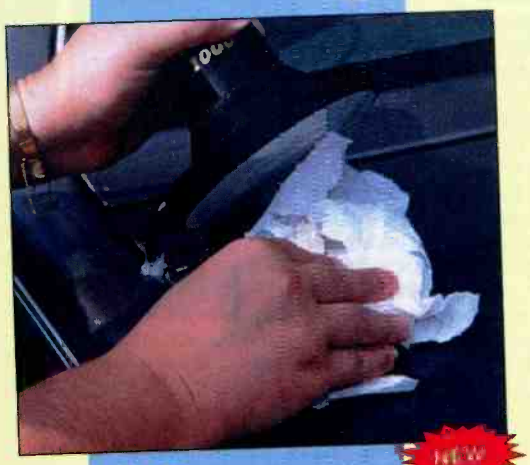

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Departments

On The Cover

You can bet that Richard Kowalski of Grand Junction, Colorado is on top of all the latest foreign broadcast news, including the ever-tense situation in Korea. You too can hear the latest from both sides in this decades-old struggle with Gerry Dexter's article on page 8, "Keeping Tabs On Korea." It includes the complete broadcast schedule of both the North and South as well as the latest clandestine station information! (Photo by Larry Mulvehill)

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tuning in

by Harold Ort, N2RLL, SSB-596

an editorial

Are You Due A Refund?

Pop'Comm reader and longtime REACTer, Bob Leef of Mission Viejo, California, is hot on the FCC's trail this month. Perhaps his finding affects you? Bob says,

It has come to our attention that people throughout the U.S. have apparently been making a nice financial contribution to the Federal Communications Commission. Assuming that this has been an unwitting donation, families such as the Schwoerers of Glendale, Arizona, the Sherwoods of Clayton, North Carolina, the Sims of Queen City, Texas, and many, many more need to read the following.

FCC rules and regulations stipulate that one license and fee of $75 for GMRS (General Mobile Radio Service) covers everyone in the applicant's family for a five-year period. A casual check of FCC records show licenses have recently been issued for husband, wife, and *even* a few *children* at the *same* addresses. Since each license requires a $75 fee, it would seem the FCC has accepted a lot of money inappropriately.

A ***very*** small portion of licensees with last names starting with S was reviewed and found to contain the following unnecessary duplications:

WPOK566 and 964
WPQL443 and 446
WPTU549 and 550
WPUF871 and 876
WPUP725 and 726
WPUU674 and 675
WPUV531 and 533
WPUW330 and 331
WPUW339 and 340

Granted, if there are 100 inappropriate collections of $75 each, it hardly would be enough to keep the FCC in paper and ballpoint pens for long. But all that money ceases being insignificant when in the hands of numerous individuals; those same people who apparently did not understand the new and simplified application instructions.

Certainly the computer programming gurus need to devise a feature to begin checking applications for every GMRS license against licenses (and applications) already in existence for the same family name and address. Future filtering is only solving part of the problem. What about all those people who are owed a refund? We brought this to the attention of FCC on October 16 but as of this publication date have not had an acknowledgement or answer.

Of course, you can call them at 888-225-5322 and ask how to file for a refund. Be prepared to wait up to six months for the check to arrive.

Survey Results—And Winners!

One of the most exciting aspects of this business is compiling the data from our monthly surveys and reading your letters. (Now, if you're thinking this boy *needs* to get out more, you're probably right!) Sure, every once in a while we get a letter or card from another planet, but frankly, it's your well-written cards, letters, and e-mails that help shape the direction of *your* magazine.

Then there are the several hamfests we attend each year, meeting you face to face and listening to your concerns and ideas about communications. For those of you not familiar with so-called "hamfests," they're held all over the country; there's probably one happening near you this weekend. For a complete listing, check out the American Radio Relay League's (ARRL) website at <www.arrl.org> or the current issue of *CQ Amateur Radio*. Granted, some events are much larger than others, and, of course, not all major dealers and radio manufacturers will be able to attend every hamfest.

Our company, CQ Communications, Inc., also publisher of *CQ Amateur Radio* and *CQ VHF* is on the road at a number of hamfests throughout the year. They include Orlando from February 7–9; Miami from February 1–2; Timonium, Maryland, from March 29–30; Rochester, New York, from May 30 to June 1; Dayton, Ohio, from May 16–18; Huntsville, Alabama, from April 25–26; Virginia Beach in mid to late September; and Dallas (Arlington), Texas, from June 20–22. I'm always at Timonium, Rochester, Dayton, and Virginia Beach, and I'm always eager to talk with you!

While it's certainly true that most of these events are geared toward amateur radio—after all, they're *hamfests*—you'll often find ICOM, Yaesu, Kenwood, AOR, MFJ Enterprises, Optoelectronics, Universal Radio, Ama-

(Continued on page 78)

POPULAR COMMUNICATIONS

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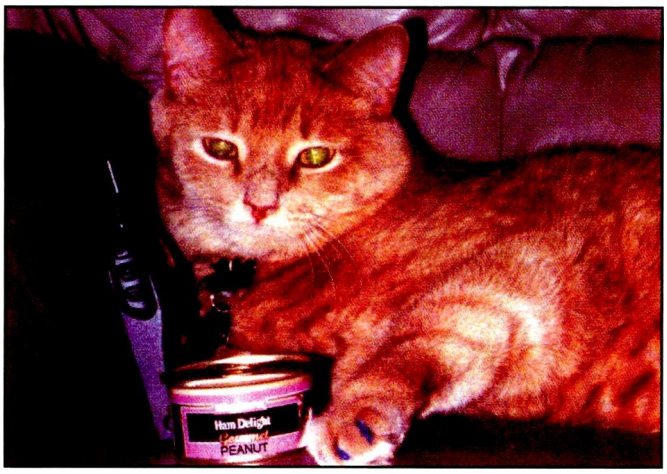
The Cat's Meow?



Dear Editor:

My name is Peanut. I'm the owner of Ben and Mary Farda, KC2CQK and KC2FXY of Utica, New York. I just love ham radio - especially the "ham" part. I would like to appear in an upcoming issue of Pop'Comm just so I can show off in front of my feline friends. Radio is the cat's meow!

73,
Peanut

Earth To Robert!

Dear Editor:

My letter concerns the disappearance of a very popular radio - Clear Channel's Ranger AR-3500. It's a very good performer especially between 27.410 and 27.995. I know that these frequencies are supposed to be "illegal" but they are used worldwide and there's nothing the FCC can do about it. The United States does not control Planet Earth.

I am not interested in pursuing a ham license and joining a snob fraternity. CB being a lost cause as it is, and with only a little bit of investment in equipment, the "illegals" are where the action is. These frequencies are not being used by anyone official and we are not bothering anyone, while at the same time enjoying great communications worldwide. The radios being sold by other manufacturers are not good enough for our tough Canadian climate. LCD displays don't cut it in the car.

Living in crowded neighborhoods where real estate does not allow for large ham antennas, and with the garbage on CB, the illegals are the ideal choice.

Yours truly,
Robert Anstee
Montreal, Quebec

Dear Robert,

Oops, bad timing on reading your letter - it's Monday morning and I still haven't had that first cup of coffee or big 'ol donut. Bottom line is this: Folks have claimed squatters rights on those frequencies for years - it's really nothing new, and every now and then our FCC makes an example out of a renegade operator. On one hand I understand your frustration with CB as it sometimes gets pretty wild. But on the other hand, illegal is illegal. If you were the spectrum cop in charge of cleaning up the airwaves, where would YOU draw the line - operating on, for example, "unused" 27 MHz frequencies, or high power - or perhaps both? Remember, what's viewed as unused in your area might be busy in another 1000 miles away. Simply put, it doesn't give anyone the right to operate there. What if a commercial wireless company suddenly decided to operate on an "unused" CB frequency - for sake of argument, let's say Channel 9? What then? Is that OK because it's "unused?'

They're All Keepers!

Dear Editor:

I am really glad to see that you have been around now 20 years and hope you will be around another 20 years as I really like reading your magazine.

73,
Fred Jones, WA4SWF
Eastern KY Assist. Section Manager ARRL
Louisa, KY

Dear Editor:

I just had to drop you a line after reading David Sharpes letter in last month's issue. I guess that I must be some kind of a odd ball because I have every issue of Pop'Comm and wouldn't trade for anything - well almost anything. I refer to them for all sorts of things, like researching some old radio gear that I find for sale. And on a cold snowy Vermont evening I'll pull out some year from days of old and find a good seat next to the wood stove and enjoy them all over for the umpteen time.

Happy 20th and THANK YOU ALL for a GREAT magazine.

73's,
David Lee Keniston
Bellows Falls, VT

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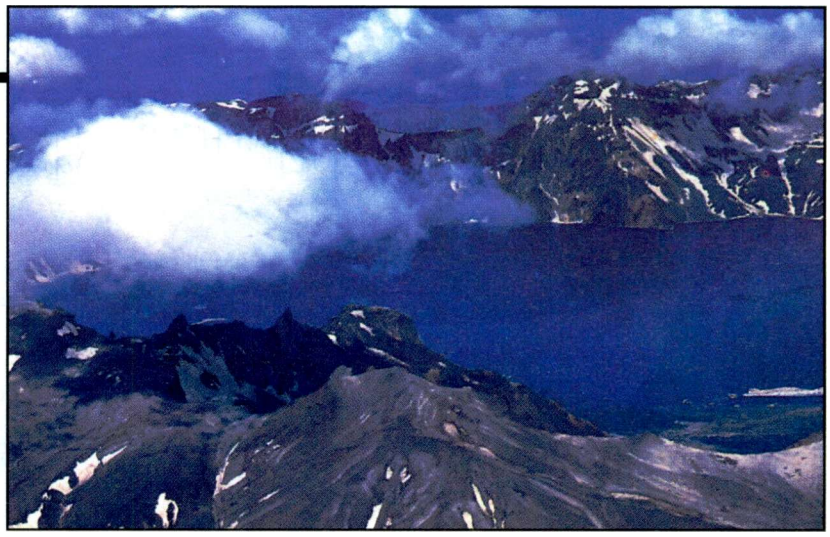


Besides weapons and hunger, North Korea has nice scenery.

They face each other like gunfighter and sheriff in an old western. Dusty street. High noon. Women and children out of sight. Bartender, piano player, and town drunk peeking over the swinging doors of the saloon.

But this isn't a Hollywood movie, it's for real—and the stakes are a lot higher. Two nations: South Korea free and prosperous; North Korea, enslaved, starving, nervous, and dangerous as hell. It's been some 50 years since the war (sorry, "Police Action") between North and South Korea ended and succeeded in returning things back to the way they originally were—the nations divided at the 38th parallel.

During the half century between then and now there have innumerable moves and maneuvers attempting to subvert or gain advantage by one side over the other, but the North has been the chief culprit. There have been incursions across the Demilitarized Zone (DMZ) in both directions, assassination attempts, submarines delivering spies, kidnappings, and shootings. And, in parallel, there have been a nearly equal number of moves made toward reconciliation, which somehow seem more show than sincere. An occasional treaty is signed, a few people living in the South are allowed to visit relatives in the North, a railroad is built in the South, but the North never starts its half. Washington and Pyongyang arrange talks, which sometimes come off, but usually accomplish nothing.

A Painful History

Both North and South have plenty of reason to feel antagonistic towards other countries as well. The Korean peninsula was occupied and ruled by Japan from 1910 until the end of World War II. Then the Russians, having entered the Asian war at the last minute, got to dip their hand into the treasure chest and came up holding the North from the 38th parallel (still the line which divides the two geographically). The United States administered the South until 1948 when it became an independent nation. Two years later the North invaded and the Korean War brought the U.S. military back, along with an assortment of other UN member countries. About the only thing which has changed over the ensuing 50 years is that the North has become more isolated and less able to feed itself (most of the money for food it receives from the United States goes to feed its huge army).

Despite its precarious financial situation Pyongyang manages to find the means to continue building and acquiring major weapons. Its army ranks third or fourth in the world—at over a million strong, it's nearly twice that of South Korea. Pyongyang also maintains a 55,000-man "Special Operations Force" trained to do wartime dirty work behind the lines. It has beefed up its presence and facilities on its side of the DMZ and could move on Seoul—just 25 miles away—with little warning. Even more worrisome, it has chemical and biological weapons and the missiles to deliver them. They could easily hit U.S. bases in the South. North Korea also sells its missile technology and

Radio Korea International's headquarters building in Seoul.

components to the likes of Iran, Syria, and Libya. The United States believes the North could also build a nuclear weapon—perhaps two—if it wanted to (and it probably wants to). These, truly, are a bad bunch of cats!

There's not much any of us can do about the overall situation except try to stay current with the latest moves and countermoves and perhaps keep an ear on the shortwave voices from the Korean Peninsula. So let's take a look at what there is to try and dial up!

Stations From The South

Of all of the voices out of Korea, the official South Korean broadcaster is the easiest to hear. Radio Korea International began as The Voice of Free Korea just after the Korean War "ended" in 1953. The service grew technically and increased its programming and hours on air. Twenty years later it became Radio Korea, changing again to Radio Korea International (RKI) another 20-odd years after that.

RKI has several shortwave transmitters at two domestic sites: Kimjae, which has three 250-kW and four 100-kW transmitters; and a smaller site at Hwasung, which has three 100-kW and two 10-kW transmitters (Hwasung originally aired the programs of Korean-run Radio Liberty). Broadcasts are also transmitted via Radio Canada International's (RCI) site at Sackville, Canada, and via the Merlin transmitters at Skelton, England. Unfortunately, published schedules and logs usually don't differentiate between the two. See the "Radio Korea International Schedule" sidebar for the most recently available information.

Radio Korea International Schedule

Frequency	Time (Z)	Language	Notes
3955	2000–2100	German	via Skelton
3955	2100–2200	English	via Skelton
5875	1900–2000	English	
5975	0800–0900	Japanese	
5975	0900–1100	Korean	
5975	1100–1200	Rusian	
5975	1200–1300	Japanese	
5975	1300–1400	Korean	
5975	1400–1500	Japanese	
5975	1600–1700	English	
5975	1700–1800	Korean	
5975	2000–2100	Korean	
5975	2100–2300	Korean	
5975	2300–0000	Korean	
6035	2100–2200	Chinese	
6045	1130–1230	Chinese	
6045	1900–2000	French	via Skelton
6135	1100–1200	Russian	
6135	1200–1300	Japanese	
6150	1600–1700	Spanish	
6150	1700–1800	German	
6480	1700–1800	Arabic	
7275	0800–0900	Japanese	
7275	0900–1100	Korean	
7275	1100–1200	Russian	
7275	1400–1500	Japanese	
7275	1600–1700	Chinese	
7275	1700–1800	Arabic	
7275	1800–1900	Korean	
7275	1900–2000	English	
7275	2000–2100	Spanish	
7275	2100–2200	French	
7275	2200–2300	Indonesian	
7275	2300–0000	Chinese	
7285	1300–1400	Chinese	
7550	0700–0800	German	
7550	0800–0900	English	
7550	0800–0900	English	
7550	0900–1000	Korean	
7550	1000–1100	Spanish	
7550	1600–1700	German	
7550	1700–1900	Korean	
7550	1900–1000	Arabic	
7550	2000–2100	Russian	
9515	1600–1700	English	
9535	0700–0800	Korean	via Skelton
9560	0200–0300	English	via Sackville
9570	0700–0800	Korean	
9570	0800–0900	English	
9570	0900–1100	Korean	
9570	1100–1200	Japanese	
9570	1200–1300	Indonesian	
9570	1300–1400	English	
9570	1400–1500	Indonesian	
9580	1000–1100	Spanish	
9640	2200–2300	Indonesian	
9640	2300–0000	Korean	
9650	1100–1130	Korean	via Sackville
9650	1130–1200	English	via Sackville
9870	1700–1800	Korean	
9870	1800–1900	French	
9870	1900–2000	Korean	
9870	2000–2100	Spanish	
11715	1000–1100	Spanish	via Sackville
11810	0000–0300	Korean	
13670	0700–0800	Spanish	
13670	0800–0900	English	
13670	0900–1100	Korean	
13670	1200–1300	Indonesian	
13670	1300–1400	English	
13670	1400–1500	Indonesian	
15360	1800–1900	Russian	via Skelton
15575	0000–0100	Korean	
15575	0100–0200	Spanish	
15575	0200–0300	English	
15575	0300–0400	Korean	
15575	1600–1700	Russian	
15575	1700–1800	Arabic	
15575	1800–1900	Korean	
15575	1900–2000	French	
15575	2000–2100	Spanish	
15575	2100–2200	English	
15575	2300–0000	Japanese	

Radio Korea International can always be counted on for a colorful QSL card as well as other goodies.

Dear Friend,

We are sending you immortal classics of the dear leeder Comrade KIM JONG IL.

The dear leader Comrade KIM JONG IL is working denying himself sleep and rest to inherit and complete brilliantly the revolutionary cause of Juche started by the great leader Comrade KIM IL SUNG.

He is the outstanding thinker and theoretician who has fully mastered the great leader's revolutionary idea; he is the sagacious leader of our Party and people who is possessed of brilliant wisdom, unusual insight and refined art of leadership; and he is the real leader of the people who has unboundedly lofty virtues.

The dear leader Comrade KIM JONG IL has written many immortal classics including "On the Juche Idea" and "The Workers' Party of Korea Is a Revolutionary Party of Juche-type Which Inherited the Glorious Tradition of the DIU" (DIU=Down-with-Imperialism Union).

We believe that these classics will be helpful to your work.

November 1982

Friendly notes like this sometimes accompanied replies from Radio Pyongyang and always proved a source of amusement.

RKI is an excellent verifier, offering a wide variety of full-color QSLs, and often includes pennants and other goodies with their reply. The contact address is Radio Korea International, 18 Yoido-dong, Youngdeunpo-gu, Seoul, Republic of Korea. E-mail can be sent to <rki@kbs.co.kr>. You can keep up with schedule changes via their website at <www.rki.kbs.co.kr>.

The two nations continue to engage in a certain amount of broadcast skullduggery, as well. Up until just a few years ago, the North had three clandestines beaming to the South (the South had two). Then the North dumped two of theirs, apparently as a result of one of the several meetings held over the years to try and improve relations between the two countries.

One of the oldest of the Asian clandestines (1973) is **Echo of Hope** which broadcasts to the North from a site at Kyonggi-do, although it apparently still claims to be coming from within the North. The programming is, of course, all Korean. The station's schedule is from 0300 to 0700 on **6348**; 1100 to 2300 on **3985** and 1100 to 1600 on **6003**. However, **6348** is sometimes reported during our early morning hours (1100 or so), and that's probably your best shot at hearing this one. The QSL situation is hopeless. There's no known address for Echo of Hope and we know of no one who has ever been able to get through to them, much less dig out a reply. This isn't surprising since the South Korean government doesn't want to admit the station is a creation of their Agency for National Security Planning.

The second South-to-North clandestine is the **Voice of the People**, supposedly operated by the Korean Workers' Union but

Voice of Korea Schedule

Language	Time (Z)	Frequencies
Arabic	1500	3560, 9975, 11735,
Arabic	1900	3560, 9640, 9975, 11735
Chinese	0000	4405,11845, 15230
Chinese	0800	4405, 7140, 9345
Chinese	1100	4405, 7140, 9345
Chinese	1300	3560, 11735, 13650
Chinese	2100	3560, 7140, 9345, 9975, 11735
Chinese	2200	3560, 7140, 9345, 9975, 11735
English	0100	3560, 6195, 7140, 11735, 13760, 15180
English	1000	3560, 9335, 11710, 11735, 13650
English	1100	4405, 9335, 11710, 13760, 15245
English	1500	4405, 9335, 11710, 13760, 15245
English	1600	3560, 9975, 11735
English	1900	4405, 11710, 13760, 15245
English	2100	4405, 13760, 15245
French	0100	4405, 11845, 15230
French	1100	3560, 9335, 11710, 11735, 13650
French	1400	4405, 9335, 11710, 13760, 15245
French	1600	4405, 9335, 11710, 13760, 15245
French	1800	9640, 9975, 11735
French	2000	4405 11710, 13760, 15245
German	1600	6575, 9325
German	1800	6575, 9325
German	1900	6575, 9325
Japanese	0700	3250, 6070 (0900+), 7580, 9650
Japanese	2100	(to 0000) 3250, 7580, 9650
Russian	0800	3560, 9325, 9975, 11735, 15245
Russian	0700	3560, 9325, 9975, 11735, 15245
Russian	1400	6575, 9325
Russian	1500	6575, 9325
Russian	1700	6575, 9325
Spanish	0000	11735, 13760, 15180
Spanish	1700	3560, 9975, 11735
Spanish	1800	4405, 11710, 13760, 15245
Spanish	2200	4405, 13760, 15245

more likely by the Korean Armed Forces. Transmitters for this one are also at Kyonggi-do. Like Echo of Hope, Voice of the People would have you believe it is operating from the other side of the DMZ.

These Korean language broadcasts run from 0300 to 0700 on **6518** and **6600**. Check from 2300 to 0100 on 6600 and from 0900 to 2100 on **3912**. Early mornings on the latter frequency are probably best if you catch good conditions and can dodge the ham QRM. There's no address for this one, either.

Stations From The North

The government station, long operating as Radio Pyongyang, began using the significantly inappropriate name **Voice of Korea** a couple of years ago. They maintain a fairly extensive schedule (see the "Voice of Korea Schedule" sidebar).

Getting a QSL out of the Voice of Korea has been a problem for the majority of those who've attempted it. Either the mail to Pyongyang is simply not reliable or the North Korean post office deep sixes letters from the United States. People writing from other countries don't seem to have a problem and therein lies the answer to QSLs: You need to find someone in England, Canada, or some other country willing to mail your letter

March 15. 2002
Seoul

Dear Mr. Richard A. D'Angelo,

We are pleased to inform you that we have received your reception report and letter dated Jan.31. 2002.

We highly appreciate your positive effort to contact with us. Your kind cooperation constitutes a great encouragement to and solidarity with us who are struggling for independence and democracy of the South Korean society and for national reunification of the Korean Peninsula.

We express our hope that you make every effort to introduce our "Voice of National Salvation" to the American progressive parties and forces including Communist Party and the Workers World Party to send active support and solidarity to the south Korean people's patriotic just struggle.

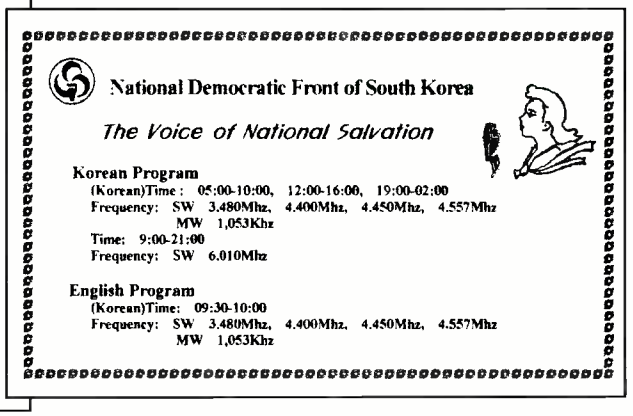
The "Voice of National Salvation" aired by NDFSK is broadcast at 05:00-10:00, 12:00-16:00 and 19:00-02:00 (Korean time) on 3.480Mhz, 4.400Mhz, 4.450Mhz and 4.557Mhz in short wave and on 1,053Khz in medium wave and at 19:00-21:00 on 6.010Mhz in short wave.

The English-language program is aired at 09:30-10:00 (Korean time) on 3.480Mhz, 4.400Mhz, 4.450Mhz and 4.557Mhz and on 1,053Khz.

We are looking forward to your further attention and assistance.

Best regards,

Editorial Staff of the " Voice of National Salvation"
National Democratic Front of South Korea



One of the rare QSLs from the Voice of National Salvation, a North Korean clandestine beaming to the South. (Tnx: Richard D'Angelo)

When I visited a friend of mine working for Radio Pyongyang the other day, I happened to find out your name and address at this office, but I could not have chance to read your letter because there was a secret police at the office. Anyway I will use this opportunity to exchange views on domestic and foreign situations with you. It is the only way to know the world outside from our tightly-close communist country.

Honestly speaking, I don't mind if our communist leaders build any grandiose monuments or statues for Kim Il-sung, but I mind that our people are now suffering from severe shortage problems of food, clothing and housings because our leaders squandered all our national resources for all show-case edifices, all of which have nothing to do with raising of the people's living standard. Actually our communist leaders enjoy their life in luxury while all the rest of our people are suffering from shortages of even food and clothes.

Do you happen to know that any political leader in the world today enjoy his private life at the expense of his people's standard of living? Of course, you know that former Phillippines President Marcos and former Romanian communist dictator Nicholai Ceausescu did. You can say that our President Kim Il-sung , a Stalinist communist dictator, belongs to the same category of such leaders.

Now you understand why I hate our communist leaders and our communist government. Please write to me and tell me about your country. Please remember that your letter will be subject to secret police inspection before it reaches me.

P.S. I mail this letter in Japan to avoid secret police.

A portion of one of the mysterious "student" letters some DXers received in the early 1990s.

for you. This technique almost always works. If you want to try it direct anyway, the address is simply External Service, Voice of Korea, Pyongyang, Democratic Republic of Korea.

North Korea also has domestic services on shortwave. The **Korean Central Broadcasting Station** is active from 0900 on **4405**, **7140**, and **9345**; 1200 on **3560**, **9335**, **11710**, **11735**, and **13650**; 1400 on **3560**, **11735**, and **13650**; 1700 on **4405**, **9335**, **11710**, **13760**, and **15245**; 2000 on 3560, **6575**, **9325**, **9640**, **9975**, and 11735; and 2300 on 3560, 4405, **7140**, **9345**, 9975, 11735, **13760**, and 15245.

The **Korean Pyongyang Broadcasting Station** is on the air at 0000 on **3560**, **6195**, **7140**, and **9345**; 0700 on **4405**, 7140, and 9345; 0900 on 3560, **9325**, **9975**, **11735**, and **15245**; 1000 on 4405, 7140, and 9345; 1200 on 4405, 7140, and 9345. Direct responses from both of these services are rare, if not non-existent. You can try an address consisting of the station name, followed by Pyongyang, Democratic Republic of Korea.

North Korea's clandestine station beaming to the South is called the **Voice of National Salvation**, supposedly operated by something called the National Democratic Front of South Korea which wants to abolish U.S. "colonial" rule in South Korea, thereby bringing peace, democracy, and reunification. Actually, the whole operation is guided by the North Korean intelligence agency and formerly used names such as The Voice of the Revolutionary Party for Reunification and the Radio Station of the South Korean Democratic National League for Reunification. The broadcasts (including some in English) are transmitted from government facilities in Pyongyang, Haeju, and Wonson. The schedule is as follows: English from 0030 to 0100 on **3480, 4450**, and **4557** and Korean from 0300 to 0700 on those same frequencies; Korean from 1000 to 1400 on **6010**, from 1000 to 1700 on 3480, **4120**, 4450, and 4557 and Korean from 2000 to 0030 on those same four frequencies.

This station has been on the air since about 1970. Years went by before an address (in Japan) turned up, but reports over the ensuing years proved futile. Last year, though, there was an astonishing breakthrough: a new address—even an e-mail address—and then replies! So if you hear this one, send a report to Grenier Osawa, 107, 40 Nando-choo, Shinjuku-ku, Tokyo, Japan; or to Kankoku Minzoku Minshu Tenzen, Amatsu Bldg, 2-1 Hirakawa 1-chome, Chiyoda-ku, Tokyo, Japan. Both of these individuals have e-mail addresses: <ndfsk@campus.ne.jp> and <kuguk@alles.or.jp>. There is even a website at <www.ndfsk.dyn.to>.

Ten or 11 years ago there came more proof that you never know what kind of weirdness may show up in your mailbox. A few DXers (who also had in common the fact that they had sent reception reports to North Korea or had tried to report to the National Salvation station) received letters claiming to be from a student who did not like his country's form of government or its leaders. He said he hated communism and asked questions about freedom and life in the addressee's country. The letters noted that they were mailed from Japan and advised the recipient to remember "that your letter will be subject to secret police inspection." Whoa! This was definitely a bit spooky and it wasn't hard to imagine they were really written by North Korean intelligence. I don't know of anyone who had the nerve to answer these letters just to see what would come next, and frankly I can't blame them!

Keep Informed

It's safe to say that the Korean situation is a long way from being resolved, which means your shortwave radio will continue to offer fascinating listening and tempting targets from the two Koreas.■

homeland security

power, and products

by Rich Arland, K7SZ

CB As A Viable Emergency Communications Tool

Last month we looked at amateur radio as a viable method of providing emergency communications and personal security. While ham radio has some outstanding things going for it, in order to participate you need to study and take a test on radio law, electronics theory, and frequency spectrum. And, if you want to operate on the high-frequency bands (those that propagate world wide), you need to pass a five-word-per-minute international Morse code receiving test.

Many people do not want to go through this hassle just to talk to someone. What's left? Well, there are several "citizen's" radio services that do not require testing to operate the equipment. This month we'll take a closer look at one of these services, Class D (27-MHz) Citizens Band Radio or, more popularly, CB.

Under the heading "No Good Deed Goes Unpunished," Class D Citizens Band Radio is in a class by itself. Experimentation *started* in 1933, when Experimental Station W6XBC, operated by Dr. A. H. Schermann, went on the air on 27.1 MHz. The next year the Federal Communications Commission was officially established by an Act of Congress (the Communications Act of 1934) to oversee all communications in the United States. All commercial, amateur, and CB radio falls under the jurisdiction of the FCC.

During the years up to and shortly after WWII, there was sporadic experimentation on the 27-MHz band. In 1946, a piece of medical equipment called a diathermy machine was authorized for operation between 26.96 and 27.28 MHz. These wide band noise generators could blot out the majority of all 23 channels in the early days of CB!

In 1947 several portions of the HF spectrum were removed from the amateur radio service. At the same time, 15 and 11 meters were added to the ham radio bands. The 11-meter band was to be used on a shared basis with industrial, scientific, and medical devices (diathermy machines). Class D CB was originally allocated to the 465-MHz (UHF) portion of the spectrum where it remained in relative obscurity until 1957, when Class D CB was *reallocated* to the 11-meter amateur band between 26.96 and 27.23 MHz.

This handheld Cherokee AH-100 is a full-featured AM/SSB 40-channel CB with instant Channel 9 access. It's a great walkie-talkie, but if you don't need all the bells and whistles you'll spend a lot less for instant Citizens Band communications.

1958: The Year Hams Lost 11 Meters

In September of 1958 the 11-meter amateur band was officially *reassigned* from the Amateur Radio Service to the Class D Citizens Band Radio Service. Radio control models were also lumped in on the 27-MHz band. Within six months, a ham radio operator named Don Stoner published an article on how to construct a CB transceiver for this new band. This created an upsurge in home-brewing CB rigs, which was quickly followed by commercially produced kit radios.

Major electronic equipment manufacturers, not wanting to be left in the dust, started producing CB transceivers by the thousands. Big names in the industry, such as E.F. Johnson, Raytheon, Lafayette Radio, Heathkit, Allied Radio, and ECI Courier, hit the market with their versions of a CB transceiver. These early rigs were vacuum tube, single-conversion, superhet receivers (although ECI Courier and several others had dual conversion schemes), with crystal-controlled transmitter circuitry which assured compliance with the frequency tolerances required by the FCC.

This "new" Citizens Radio Service under Part 95 of the FCC Rules and Regulations was originally intended to provide a low-cost option for small businesses that needed radio communications to manage their operations. The FCC started issuing CB licenses in 1958.

Licenses? Did someone say "Licenses?" You bet! Back in the good old days, you just didn't buy a CB radio and put it on the

air. *Before* you could legally fire up that 27-MHz Ether Buster you had to apply for a CB license using FCC Form 505, and then wait until the FCC processed your application paperwork and issued a callsign. This typically took between two and six months! (Remember, we're talking about 1958 when there was no Internet or personal fax machines. It was the true Dark Ages of radio communications.)

Once your license and callsign arrived you were "street legal" and could enjoy your new radio. And you'd better use that callsign. Before the "Ten-Four, Good Buddy/Trucker Mentality" descended upon (and totally ruined) Class D Citizens Band Radio, the communications discipline on 11 meters in most sections of the country rivaled that found on the amateur radio bands. I am not kidding! People were polite, courteous, didn't swear (that was against the law, you know), or permit others to use bad operating habits. Early CBers were not only proud of their band, they were out to earn the respect of the ham radio community, which was still smarting from the loss of their 11-meter amateur band.

My introduction to CB came in the form of a summer job. My father's friend, Dave Walker, was a farmer and rancher near Potlatch, Idaho. Starting in 1962, and for several summers thereafter, I was a hired hand on Dave's spread. Dave was a visionary. He was one of the first people in our area to adapt 11-meter CB radio to his ranching and farming operations.

In the summer of 1962 I became 14Q0387, Unit 2. Dave and I could maintain contact while running farm machinery, hauling baled hay, during harvest time and, of course, for lunch and dinner. We used a couple of old Karr Fone model TR-327 tube-type, four-channel crystal controlled CB rigs—crude by today's standards, but in 1962 they were state-of-the-art CB transceivers!

That same year, the Arland Motor Company (my Grandfather's business and the local International Harvester dealer in the area) started selling Raytheon Ray-Tel TRW-2 CB rigs as part of a promotional deal. The ArMoCo callsign was KFJ-0879 and we had TRW-2s in *everything* with either four or six wheels. If it moved and belonged to "The Store"—whether it was a Hillside combine, tractor, bulk truck, or pick up truck—it was equipped with a Ray-Tel radio. Of course, I just *had* to put up a base station antenna at our house, and subsequently a five-channel TWR-2 appeared in my radio room and another one went in Dad's Buick. (It's nice being related to the Boss!)

My very-best-friend-in-the-whole-wide-world, Bill McCrory, WB7NLR, was an early CBer. His folks, Dick and Shorty, got a Class D license, KFJ-0945, in 1962. They ran Johnson Messenger Ones (the old "white face" Johnsons) in their home and in their vehicles. Bill and I would talk back and forth, using a couple of Knighkit C-100s (100-mW regen walkie-talkies). Here we developed our "radio savvy" while simultaneously having a lot of fun. The McCrorys were prime movers in establishing the Palouse Hills CBers, a CB organization offering road assistance and public service communications in the mid 1960s. Many of the members of the organization later became ham radio operators in the 1970s. In short, early CB radio became a training ground and resource pool for amateur radio.

Why am I taking you on a trip down memory lane? Simple. To show you that, prior to the 1970s, there were a lot of redeeming qualities to the 11-meter Citizens Band Radio Service. The Class D CB worked as the FCC had intended, as an inexpensive alternative to costly VHF FM business band communications.

Relying On CB

CB could be relied upon in times of emergency to provide short-haul and tactical communications. When Hurricane Agnes deluged the Wyoming Valley in northeastern Pennsylvania with torrential rains in June of 1972, the dikes in downtown Wilkes-Barre ruptured and the entire city was inundated with a couple of million metric tons of river water! In areas of Kingston, just across the Susquehanna River from Wilkes-Barre, the water levels were within a couple of feet of the suspended traffic lights! During this cataclysmic emergency, members of the Black Diamond CB Club provided disaster communications in support of flood relief efforts. This was a shining hour for Class D CB.

In its halcyon days, CB bonded people together and gave them a commonality of purpose. CB clubs flourished all over the country, offering public service and roadside assistance to motorists. Later REACT became a spin-off of Class D Citizens Band and still exists today, although REACT now includes CB, ham radio, FRS, and GMRS.

Class D CB provided the average person with a cost-effective personal communications system that offered very good local area coverage between mobiles and their respective base stations. Life was good. People played by the rules. In general, good operating practices prevailed. Then came "The Convoy."

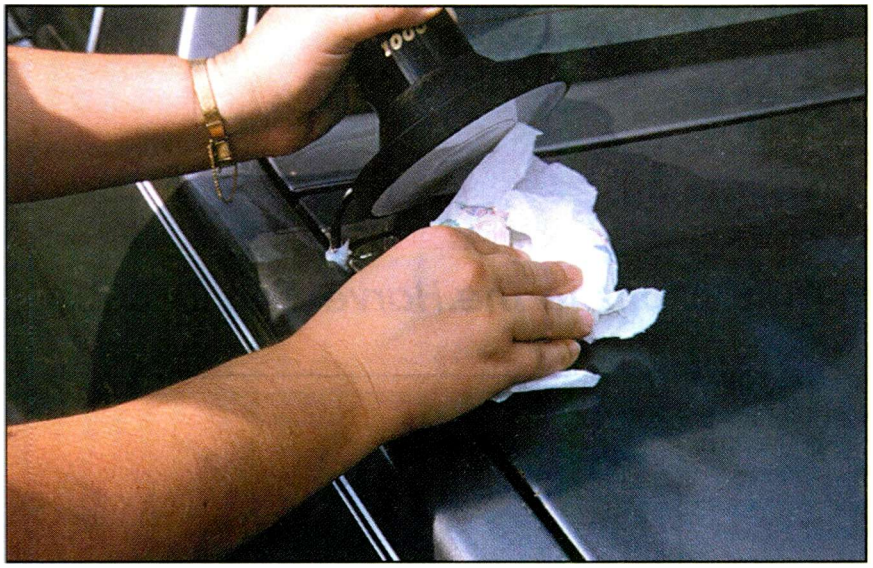
A compact, full-featured AM mobile CB such as this Midland 77-235ESP can be purchased for under $75.

Watching the meteoric decline of 11-meter CB radio was a bit like watching the fall of the Roman Empire. Seemingly overnight, the "CB Craze" hit America. Thanks to a couple of overplayed Country Western songs, featuring the outlaw antics of knuckle-dragging Neanderthal, long-haul truckers, the entire mindset of Class D CB changed dramatically. Proper operating practices were rapidly abandoned in favor of a freewheeling, ratchet-jawed, monologue-type rantings from cretinous individuals who had managed to figure out how to key a mic and speak without drooling. Loud, obnoxious, foul-mouthed truckers, road rage-infected motorists, smart-mouthed adolescents, and drunked-up college kids quickly found a haven on 11 meters.

Many old-timers who appeared on the band and tried using callsigns and proper radio procedures during this transitional period were quickly shouted down by this rowdy crowd of ne're-do-wells. Forced to abandon their traditional stomping grounds, many of these veteran CBers migrated to SSB operation, leaving the AM operation to the "Kids, Lids, and Space Cadets." Now the majority of the SSB operators still pride themselves on using proper operating procedures and civil language on the band. All is not lost.

CB Today

Unfortunately, 27-MHz Citizens Band today bares little resemblance to what was envisioned in the late 1950s. Tens of thousands of CB radios are sold each year. The band is overcrowded and the profanity



A simple magnetic-mount antenna comes ready to use on CB: just attach it to a metal surface and you're in business. Did you know that the metal surface can be an indoor radiator or even a filing cabinet in an emergency?

level is intense. The use of illegal amplifiers (also called "kickers" or "afterburners") abounds, especially in the trucker circles. Thankfully, many newcomers to Class D Citizens Band quickly tire of this quagmire of RF oblivion, and depart the CB scene. There are still tens of thousands of folks dedicated to the band, however, and the overall population has remained fairly static from the late 1980s to present.

With all of its problems, why waste time describing and including 27-MHz CB in the "Homeland Security" column? Simple again. It works. And very well, I might add. Nothing can compare with 11-meter CB. The cost of equipment is very reasonable (a good CB set can be purchased new for under $100, and often for about half that price). The coverage is excellent for the type of short-haul comms needed in times of emergency. The band is populated (now that is an understatement), and you can frequently get help faster on CB Channel 9 (27.065 MHz, the National Emergency CB calling channel) than via ham radio or FRS.

That last statement is going to draw a lot of flack from the die-hard hams who read this and think I am a "defector." However, based upon my personal experiences, driving an average of 30,000 miles per year, I can summon help faster using my CB radio than I can on my 2-meter FM rig going through a local repeater. I really don't know why. Maybe it is a regional thing. However, it bodes poorly for the amateur radio community in general, which prides itself on being the epitome of public service. When someone in need of assistance can summon help more quickly on an overcrowded CB channel, inhabited by gutter-mouthed twits, than on the relatively quite FM channels assigned to the V/UHF amateur bands, one has to wonder.

What You Need To Be Ready

Now that I have gotten that off my chest, let's move on and discuss what you need for a good CB radio system to help fill your emergency communications requirements. As I stated earlier, you can find a lot of good CB sets for $50 and up. You don't need every bell and whistle that is currently the vogue. What you need is a 23- or 40-channel transceiver that puts out a solid 4 watts of RF power with near 100 percent modulation.

You *do not need* trinkets like "power" mics (they don't do anything except distort your transmit audio), cutesy little lighted antennas, weather monitor capability, "beep-tone" or "echo" modifications, or linear amplifiers. Single sideband (SSB) is a very efficient mode and nice to have, but you will end up spending considerably more money on the radio gear in order to use that mode. Simultaneously you will severely limit the number of stations you can readily talk to using SSB. This is simply because there are fewer SSB operators on the air.

So what we are left with is a basic 27-MHz AM transceiver with either 23 or 40 channels. You'll find the older 23 channel radios available at flea markets, on e-Bay, and at swap meets. These are obsolete radios but, when you don't have anything else, they will get you on the air at an extremely modest cash outlay. They are also great for "throw away rigs" when you just need to have communications at a given location and don't care if you ever see the radio again.

Plan to spend between $10 and $25 for a used HyGain, Kracko, Midland, Lafayette, or Johnson 23-channel rig. Some of these radios will have the infamous PLL-02A synthesizer chip installed and can be easily converted to 10-meter amateur frequencies. There was a fad about 20 years ago where 23-channel CBs with the PLL-02A chip were converted to 10 meter FM (29.6 MHz). Yes, it is relatively easy to convert an AM rig to transmit and receive FM. I personally converted about a dozen of these rigs myself. They were a lot of fun to use on 10 meters and the rigs themselves were dirt-cheap. Often the price of the crystals needed to move the synthesizer up to 29 MHz and provide 100-kHz repeater offset (yes, there are repeaters on 10-meter FM) cost more than the entire CB set!

With the advent of surface mount components, today's CB rigs have shrunk dramatically, while the available features ("bells and whistles") have increased. This is a good thing. With the trend in automobile design toward curved interior surfaces and not a whole lot of spare room, having a small CB rig that will fit into a crevice or hole in the dashboard vacated by the ashtray is definitely a plus. Of course, if size is not a restriction, there are plenty of older 40-channel rigs available at swap meets, e-Bay, etc., that can be purchased very reasonably. These sets will provide excellent CB coverage at modest cost.

In the March *Pop'Comm* we will continue our look at CB as a viable communications tool–one with real flexibility that far outweighs the negative aspects of the service. Remember, Homeland Security is more than a title of this column–and preparedness is not an option! See you again next month. ■

by Shannon Huniwell

Shannon's Broadcast Classics

a look back at radio & TV's golden years

From Farm FM Stations To The Harvesting Of Souls

It's fascinating how the memory works. At a summer family gathering, my brother asked me if I recalled accidentally dropping a hymnbook off our church balcony. I sure do, and the still vivid flashback to that heavy hymnal's crescendo descent serves as a catalyst for this month's column topic.

You've no doubt wonder what that incident has to do with broadcast history. Well, the embarrassing bang interrupted a guest speaker who was enthusiastically telling our congregation about a multi-station FM radio operation that his organization used to minister to New York state's "college belt." The fellow came from the Christian Broadcasting Network, better known as CBN. Truthfully, I was only in second grade when the radio outreach sermon was delivered, so I don't remember too many details, other than him reacting to the crash with a startled pause, a smile directed my way, and some merciful ad lib comparing the loud sound with CBN Radio's wide-reaching northern New York signals.

Jan Lowry of *Broadcast Pro-File* provides us with background on the notable upstate FM operation. Graphics are courtesy of my Dad who never throws away any literature about broadcasting, including the CBN brochure, handed-out that long ago Sunday morning.

Targeting Farm Families

In the days just before World War II, 10 Empire State agricultural organizations began discussing how nice it would be to be able to clearly communicate with their members day and night via a farm-focused radio station. To be sure, the existing AM outlets, such as like WGY Schenectady, WSYR Syracuse, WHAM Rochester, and WKBW Buffalo, offered some (oft-times predawn) farm programming, but folks who made their living from the land felt the need for the detailed weather and market information that was increasingly foreign to the urban area audience.

From the introduction of this bucolic broadcasting proposal's brainstorm, the New York farm contingent knew that securing construction permits for several new AM facilities that would cover a swath from Albany to Buffalo was not technically possible. When Frequency Modulation broadcasting hit the air in 1940, though, this promising (and at that time) almost completely vacant band spawned a committee from the various farm groups to see if some agricultural FM radio stations might be established. The committee grew into what was called The Rural Radio Foundation, a not-for-profit outfit that, by late 1946,

One of the half-dozen RRN transmitter buildings as caught in an early 1970s snapshot. During the network's glory days, two RRN engineers simultaneously staffed these sites. After parking their vehicles in the integral garage bays, the techs broadcast weather forecasts and other information that'd be sent "down the chain" via the main signals of sister stations spaced about 50-miles apart. In this photo, part of the 100-foot self-supporting tower (with a four-bay FM transmit antenna) and telephone pole holding various VHF/FM receive antennas are seen. In the late 1940s, Network officials hinted that once their radio operation met with success throughout the farming community, they'd add TV broadcasting to the transmitter sites' repertoire.

A window-mounted air conditioner was likely welcome relief for duty personnel up at the transmitter for a stretch of several summer days at a clip. The basement furnace (and warm transmitter) got kudos during icy winter nights. In December, 1948, Radio and Television News reported that every RRN transmitter shack contained "a complete broadcasting studio, two-car garage, basement, generator room, furnace room, shop/kitchen combination, [bathroom], and sleeping quarters." Throughout the years, these buildings' external appearances have changed remarkably little.

scouted out potential transmitter sites and readied a stack of FCC applications under the title Rural Radio Network (RRN).

Commission officials were thrilled to see this kind of enthusiasm for fledgling FM, especially from a non-profit with a specialized audience in mind. Consequently, FCC permission to commence construction was in the Foundation's mailbox by late October 1947. Copycat poured cement/cinder block transmitter buildings, 250-watt transmitters, and 100-foot towers were quickly installed at the following locales:

Cherry Valley (covering Albany to Utica) WVCV-FM 101.9 mc.
DeRuyter (covering Utica to Syracuse) WVCN 105.1 mc.
Ithaca (covering Syracuse to Rochester) WVFC-FM 93.1 mc.
South Bristol Township (Rochester region) WVBT-FM 95.1 mc.
Wethersfield (Buffalo region) WFNF-FM 107.7 mc.

These five facilities signed on in early June, 1948, with programming emanating from RRN's Ithaca headquarters (selected because of its proximity to agricultural/educational endeavors at Cornell University) and going to each successive one via simple, over-the-air reception of the closest station's signal. A few remote trucks were employed by RRN so coverage of, say, a 4-H or Future Farmers of America event from the State Fair in Syracuse could be relayed by VHF (around 153 mc.) to the duty engineers (living there in shifts, firehouse style) at the DeRuyter transmitter building. There that station's main signal would be picked up and rebroadcast by sister stations.

Direct coverage of farm-related happenings elsewhere could be similarly handled by any one of the other RRN outlets. In fact some shows originated on an affiliated New York City FM, hopped to a Poughkeepsie station, and then onto RRN's Cherry Valley facility, et al. Handily, much of the equipment came from nearby General Electric plants in Schenectady and Syracuse, as GE was then a major producer of broadcast studio and transmitting gear.

Typical effective radiated power (ERP) for RRN stations in their early days was about a kilowatt and a half. Some old radio listings indicate that the network owned a sixth outlet, but this FM in the extremely bucolic Turin-Highmarket area (somewhere between Watertown and Utica) went dark not too long after it debuted around 1949. Separately owned WSLB-FM Ogdensburg (in its original 106.1-mc. form) served as RRN's northernmost affiliate prior to that big, 14,000-watt FM's 1950s demise. Also rather quickly changed was the 93.1 mc. voice in Ithaca. With RRN needing to economize, it silenced the WVFC-FM GE transmitter after getting an offer from Cornell University's WHCU-FM (97.3) Ithaca to carry RRN fare.

Hello... Is Anybody Listening?

If you and I took a time machine to any respectable late 1940's/early 1950's upstate New York farm supply store, chances are we'd notice FM radios occupying shelf space there. The Rural Radio Foundation really tried pushing FM to farm families, so they asked such retailers to tout the reasonably priced FM receivers the organization was ostensibly subsiding. The goal was simple: get enough FM radios into the farming community to make this target demographic large enough to hit a critical mass. Once in every home and barn, these FM sets would generate a well-informed agricultural constituency block too large for legislators, educators, and commercial advertising interests to ignore.

RRN realized that, no matter how labor intensive it was to gather and produce, useful farm programming would have to precede any anticipated farming population rush to purchase the then "odd" radios. Pioneer logs from the era tell that "prime time" on the network occurred around noon when many farm families gathered for their big meal and had the radio on. According to a 1948 schedule, the stations broadcast from 11:45 a.m. to 7:45 p.m. Monday through Friday, with a Sunday sign-on at 1 in the afternoon.

A rare glimpse at CBN Northeast master control operation in Ithaca, New York, circa 1972. Andrew "Andy" Anderson is on the air. Through the CBN Ithaca-based FM transmitter/antennas there, Anderson's voice is being broadcast to a series of four other Empire State transmitter sites capable of covering media markets from Albany to Buffalo. Especially interesting in this photo is the row of modulation monitors and remote control units (in background) that allowed CBN to "read the meters" and check each transmitter's audio without having anyone at the Wethersfield, South Bristol, DeRuyter, or Cherry Valley sites. That technology saved salaries that the stations' founders (Rural Radio Foundation) had once paid out to a 19-member engineering staff!

Certainly a few families working one of New York's 118,000 farms must have been in the debut audience. Nowadays, though, it's tough locating people who readily recollect hearing one of RRN's home economic tips, renditions of classic literature the likes of *Treasure Island*, or ag-market news. My dad had a college classmate who told him about once being interviewed (along with a prize rabbit) by RRN for winning a blue ribbon in some county fair pet show. Apparently, the fellow's excitement about this sudden burst of radio stardom fast subsided when he couldn't find a single acquaintance who'd actually heard it!

Officials and staff continued giving the old college try by attempting to stay on top of the region's major farm issues and seeking (in 1951) power increases (to 5.4 kW) for most of the chain. Still, any growth was disappointedly sluggish. Even a cheap FM radio or tuner cost $20 to $50, not including the antenna that was recommended in the network's fringe coverage. Few FM sets found their way to the barn or tractor, where "regular AM radio" typically held sway. And, by 1950, more than a few farm silos sported a TV antenna, clamped there or on a windmill tower, to catch the at least one newfangled television signal shooting around each media market in the lengthy middle of New York. Twenty or more hard-earned bucks not spent on an FM radio could be put towards a much more coveted TV. Besides, it was far more exciting *seeing* filmed highlights of the State Fair on the tube!

RRN-originated programming started showing signs of discouragement by 1952. In-depth agricultural shows began giving way to hours of classical music imported across New York City-to-Poughkeepsie-to-Cherry Valley and onward from *The New York Times'* WQXR-FM. Arguably, such formatting delighted the era's small but devoted group of serious audiophiles, but it didn't cause many additional farmers to put the John Deere in high gear and zip down the meadow towards the nearest FM radio retailer. Even the most ardent RRN idealist recognized that their noble half-million dollar experiment hadn't gained the momentum expected in the founding body's prospectus.

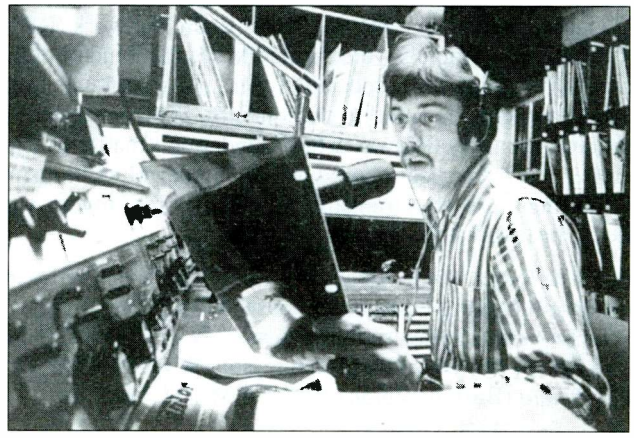
New Ownership, Call Letters, And A Resurrected Transmitter Site

It's logical to wonder why anyone, in the early 1950s, would pay for an FM radio station when the band's barren landscape would have allowed founding one's own from scratch. Northeast Radio Corporation considered getting into the upstate New York market, crunched the construction numbers, and found that the RRN setup could be picked up for less than it would cost to build. The FCC approved this sale in early 1953. Northeast kept the RRN moniker, but switched calls to WRRC-FM Cherry Valley, WRRD-FM DeRuyter, WRRE-FM Bristol Center (or South Bristol Township), and WRRL-FM in Wethersfield. Because Cornell wanted its station back when the non-profit Rural Radio Foundation sold out, the Northeast Radio Corporation folks decided to fire up the erstwhile abandoned WVFC-FM 93.1-mc. site in Ithaca, but allocation machinations in the interim necessitated a new frequency (103.7 mc.) and identity, WRRA-FM.

Perhaps someone out there possesses a scrap of literature from this operation, but because—through the early '70s—the band was generally marginalized by AM and TV, vintage FM-only documentation is as scarce today as FM listeners were back then. Imagine being a young DJ, spinning some obscure album and readying a generic public service announcement during a sub-zero, mid-1950s February evening. Yes, it was exciting to actually be on the air, and your handiwork *could* be heard from one end of New York to the other, but it is quite plausible that Northeast's announcers spent many an hour without any tangible sign (like an encouraging postcard or phone request) of FM audience presence.

Admirably, Northeast stuck with it until early 1960. Ivy Broadcasting Com-pany's $438,000 offer for the Network and related stations was accepted, FCC approved, and then prompted another round of callsign modification. The "Ivy" (taken to denote a collegiate or Ivy League theme) motif was encapsulated within each station's new handle: WJIV-FM Cherry Valley, WOIV-FM De Ruyter, WEIV-FM Ithaca, WMIV-FM Bristol Township, and WBIV-FM Wethersfield. A desire for a bit of urbane sophistication caused the RRN identity to be euphemized as the Northeast Radio Network (NERN). To make this switch more metropolitan, the Ithaca studios were closed in favor of relocation to Syracuse's WOLF, an AM outlet owned by one of Ivy Broadcasting's major stockholders.

Still, in-depth transmitter site weather information remained a programming staple. These were, "...checking our anemometer and looking out of the window"-type of coverage primarily delivered by engineers/announcers at each site. Dennis Jackson, who now owns several successful radio properties in New York and New England, was especially fascinated by this fare when a freshman at Rensselaer Polytechnic Institute (RPI). "I'll never forget," he reflected, "the round-robin weather observations heard on WJIV when I first got to RPI in 1964 that included [a smooth-voiced announcer named] Nelson Guyette, and observers at the [various Ivy] stations all across the state talking with each other in a chain of rebroadcasts as the morning's weather unfolded. Now *that* was some great and innovative radio!"



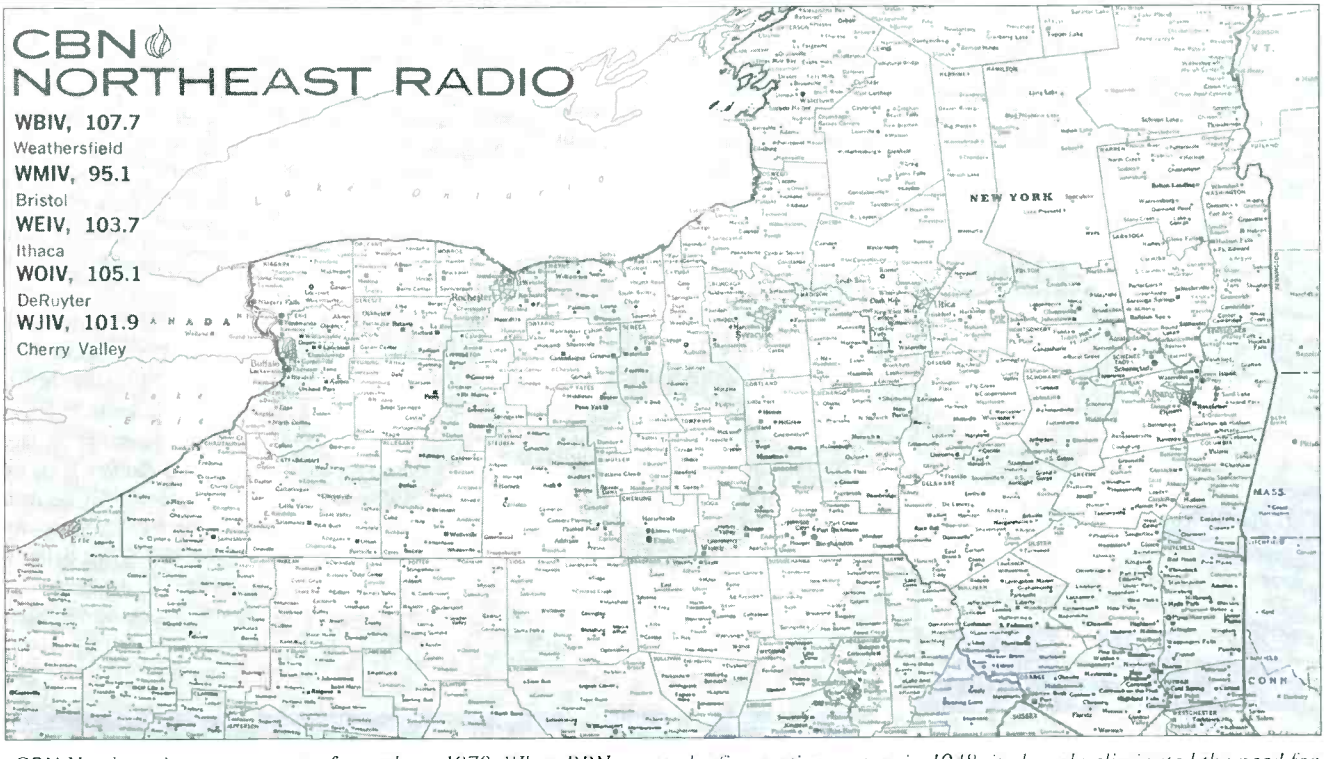
The pioneer air-personality of Contemporary Christian radio, Scott Ross mixed music with a Gospel message during his syndicated program heard on dozens of Top-40 and progressive stations. The many colleges in CBN's five stereo FM-station-footprint provided this CBN production with a receptive audience. Ross' broadcasts have netted several major awards, and he is still active in youth ministry today. (See <www.cbn.com>.)

Though previous operators had upped the chain's broadcast hours some, Ivy's association with round-the-clock WOLF had enough personnel on hand to run NERN programming 24/7 by mid-1964. WOLF Radio's top-40 music format and great Syracuse metro ratings provided the funds to keep the Ivy stations from starving—even though peanut-whistle WOLF (1490 kHz) could cover only a fraction of the NERN region. It's likely that Ivy was just keeping the FM transmitters lit until the value of FM frequencies appreciated.

The Three-Year Rule To The Rescue

A key piece of vintage FCC regulation barred station owners from selling a radio station within three years of having purchased it. This was designed to keep committed radio people in the business while discouraging quick buck speculators—who the Commission reasoned did not have the community interest in mind—from contaminating the spirit of broadcast service. It also gave any company worried about corporate raiders and involuntary restructuring a legal excuse why significant change couldn't be tolerated for at least three years—a poison pill to most company takeover pirates.

My research leads me to believe that this is why Oneida, New York-based Chenango & Unadilla Telephone Corporation formed Chenor Broadcasting in late 1965 and eagerly paid Ivy $700,000 for the five NERN FM outlets. This netted Ivy a nice profit and seemed to shelter the little phone company from some rogue takeover. During their tenure, Chenor's only apparent operational changes involved moving the radio network's studios to Oneida (between Utica and Syracuse)



CBN Northeast's coverage map from about 1970. When RRN set up the five-station system in 1948, it cleverly eliminated the need for expensive telephone company-leased program lines to interconnect the FM facilities. The air signal from the main Ithaca studio and transmitter traveled in a "Y" pattern as picked up at DeRuyter—and sent east to Cherry Valley—as well as west towards South Bristol. It was then fed to the Wethersfield (here a victim of some CBN secretary's typo on this map) FM.

and seeking FCC permission to switch its licensee name to C&U Broadcasting Corp. Almost to the minute that the telephone people held NERN for three years, they simply *gave* their radio operation away.

Pat Robertson Says "Thank You," And Raises The Power

Our church's long-ago guest preacher didn't mention how the C&U Broadcasting found the non-profit Christian Broadcasting Network (CBN) of Portsmouth, Virginia. He did recount, though, that CBN founder, Marion G. "Pat" Robertson had recently finished Yale Law School when, in 1956, he became a committed Christian and enrolled in a seminary. Upon graduation, Robertson spoke at a Presbyterian church near his folks' Virginia home, and—as a CBN brochure noted: "A businessman who heard the sermon offered to buy [the novice minister airtime on a local station so he could have] a noon radio broadcast for a week." At about the same time, Robertson's mother received a letter suggesting that he buy a defunct UHF television station in Portsmouth, Virginia. Admittedly, he knew nothing about TV broadcasting, but he felt that the Lord was leading him to acquire that failed Channel 27 facility.

The first CBN bank account was opened in January, 1960, with a $3 donation. The following year, CBN's WYAH-TV hit the air as America's first video service devoting more than 50% of its program schedule to religious content. A radio division soon followed with 105.3 MHz-based WXRI-FM (originally on 104.5 mc). Because this station began producing Christian programs, Robertson prayed that more outlets be made available for offering the gospel message. Someone at C&U Broadcasting/Chenango and Unadilla Telephone got patched through to that Heavenly call. The five stations NERN became CBN's Northeast Division on January 1, 1969.

According to the aforementioned pamphlet, they

> Serve five and a half million people in New York, Pennsylvania, Vermont, Massachusetts, and Canada...blanketing one of the major college belts. Like WXRI-FM, these stations feature a wide variety of Christian music and ministry, with a strong emphasis on news, weather, and sports coverage. Programming was designed to reach the widest possible audience [with] not only standard sacred music, but contemporary Christian music for younger listeners as well.

While the estimated potential coverage area might seem a bit optimistic, even from five Class "B" FMs, remember that the band was (by today's standards) rather vacant and that many FM buffs employed external receive antennas similar to RadioShack's famed *Archer* "S," or an even higher gain roof-mount.

In a circa-1970 world of sparse upstate FM signals, CBN's fare offered real diversity to listeners used to long, lonely classical music segments or redundant AM simulcasts.

One early listener, a student at the State University of New York at Oswego in the '70s, recalled,

> When the contemporary Christian music genre was just starting out, I first heard pioneer "CC" artists like Larry Norman, and Christian DJ, Scott Ross, on CBN Radio. Unlike most FM album rock disc jockeys, Ross came across as caring about each listener, as opposed to mostly caring about the song or rock stars. With a coat hanger antenna, I could usually snag the DeRuyter and Bristol signals rather cleanly and get Scott Ross' show in stereo. I'm sure it helped that my dorm room was several stories up.

Broadcast Pro-File verifies that Robertson sought construction permits for FCC permission to jump the CBN Northeast facilities' ERP. In 1971, for example, the Wethersfield FM went from about 5 to 32 kW. Ten years later, CBN decided to invest heavily in a family-oriented cable television operation. The network's five New York FMs went up for sale. WOIV-FM DeRuyter was the first to go, followed by Cherry Valley (for $300,000), Ithaca, and the Rochester and Buffalo area facilities. While most of these vintage sisters have switched calls and formats—at least several times—WJIV-FM Cherry Valley retains the "Ivy Broadcasting/CBN" period lettering and continues serving its Albany/Utica region with Christian broadcasts.

Still Digging

It is quite possible that someone has some vintage memories they'd be willing to share about the RRN or stations once in its chain. Wouldn't a snapshot or piece of promotional paper featuring RRN's most obscure, flash-in-the-pan Turin station be a neat discovery? Feel free to contact me at *Popular Communication* headquarters with any of your broadcast nostalgia. Meanwhile, I won't completely close the book on this fascinating slice of FM's past. Maybe I should pledge not to drop it either!

Next time, we'll have something completely different. When embarking on a bit of early spring-cleaning, I'm hoping to find some long lost TV vehicle toys in the attic. If they're still there, I promise to also locate my old 110 *Kodak* film cartridge camera and present a photo essay on model television remote trucks designed to interest kids (40 or 50 years ago) in becoming video engineers.

And so ends another day of broadcast history at Pop'Comm. ■

by Gordon West, WB6NOA

Tricks With Those Tiny DC To Daylight Ham Radios

It all started with the Kenwood TS-50 mobile 1-MHz to 30-MHz ham radio. When ham radio operators first saw this radio about 10 years ago, they dismissed it as a CB on steroids. Were they ever wrong! What looked like a big CB radio was actually a powerful 100-watt, 100-memory channel, high-frequency ham set that worked on all ham bands from 160 meters (1.8 MHz) to 10 meters (28 MHz). It put out the same amount of power as ham rigs *four* times the size!

Shortwave listeners liked the little Kenwood TS-50 because it would tune continuously any mode from 300 kHz to 29.99 MHz. It was also seen selling at about the same price as a companion receive-only shortwave set; would-be ham operators would study for their ham test and instantly have a powerful ham transceiver that would work 1.8 MHz to 30 MHz.

Members of the U.S. Coast Guard Auxiliary, Civil Air Patrol, and MARS operators also liked the little Kenwood TS-50 because it could easily be modified for out-of-band authorized transmitting by a big mama diode (#5) just begging to be snipped.

Alinco Adds Six

A couple of years went by and Alinco came in with their DX-70 that was the identical size as the Kenwood TS-50, but they added 6-meter capabilities to the high-frequency transceiver, PLUS added remote head capabilities. Alinco's first shot at HF plus 6 meters in a small-body radio took the industry by surprise. The DX-70 is still made today, and the receiver is red hot; 100 watts out on transmit, with 100 channels. The remote cable is an analog affair, as big as your thumb and pretty tough to snake around under car carpets. But, nonetheless, the remote head upstaged Kenwood.

ICOM And Yaesu Add VHF/UHF Multimode

The next step in the evolution of tiny CB-sized radios was the ICOM IC-706 and Yaesu FT-100. Absolutely amazing—these radios had 100 watts HF, and also included 100 watts 6 meters, and *also* included plenty of power on the 2-meter band and capabilities of RX/TX on the 440-MHz ham band. Yaesu even offered FT-100 800-MHz to 999-MHz, almost-continuous scan receiving, cellular blocked. (Despite claims, there was absolutely no way to get any transmit on the 900-MHz ham band!)

Side-by-side testing of the DC-to-daylight multimode rigs. It was a tie between these two, considering price and performance.

The first generation ICOM IC-706 was deaf on VHF 150-MHz to 170-MHz receive. Authorized Coast Guard Auxiliary members also found that there was no easy modification for marine transmit.

Early Yaesu radios also had some growing pains, with faltering HF power outputs until a relatively simple factory fix got them back on the road again.

But both the ICOM IC-706 and Yaesu FT-100 were instant hits because of the added 2-meter and 440 multimode capabilities for the ham, the ultra-small cable for data transfer between head and body, and, best of all, a detachable remote head. The Yaesu remote head was polarized so that anyone wearing polarized glasses could look at the display straight on with no problem. With ICOM, the polarization was just the opposite, so you could always tell an ICOM radio user with polarized sunglasses by the way they would cant their head to the side to see the display!

The price wars of today now put the ICOM IC-706 MKII-G around $800 and the Yaesu FT-100D also around $800. The ongoing price wars between ICOM and Yaesu have resulted in original used radios showing up selling pre-owned for less than $400! And if you are into scanning high-band VHF from 150 MHz to 170 MHz, ICOM quickly "opened up" the VHF receiver in their Mark II models, so try to grab a used Mark II radio as opposed to the original ICOM IC-706.

Loading 100 channels of memory into either the ICOM or Yaesu took plenty of dial spinning. Neither had keypad entry.

The ICOM IC-706 at night with its backlit keys.

The Yaesu FT-100D has a clear blue front LCD display, but no backlit keys like the ICOM IC-706.

An ICOM field engineer is happy the ICOM IC-706 works well on VHF/UHF in a strong RF field.

The Alinco DX-70 with its remote head has a red hot receiver!

Yet each had computer control, but who wants to run this unit mobile or at your home continuously tied into a computer for quick frequency dial-up?

Hams to the rescue! John Hansen, W2FS, offers direct frequency entry for ICOM and Yaesu radios with a keypad kit or keypad fully assembled set-up. It comes with one cable specifically for either ICOM or Yaesu radios, and you can order a second cable for around $3 for either radio use.

If you like kits, you will have several enjoyable hours following the well-written instructions and putting just a few supplied components onto the board. The box is pre-drilled and the circuit board is printed so it's pretty hard not to get everything into the right hole. You only need to install about 15 parts. A 15- to 30-watt soldering iron works great, and you will also need a hot glue gun to get the keypad pulled together. Or, you can buy it fully assembled for under $100, including the radio cable of your choice. That is what I did, and I got the second cable for the other radio.

With either the Yaesu or ICOM radio turned off, plug in the keypad connection to the rear port of the radio designed for computer control. On ICOM radios, it's a simple miniature speaker-type plug. On the Yaesu, it is a multi-pin plug that goes into the CAT receptacle on the rear. Be sure to only plug in your keypad controller when the radio is turned off. This keeps you from puzzling the CAT circuitry. Follow the simple radio ID keystrokes, verify that the keyer and radio are now communicating, and you'll instantly be able to QSY to any specific frequency via the keypad as opposed to forever spinning the dial on the radio.

The keypad allows you to enter frequencies either in kiloHertz or megaHertz. You don't need to add a decimal point or any trailing zeroes. The keypad also knows which mode to switch the radio to for each ham band. It even knows CW band segments, too! You get a pleasant beep whenever a key is pressed and, at 4800 baud, the new frequency pops in within milliseconds of hitting the pound key.

The keypad works on a variety of ICOM and Yaesu radios, including the Yaesu FT-817 (discussed next month) and the brand new battery-operated Yaesu FT-897. You can look up all of the details at <www.john.hansen.net/keypad.htm>. You can easily complete the kit in just one evening.

Go For The Multimode!

If you're thinking of a new very small HF ham transceiver, you would certainly go for one that includes multimode capabilities on VHF and UHF (6 meters, 2 meters, and 440 MHz). Both the ICOM IC-706 and Yaesu FT-100 easily tune 460-MHz public safety, but only Yaesu goes all the way up to 999 MHz. Both sets have been around and have worked out any early-production bugs, so whether you find one new or used, if it's within three years old, treat yourself to a double-duty radio that is both ham as well as shortwave/VHF-UHF scanning capable.

For those authorized Coast Guard, CAP, or MARS operators wishing to explore added capabilities of this equipment, the new ARTSCI mod book, *Edition 14A*, has just been released on ICOM and Kenwood radios; *Edition 14B* is for Yaesu and Alinco equipment (<www.artscipub.com>).

Next month we'll explore the very-tiny Yaesu FT-817, and then show you some tricks not described in the owner's manual. We'll also look at all you can do with a brand new Yaesu FT-897 with its built-in, double-battery, portable capabilities. Until then, stay tuned on small ham sets with DC-to-daylight shortwave and scanning capabilities and ham transmit, too. ■

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Manufacturer suggested list price $499.95
Less -$320 Instant Rebate / Special $179.95

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Frequency Coverage: 29.000-54.000 MHz., 108.000-174 MHz., 216.000-512.000 MHz., 806.000-823.995 MHz., 849.0125-868.995 MHz., 894.0125-956.000 MHz.

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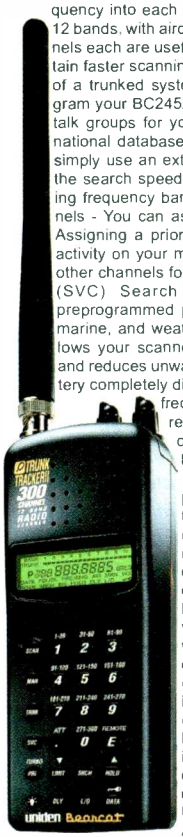

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ham discoveries

connecting as a radio amateur

by Kirk Kleinschmidt, NTØZ

The Lost Art Of Conversation

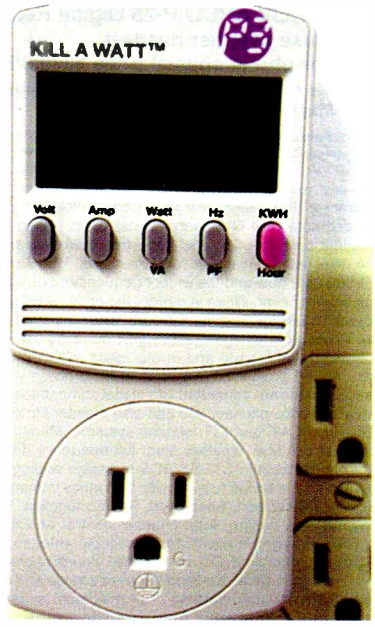
Are your on-air conversations becoming stilted? Do "cookie cutter" QSOs leave you itching for something more substantial? Well, friend, you're not alone—a recent burst in my own Internet activity showed me that in stark relief. Thanks to the ever-increasing presence of the Internet in our lives, there are a *lot* of people communicating in cyberspace. And their conversations tend to be a lot more interesting than those pursued by most hams!

Sure, cyberspace chatters aren't bound by the FCC's rules of engagement, but they're also not bound by ham radio's often unfortunate tradition of limiting conversations to radios, signal reports, the weather, and gall bladder surgeries, either! On line you'll find real people talking about real things—some interesting, some funny, and some stupid. And there's no reason why we hams can't follow their lead. Imagine how much fun our hobby would be if we were people first and hams second?

Wayne Green, W2NSD, the founder and former editor of *73 Magazine*, used to periodically rant about how hams need to be conversationalists first, technology hobbyists second. He was definitely onto something, and his message is still valid today.

You see, many hams look at our hobby as a purely technical pursuit. Ask anyone and they'll tell you that ham radio has a lot to do with complicated concepts and technology. And don't forget the tests we're all required to pass to get our licenses! Although beginning hams no longer need to learn Morse code, they do need to bone up on radio and electronics theory.

With all of the studying and brainpower involved, you'd think that the whole mess is about technology, right? About knowing when 10 meters will be open to the Pacific, how grounded-grid linear amplifiers are tuned, or how digital signal processing helps dig out those weak DX signals.



Still looking for something to talk about? How about the new Kill A Watt AC power analyzer? Have you ever wondered how much power your rig or your computer are really drawing from the AC mains? Or how about the fridge or the furnace? They're typically power hogs. And don't forget the AC-powered stuff in the camper or the RV. Knowing how much power a device takes in the real world can be invaluable when sizing up batteries and inverters for use in boats, RVs, solar systems, Field Day, etc. I've been having a great time lately, measuring the power consumption of darn near everything in my house and shack with P3 International's Kill A Watt AC power analyzer. These things cost less than $50 at RadioShack and dozens of online sources. They measure AC power, voltage and frequency, and they're incredibly handy, in the shack and out. To find one on sale, point your Web browser to <www.yahoo.com>, click the "Shopping" link and search for "kill a watt."

Oops, Wrong!

That's the great irony of ham radio. For most of us the technology is simply a vehicle for an underlying, deeper reason for participating: communicating with other people, local or faraway, who share similar interests.

To effectively participate, we need to learn about the technology involved, and certainly about operating procedures and protocols (that is, *how* to correctly communicate with others using whatever technology is involved). But once that's learned, we're still faced with simply talking to someone else. Having a conversation and sharing something of ourselves. Learning something about the person on the other end of the mic, key, or keyboard.

Sure, there are some who become hams for primarily "technical" reasons. They might love to build radios or study the intricacies of VHF propagation from a scientific standpoint. But even these folks love to talk to other hams who *share* their particular interest. Just listen to two "home-brewing" hams talk about building *anything* and you'll be convinced.

So it's all really about communicating. And to maximize your enjoyment of Amateur Radio, you need to be a good communicator. It's not difficult, but a refresher course can often help get the ball rolling!

Before we discuss ways to have more fun talking with and learning about our fellow hams, let's review several (unfortunately) typical exchanges you could hear almost anywhere on the bands.

The rapid-fire exchange between "robot DXers" immediately comes to mind: callsign, signal report, adios. Over and over. Amazingly, it took me 15 years to become bored with this. How long will it take you? (I'm not picking on contesters, just hams who seem to *never stop* contesting!)

The domestic version is just as boring: name, location, signal report, rig, antenna type, see-ya-later. Over and over. Painfully boring! Why bother turning on the rig? Most repeater conversations aren't much better.

Instead of perpetuating the same old thing, why not expand your ham radio horizons? There are millions of interesting indi-

viduals out there disguised as amateur radio operators! Dig deeper—you won't be disappointed!

Talk About It!

Here are a few tips to help you break the ice. Remember: Don't be shy! If necessary, just blurt something out. If your QSOs are stuck in a rut, dare to do something different! You'll enjoy ham radio in an exciting new way.

• The handiest tool for ham radio conversationalists is a good map or atlas. When you figure out where the other operator lives, check out his QTH on the map. That little blue squiggle might seem insignificant on your end, but your new friend might have been trout fishing there since he was a kid. By simply asking about the local geography you'll learn a lot more about that little blue squiggle (or whatever it is) and you'll alert the ham on the other end that a real conversation is about to take place!

• If you're still a bit shy on the microphone and your Morse code skills aren't yet up to snuff, check out PSK31. This digital, keyboard-to-keyboard mode is a lot like chatting on the Internet, and the extra anonymity can sometimes make all the difference. Besides, PSK31 is a great beginner mode. Low power works wonders, and everyone I've met on PSK31 is friendly and welcoming to beginners.

• If you or your QSO partner live in a "famous place," feel free to get a little conversational mileage out of it. If you're chatting with someone in Winterset, Iowa, try out your best John Wayne accent. It couldn't hurt, could it? I've started many an interesting QSO by mentioning that I live in Little Falls, Minnesota, the boyhood home of Charles Lindbergh (and the stomping ground of Paul Bunyan and his blue ox, Babe). You can, too.

• Asking people questions—on almost any topic—can often spice up an otherwise routine exchange. Be tactful, but ask away. Examples: "What do you do for a living?" "How about those Minnesota Vikings?" "Have you ever been to Japan?" You get the idea. To narrow down the range of possibilities, tailor your probing questions to what you already know about your QSO partner, or what you intuit or suspect

• If you or your QSO partner are into the Web, why not post a few pictures that you can mutually refer to as your conversation progresses? You'd be surprised at the number of hams worldwide who have and use the Internet as they converse with you in real time. If a picture is indeed worth a thousands words, with a ham picture website you'll be a chatterbox for sure!

• As long as it's within reason, feel free to let other hams know a little bit about what you're up to. Instead of keying the repeater with "This is W9XYZ, listening," try "This is W9XYZ, on a round-the-world motorcycle trip, listening." Which do you think would garner more responses on a typical sleepy repeater? Maybe the old-timer's CQ—"This is Bill, W9XYZ, calling CQ from the Louisiana bayou town of Swampy Creek—heard regularly in years past has some merit. Don't use it while checking into an emergency net, and don't use it all the time, but you might give it a try on an uncrowded HF band just to see what happens.

• Be careful when discussing potentially controversial subjects, such as politics, religion, sex, light beer, left-handed golfers, etc. Now I'm not trying to step on your First Amendment rights, I'm merely suggesting that you be respectful and use common courtesy when bringing up certain topics.

Here's To New Friends!

Amateur Radio *is* diverse, but it's also tolerant and accepting, and the best ham radio discussions build on a common ground of shared interests. Regardless of which techniques you use (there are many more than those listed here), taking steps to make ham radio friends through better conversation will only increase your enjoyment of our hobby. You never know when you'll make a lifelong friend you would have otherwise overlooked because of a "cut and dried" QSO!

See you next month. Please send your QSL cards, questions, and letters to me at "Ham Discoveries," c/o *Popular Communications*, 25 Newbridge Rd., Hicksville, NY 11801. ■

by Harold Ort, N2RLL, Editor

Fluidmotion's SteppIR Two-Element Yagi

The first time I saw the SteppIR two-element Yagi was at the Dayton Hamvention, and at that moment I recognized it as a great alternative to standard aluminum Yagis and even vertical antennas. It covers 6, 10, 12, 15, 17, and 20 meters *AND* you can also use this superb antenna for shortwave listening/DXing!

The versatility of this antenna makes it a surefire winner. This antenna is not inexpensive, but you buy quality, you get quality. Please read on.

How It Works

First, if you're a ham, you'll be able to toss your antenna tuner out the window because this high-tech marvel automatically "tunes" to whatever frequency you want. There are six preset buttons on the small in-shack controller, one for each band, or you can simply program your own frequencies and the antenna does the rest. Sit back and enjoy!

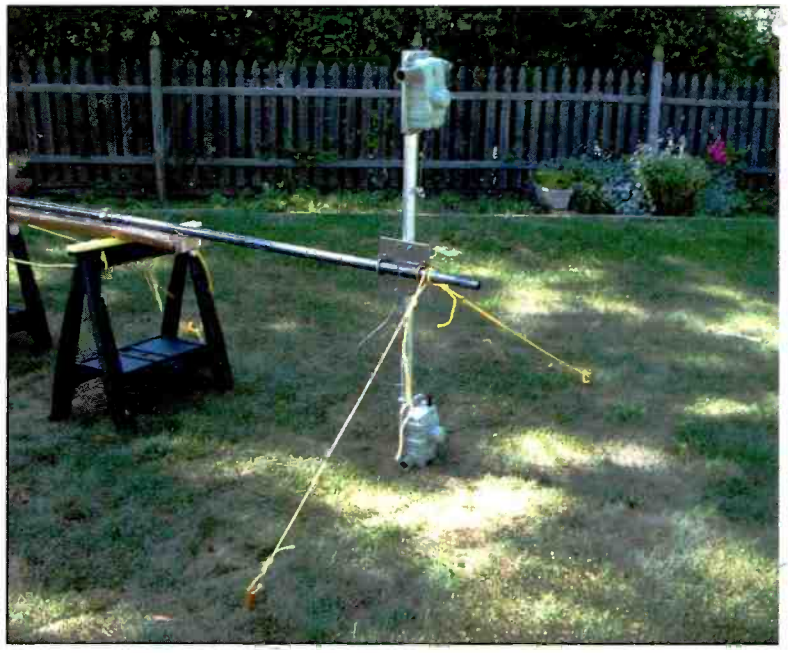
If you like unique on-air conversation pieces and a quality product, this antenna is right up your alley! The two-element SteppIR (they also have a three-element version) assembles on a 57-inch boom. The elements, which are constructed of hollow heavy-duty green-colored fiberglass, measure 16-feet on each side for a grand total of 36-feet on each side of the boom. A copper strip is driven out into the elements from the comfort of your shack; you simply "tell" the boom-mounted stepper motors (one for each element) what band (or frequency!) you want to use and wait a few seconds. The result is a Yagi with unparalleled performance with an SWR of 1 to 1 on any frequency. Try that with a multiband trap antenna or a G5RV!

Perhaps the most useful features of the SteppIR Yagi is its ability to instantly (okay, in three seconds) switch directionality. It's also just as easy (a simple button press!) to switch to the "bi-directional" mode giving you gain in both directions.

The Fluidmotion folks had a working cutaway version of the stepper motor and copper elements at the Hamvention along with an experienced *ham* staff ready to answer questions from the many curious visitors. While some hams have the real estate to install a large antenna, I don't. Besides, getting an antenna with two 36-foot elements past family and neighbors is sometimes a public relations task. I finally convinced my wife (and doubting neighbors who ended up helping raise it in position one Saturday afternoon) that this was a thing of beauty and, well, you know how it goes.

The antenna arrived in a sturdy cardboard box, well packaged and protected from the rigors of transit. Both stepper motors, the control unit, 24-Vdc switching power supply and cable were all packaged with tons of bubble wrap. (Frankly, it took longer to unwrap the parts than it did to understand the assembly process).

I'm an instruction manual junkie—if it's not written and illustrated well, chances are you'll have a problem with assembly.



A look at the SteppIR two-element Yagi temporarily "mounted" to poles during assembly. Note how the assembly is temporarily secured to make assembly easier.

The 15-pin male connector gets filled with silicone grease (included), then plugs into the included wiring harness, which then plugs into the antenna.

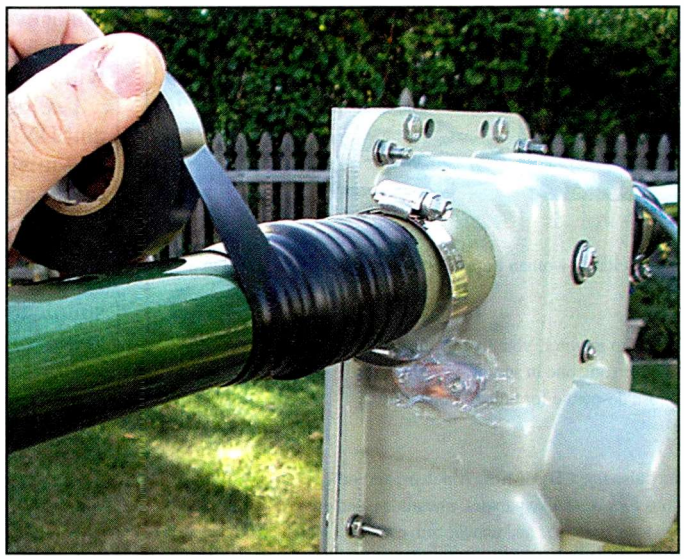
Such was not the case with this antenna. The manual is clear, concise, and perfectly illustrated with *photos* and drawings. The antenna comes complete with everything you'll need for assembly except coax and some helping hands.

The four hollow fiberglass elements fit snugly into the four receptacles on the stepper motor housings, then each telescopes out to 16 feet on each side of the housings. To assemble the antenna I used two common plastic work horses spaced about five feet apart. Not wanting to involve my family or neighbors in the basic assembly of the antenna, I anchored each of the horses down with rope and short tent stakes. This is necessary because once you bolt the boom and housing assembly together pushing the elements firmly into the housings *can* be a balancing act. Unless you're a professional stage dancer or acrobat, the horses (or boxes, tables, etc.) are definitely the way to go. Of course you can always place the boom on the ground and insert the elements, but you don't want to get foreign objects such as grass or dirt in the housings.

The two-element Yagi comes with one bracket already attached to the boom. Here you need to follow the directions very carefully, installing the other bracket (to which the housings attach) properly. The next step is to insert and extend the elements; it's simply a matter of pushing and turning the elements, then using the provided electrical tape to secure them to the housings and at each joint along the length of each element. I ended up using four more rolls of electrical tape and then coating each joint with 3M Electrical Sealant that sells for about $10 at Home Depot.

Connect your coax (I recommend RG8U instead of the smaller RG-58) and controller cable/harness. Since I don't believe in taking an antenna down once it's up, using plenty of electrical tape on the elements and silicone goop on the coax connection comes naturally. Better to do it right the first time!

The plug portion of the wiring harness is taped, then covered with silicone sealant (not included) to protect it from the harsh outdoor elements. It's then taped securely to the boom.



The elements are pushed into the housing, secured with several wraps of electrical tape, then further secured with the provided stainless steel hose clamps.

Judgment Day

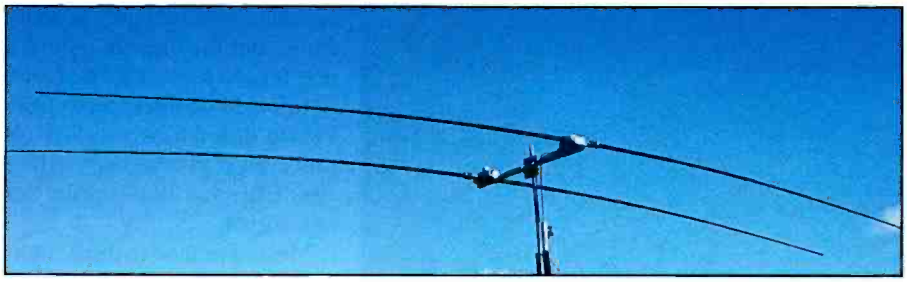
Up to this point, my total planning—and believe me, *planning* any antenna installation is supremely important—and assembly time was about three hours. Putting the antenna together was basically a snap. Mounting the antenna is not a one-person job—matter of fact, it's more like a three-person job. Please don't fool yourself on this even if you've been eating your Cheerios and working out at the gym.

Most of us tend to think higher is better, but few of us can either afford a $1,000-plus tower or install one. So my "tower" of choice is the RadioShack 15-5067 36-foot telescoping mast that typically sells for about $70. I removed the top portion of this heavy-duty mast after determining the top pole's diameter wasn't enough to adequately support the Yagi. I also removed and tossed the ring/clamp assemblies that would ordinarily hold the poles together, instead sliding each pole down about eight inches, drilling two holes through the lengths, and replacing the RadioShack clamps with two 1/4-inch stainless steel bolts and nuts, which I believe is much sturdier and secure for this 30-pound antenna. (And that's 30 pounds without an antenna rotor!)

So now, the total approximate length of my mast is about 28-feet. With all the guy wires and cables attached (I didn't use a rotor because, while the turning radius of the antenna is only 14 feet, it wouldn't turn without scraping my roof at my only available mounting location), a total of *three* neighbors helped secure it to the side of the house with two large brackets. Again, if you think you can do this alone, you can't. Even with my modest antenna height it's just too unwieldy for even two people.

Fact is, you can't miss this antenna. If you think that aluminum is the only way to go, think again. True, the copper strips will be traveling back and forth in the fiberglass elements thousands of times over many years, and there's always a possibility of a glitch with the control unit or in the stepper motors, but since installing this antenna two months ago I haven't experienced *any* problems. My first QSO was with a Russian ham on 20 meters. Subsequent contacts—many on 10 meters—were all made with ease using from 10 to 100 watts and an Alinco DX-77 rig. With one exception—a fellow in Brazil—all reports were 5/8 to 5/9.

Believe me, if you're tired of fiddling with tuners and go wild about SWR that isn't perfect, you'll be pleased with the StepIR antenna! For example, the 20-meter setting has three settings, one for each frequency "segment." They are 14.050, 14.200, and



The completely assembled SteppIR two-element Yagi.

14.300 MHz. Of course, you can always move up or down 25 kHz to set a *precise* operating frequency! Ten meters has a total of four settings because the band is so wide. In each instance my measured SWR was a perfect 1 to 1! You can't beat that with any antenna—and you're not using a tuner to fool your system into believing the SWR is good. It *is* good, no ifs, ands, or buts.

General Coverage Shortwave Listening/DXing

Having the SteppIR 2-element Yagi is like having a dipole cut for every conceivable shortwave frequency. You simply turn on the controller, select general frequency mode, pick the frequency, and go for it! Don't forget that you can switch to bi-directional mode at the push of a button or even push the 180-degree button to change the antenna's directivity—all without an antenna rotor!

I've done a lot of shortwave listening and DXing, especially recently. Stations that might ordinarily be in the mud were easily audible. Of course I realize that at $795 this antenna isn't for everyone. Money aside, it is a Yagi and requires a lot more planning and real estate than a simple longwire for SWLing/DXing, but when you consider the added value of a multiband Yagi—and all the amazing features—you're light years ahead with this quality high-tech antenna.

I must also address durability and wind survivability because a month after putting this antenna up we were socked with one of the worst storms I've ever experienced. The next day large branches were down and trees were uprooted. We were without power for 20 hours; many homes in our area didn't get reconnected for nearly a week. I accepted the obvious: this antenna (and my 2-meter dipole!) were history. I imagined those long fiberglass elements snapping like toothpicks under the extreme conditions, but that night with the yard a debris field of sticks and branches, there stood the SteppIR antenna. It's real-world testing that proved to me it's a quality product. You buy quality, you get quality.

For additional information on the Fluidmotion SteppIR 2-element Yagi, or their three-element version, contact them at Fluidmotion, Inc., 14135 233rd Place SE, Issaquah, WA 98027; Phone: 425-456-0200: Web: <www.fluidmotion.ws>. Please tell them you read about it in *Popular Communications*. ■

by Alan Dixon, N3HOE / WPUC720 / KST8678

Vintage CB Radio: Restoring A Realistic Classic

You just wouldn't believe the number of press releases I receive *every day* touting the **telematics revolution** and its alleged newness and uniqueness. As I have said previously, the primary thing that is new about "telematics" is the term itself.

It started, I believe, as one of those trendy, politically correct techno-babble sayings of the 1990s. In my estimation however, the original telematics revolution occurred in the 1970s. It centered entirely on the surging popularity of Citizens Band radio, which was adopted predominately as a *mobile* technology. Yes, there have always been base station radios in CB history, as well as handheld portables or walkie-talkies. But, *by far*, CB radio was and still is used as a mobile-to-mobile, that is, a car-to-car radio mode. By 1978, it seemed that just about everyone owned a CB radio. Typically, everyone who got into CB radio first got a mobile unit for their cars or trucks. Only then, after a person had a mobile CB, would one consider setting up a CB base station or acquiring a CB walkie-talkie.

Not including music and entertainment systems, telematics has its roots solidly in CB radio. You may be driving a beat-up 10- or 20-year-old car. But if you have a functioning CB radio then you are already equipped with this most fundamental, and perfectly functional, form of telematics.

You Can Count On CB!

Citizens Band radio really is great! One thing about CB that you can count on, at least since its fad days peaked a couple of decades ago, is that its fundamental operational technology never changes. We can view this as either a good thing or a bad thing, but whichever way we look at it, CB doesn't change.

CB is neither promised with, nor threatened by, "next-generation" technology. The digital voice transmission revolution marches right on by, unnoticed. Newer units are not offering CTCSS or DCS talk-group definitions. There's no thought of moving to a "better" frequency band or of adding any more channels. CB radio remains pretty consistent. The down side is that we will never get FM-quality signals. We won't even get static-free, digital-communications-grade speech. And we won't have anything like selective calling, to mention a few drawbacks.

So what's good in all of this? Well, there's a stability of sorts. It is precisely because CB technology refuses to change, that none of our old CB gear has become functionally obsolete. In 1976, the FCC expanded the number of Class D 11-meter voice channels from the original 23 up to our present 40 channels. That was the last significant *technical* change CB has undergone. Since that time we haven't had to worry that any piece of CB equipment we might procure would become *truly* obsolete.

Understand that when I say "truly" obsolete, I mean *functionally* obsolete—obsolete to the point of no longer functioning as intended. For example, did you know that the original FM broadcast band was centered about 45 MHz? Any old FM receivers operating in that band only have long been *functionally* obsolete. They may pick up present day public safety dispatch comms and some cordless phones, but they will no longer receive stations in the FM broadcast service. They have become, therefore, functionally obsolete.

The truly *good* thing about CB radio's basically unchanging technology is that every CB radio manufactured for the 27-MHz band since the very beginning, circa 1958, still works on the 11-meter CB band. And they work just about as well as anything else built in later years. Even the older 23-channel CB radios aren't missing out on much, considering the vast majority that operate only in the standard AM mode. The newer "upper forty" channels are mostly filled with sideband comms, particularly on Channels 35 to 40. But most of the AM action is on highway Channel 19 and the emergency-use Channel 9. Channels 6 and 23 see a lot of AM DX (long distance) activity. Channels 6, 11, 14, 21, and 23 are other popular AM channels, all obviously conveniently found in the original "lower 23."

What can you say about the functionality or obsolescence of that phonograph or 8-track tape player you may still own? They will still perform perfectly well if you have kept them maintained. But, if you are looking for *new* records or tape recordings, then you will feel the bite of functional obsolescence. Consider this: Will we still be able to use the wireless phones we have today well into the future? Roughly half of us won't be. The cellular industry thrives on forced obsolescence today much like the Detroit automakers did in the 1950s and 1960s. At least Detroit's obsolescence was related to style and comfort rather than functionality. After all, cars remaining from that era still run. However, those of us with AMPS ("analog") FM phones, and those of us with TDMA digital phones will very likely be left totally without service in as little as five years. The cellular industry is always looking for new ways to increase revenue. Forcing *you* to buy a new wireless phone every few years could be just the ticket!

Since old CB radios never seem to die, and since design and manufacturing techniques have definitely proved the adage "they don't make 'em like they used to," vintage CB radios are highly collectable. Older CB radio sets are not at all difficult to find, either. Go to any hamfest or nearly any garage sale and you will find them. At a hamfest you will likely find lots of them, and no matter where you find these classics, they will nearly always be dirt-cheap. And I do mean cheap. Many will already be marked at $5, or even just $1 or $2. Unless the seller knows that a particular CB is a sought-after classic, these old CB sets will rarely be marked over $10. In any event, haggle the price down to no more than $5 in most cases. When you are contemplating buying a dusty old mobile rig with hacked power leads and scratches on the case, you might want to remind the seller that today, anyone can buy a brand new full-power, all-channel mobile CB radio for less than $30 on sale. That hardly makes a slightly damaged, dirty old relic seem worth much more than a couple of dollars.

The Hollow-State Era, And Shack's TRC-61

There are two CB radio eras that seem to be of prime interest to collectors and restorers. One is the hollow-state era, when tube-type rigs ruled the nascent 11-meter CB radio world, from about 1958 through the early 1960s. The other is the CB fad period of the late 1970s.

Each period brought new and unique demands for new and unique radio equipment. The first time around, when Class D

CB radio was brand new, no one seemed to know *exactly* what form CB radio would take. Some manufacturers created earlier ham-style stations with separate transmitter and receiver units. Like earlier ham rigs, these receivers were often VFO design, rather than channelized, and were tuned entirely separately from the transmitters. Other units from that period were single-channel, intercom-style boxes.

In the 1970s, there were two driving forces of new product innovation. One was technology. The quartz Phase Lock Loop (PLL) tuner put an end to multiple crystals in radio sets. This, in addition to the adoption of Integrated Circuit (IC) microchip technology, radically changed CB radio design and manufacturing methods. The other driving force was regulatory. The FCC had expanded the 11-meter Citizens Band from 23 to 40 channels. Prices of new CB radio equipment came down, and millions of people "discovered" CB radio for the first time, due in large part to the popular media of the time. The entire CB radio phenomenon was at its peak!

From time to time, as you would expect here at "O-T-G Radio," we take a closer look at some classic CB radio sets. In this issue, we have a 1970s-era innovation and an eye-catching classic CB. Toward the beginning of the CB radio fad, around 1976, a few vendors tried radically different designs in an effort to appeal to the tastes and needs of a diverse new crowd of CB radio enthusiasts. **RadioShack**, in the '70s, was the single most visible mass-market retailer of specialty electronics. In a number of ways, RadioShack led the masses by hand, straight into the CB radio fad. Consequently, during those years, RadioShack introduced several innovative-design CB sets of their own.

One such model was the TRC-61 *One-Hander* CB transceiver (stock #21-161). This was the famous unit that had all the operational controls right on the hand microphone. The transceiver box had a speaker selector switch as its only control and could be mounted under a car seat or elsewhere out of sight and out of the way. As soon as you see this unit's chunky hand mic, you will immediately recognize this classic radio. At the time, RadioShack referred to the TRC-61 as a "handset" style radio. This description has confused it in the minds of a few collectors with RadioShack's later telephone-style CB radio with its distinctive traditional desk-type telephone handset. Better to remember the TRC-61 by its more popular and appropriately descriptive moniker, the "One-Hander."

One major problem mobile CB radio owners faced in the early days of the CB radio fad was theft. I have no statistics before me at the moment, but I would hazard a guess that more automobiles were broken into and burglarized in 1976 and 1977 than in the rest of the decade combined. The overzealous crooks were after only one thing: mobile CB radios in their flimsy under-dash mounts. This crime wave seemed to reach a level of insanity—just having a mobile CB radio had turned into an invitation to thieves. And these thieves were totally indiscriminate. They would steal any mobile CB radio, expensive or cheap, new or old, shiny new chrome or marred old plastic. It didn't matter. If you owned a car, van, or pickup truck equipped with a CB radio and parked it after dark anywhere but in your locked garage at home, more likely than not that radio would sprout wings one day and disappear.

No security risk was going to hamper the CB radio craze of the 1970s, though. No way. People would do whatever it took to help make things secure. Mostly, folks used thumbscrews or butterfly bolts to mount their mobile CB sets, making them easily removable when parked. An empty mounting bracket only looked as if a radio had *already* been stolen from the vehicle, after all. But putting away all of our toys after every trip to work, home, to the store, and so forth, became a nuisance chore before very long.

This security aspect is one reason why the One-Hander quickly became popular. Quite simply, the transceiver box could be mounted under a front seat or even inside a glove box. When in use, the mic, with all of the controls, would sit in a standard mic clip on a dashboard. When parked, the mic could be tucked back under the seat or into the glove box. The One-Hander offered a simple solution to a major problem.

I must admit, I never owned a One-Hander back in the CB radio fad days. I never seriously considered buying one, because I just couldn't settle for anything simple or unobtrusive. I had to have the biggest, and whatever I personally felt was the best, radio equipment for my vehicle. (And yes, I did have the biggest and the best ultimately stolen from my 4x4, too!)

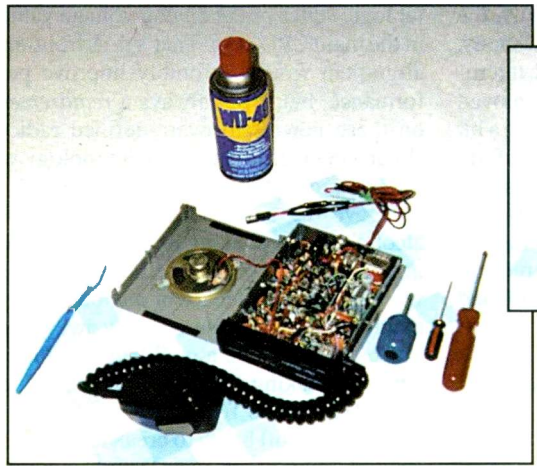
I was not alone in my criteria for choice of equipment. In the 1970s, long before cell phones and long before "digital" *anything*, a CB radio was something to be coveted. Likewise, just owning a mobile CB would make you an object of envy. So it went that whoever had the biggest, or best, or flashiest looking CB set had bragging rights. And it sure was difficult to brag about a CB that *appeared* to be nothing more than a microphone. You had to have a control panel, preferably chrome, and knobs—lots of knobs—and definitely a real lighted meter with a real pointer, not a wimpy LED bar display for signal strength! For that reason, the RadioShack One-Hander didn't exactly corner the CB radio market. It was made for the modest, prudent user, but (surprise!) CB radio was marked far more over-inflated ego than modesty. Nonethe-less, the One-Hander filled a significant niche market and no doubt saved a number of people the distress of having their cars broken into and their radios stolen.

I wasn't specifically looking for a One-Hander to add to my fledgling collection of classic CB equipment, but a neighborhood boy had acquired one from its owner, who himself had retired the unit. Apparently it had been installed in a van for a number of years and driven who knows where or how many miles. As I understand it, the van was eventually junked or traded, with the CB radio first having been removed. This CB then likely sat on a garage shelf for any number of years before being given to this neighborhood boy. This boy evidently felt he had no use for the radio, and after being briefly passed around several hands in my community, wound up being presented to me. The radio was said to be in working condition, but rather dirty. So, I decided to first clean it up, then fire it up.

Since the TRC-61 was designed in 1975 and manufactured in 1976, it is a 23-channel unit. It has a fairly large black plastic hand mic with a big rotary channel selector knob occupying most of the face of the mic body. Just below this dial are the speaker-microphone sound opening slots. The Push-To-Talk button is on the left, as viewed from

the front. On the back of the mic body, right at the top, is the squelch knob to the left, near the PTT button. On the opposite side of the back of the mic, is the squelch knob's twin, the on/off-volume knob. Both of these knobs are tiny and operate more like thumbwheels. A small orange pilot lamp illuminates the current channel selection at the top of the channel dial. That's it for the controls on the hand mic! And these are the only controls you will find on any *basic* CB radio.

Keep in mind that we are in a time warp here, back in the year 1976. (Stop moaning—at least we don't have to *really* re-live it!) Well, by 1976 standards, this would have been considered a basic CB radio except for the fact that it did have *all* of the (then) 23 channels, and it did have full 4-watt RF output power. Today, each and every CB mobile radio, even the very cheapest, has *all* of the (now) 40 channels, and full 4-watt RF output. But prior to major FCC rule revisions later in 1976—and considering that CB radios at the time typically needed separate crystals for each channel—it was quite common that mobile CB radios would have only three to six channels, and sometimes only 2 or 3 watts of TX power. This was done to keep costs down at a time in history when a modest mobile AM CB radio cost perhaps $500 in *today's* money. Some prices really have come down, even as inflation has increased dramatically. So, again, having full power and all-channel capability really did elevate the One-Hander to a status somewhat above mere basic, bare bones.



Cleaning up the TRC-61 One-Hander.

The classic One-Hander, restored and ready for display or installation.

The Transceiver Box

The One-Hander's transceiver box I acquired is a nondescript grayish-brown color. It is evident that the case's plastic cover has changed color over time, as some plastics tend to do. It could originally have been brown or beige or smoky gray. It's hard to tell. The faceplate is black, with the Realistic name and RadioShack "One-Hander" logo inscription and the declaration "All Channel—All Crystal."

The transceiver has a small internal speaker and there is an external speaker jack. The three-way slider switch allows the user the choice of internal (transceiver) speaker, external speaker (jack), or "handset" speaker. I definitely leave mine set to handset. For me, one of the most desirable, and one of the rarest, features in a mobile CB set was a speaker-mic function, where the mic is also used as a speaker. This is great for monitoring with the squelch open. The volume can be kept low and, when you hear something that you definitely don't want to miss, you can quickly and easily hold the mic near your ear, much like an earphone or a telephone handset. You really have to try a speaker mic while mobile to appreciate how really functional this configuration can be. Incidentally, this is only the second CB radio I have ever had my hands on that had this feature. (The other was a 1974-production Tenna Corporation Channel 9-only emergency mobile—another rare and interesting CB radio.)

These days however, I would no longer find the speaker-mic configuration desirable on a mobile CB radio. Its functionality remains, but in using this configuration you now run the risk of being ticketed by overzealous police officers who may conclude that such a CB radio is a cellular phone, or is as potentially dangerous as using a phone while driving. As it turns out, my classic One-Hander will be kept on display, on a shelf, fully connected and operational, but definitely *not* mobile.

Cleaning It Up

In the two photos here, you can see my efforts to restore the TRC-61. Different hobbyists and restorers have differing methods of cleaning up older equipment, and I have mine. I can't say that my methods are better or worse than anyone else's, or that any particular method will yield the desired results in any specific application or set of circumstances, but here's what I did.

I started by removing the plastic case halves and the faceplate. Likewise, I carefully opened the two halves of the microphone body. There is really no way to effectively deep-clean cases, faceplates, and knobs without separating and removing them. All three knobs were on the mic in this case, of course!

I hand washed the transceiver box case halves with a soft sponge using diluted dish detergent and warm water. The case halves had each been padded inside with very thin sheets of foam rubber insulation. I am not certain what the specific purpose of the foam was, but it had dried and was crumbling badly. Since I could see no specific *necessity* for the foam, I decided to discard it; thankfully, the foam sheets had merely been inserted into the case, not glued.

The mic on the TRC-61 is, interestingly enough, not removable from the chassis. Rather than being connected by means of a plug, the mic cable is permanently

hardwired to the chassis. Aadditionally, the two control potentiometers on the mic body, as well as the channel switch and microphone element, could not be easily removed from the mic body. This made cleaning a bit of a challenge. In this project, I carefully cleaned all the components in and associated with the mic with cotton swabs soaked in 90% isopropyl alcohol. When it was finished and dry, I used a soft brush to remove remaining swab lint from the mic case and components.

The chassis proper is a printed circuit board (PCB) surrounded by an aluminum (I believe) panel around its four edges. It really is a thing to behold: a clear snapshot of early 1970s technology. There is no surface-mounted technology. Its crystal cans form three neat lines on the board. Although this set is quartz crystal technology and covers all 23 CB channels, it has less than 46 crystals. An economical crystal frequency addition-subtraction algorithm scheme keeps the crystal count down to 14.

There are two real mechanical relays: one for on/off power, the other for TX/RX. The contrast between new and older technology really struck me, here. You know, if I had wanted to convert an older CB set like this to 10-meter amateur use, I would have had to replace at least six of the crystals, and would likely have had to realign the front-end L-C (coil-and-capacitor) tank circuits. To do this on a state-of-the-art CB set, I would only have to change either the digital logic states or the analog voltage values in the main CPU chip. That's it. A front-end alignment would definitely improve performance, but is not always a *requirement* on these newer firmware-defined radios. What a huge difference in methodology we see here, in just over a generation or so!

I gave the entire chassis assembly an alcohol bath by soaking it for a few seconds in a pan of alcohol. (Remember: When working around alcohol or any other flammable substance, be sure to stay away from flames and work in a well-ventilated area. And no smoking!) As I removed the dripping wet chassis from its alcohol bath, I again used a soft brush to break loose a substantial amount of dead bugs, cigarette ashes, and dried, crumbled foam rubber.

When the chassis *appeared* dry, and with all liquid alcohol safely out of the way, I used a hair blow-dryer set to COLD air (not all blow-dryers can be set to blow cold air) to finish drying the chassis, particularly the relay boxes. Concentrated alcohol dries rather quickly and takes water moisture with it. Once totally dry, some whitish "chalking" typically appears at places on a PCB and on its solder. To correct this and to prevent further corrosion and erosion on the PCB, I sprayed both sides, components and all, with WD-40. I was careful to spray the lightest coat possible and to let it air dry in still air. After that, I carefully dabbed up any remaining "oily" spots with a lint-free cloth.

The set was then ready for reassembly. This would have been a perfect time to spray-paint the case halves, but I opted for the more original appearance. With the One-Hander reassembled, it was ready for power-up and functional testing. I connected the TRC-61 to a bench power supply, RF meters, and a dummy load. It tested very well for RF power output and relative modulation; likewise when subsequently connected to an antenna. Subjective audio quality observed at a nearby receiver was excellent. This classic One-Hander works, and works well!

I must note that in this project, it was the technology of this CB radio, along with the fact that it was still operational (and not in need of any repair) when I acquired it, that allowed me to merely clean the unit before live, power-on testing. Had this radio been from just a generation earlier and contained either vacuum tubes or paper-wax capacitors, more inspection and testing may have been in order before powering up. The fact that this is a 12-volt mobile unit, rather than a 110-volt appliance, gives an added margin of safety against catastrophic failure in the event of a malfunction.

Next month we'll continue adding to the value of this classic mobile CB, and take a look at a great GMRS transceiver–the Maxon Enduro SM-6450. Remember, this is your column. Your questions and suggestions are always welcome! ■

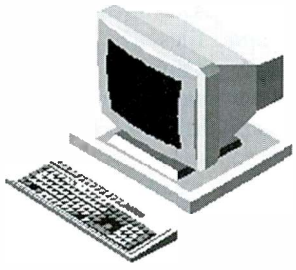
Popular Communications
February 2003 Survey Questions

	Circle Reader Service Number
My main source of news and information is:	
U.S. Network TV news	1
Network Radio news	2
Newspaper	3
News magazine	4
Shortwave radio	5
Foreign TV News	6
Overseas satellite broadcasts	7
The Internet	8
I use a computer in conjunction with my radio monitoring hobby	
Yes	9
No	10
I use a computer to control functions on my receiver	
Yes	11
No	12
Sometimes	13
Doesn't interest me	14
I use a computer to store and manage frequencies and data	
Yes	15
No	16
Sometimes	17
Doesn't interest me - I'm happy using a pen and notepad	18

computer-assisted radio monitoring

by Joe Cooper <joe@provcomm.net>

Frequency Database And Logging—Part II



In last month's column I began to look at how the structure and content of frequency databases are created and how they store information that can be used by computer software programs, such as those that can be used to tune compatible monitoring radios. This month I will look at various sources of frequency databases, some that can be used to simply look up information and others that can be used with Computer-Assisted Tuning (CAT) programs.

When I finished last month's column I had intended to examine the creation of database files of frequencies, but then I decided a better bridge topic into creating one's own files would be a look at existing sources of frequency database files.

Much can be gained by knowing how others have gone about creating good database files since many CAT programs are set up to use third party databases. Having a clear understanding of what databases are currently available, and how to set up and use them properly, is the best place to start creating your own database files. We'll soon discuss specific ways to create your own database files and how to use them in existing tuning CAT programs, but first let's see what frequency databases are available and how they are used.

Frequency Database Sources

The main consideration in selecting a radio frequency database is the part of the radio spectrum you currently (or wish to) monitor. There is a vast array of different radio databases to be found today and in a wide range of formats.

You can begin with printed lists and go on to computer files that you can either download from the Internet or purchase on CD-ROMs. Likewise, you can also use large databases of information located on a number of websites to look up frequencies, callsigns, and the addresses of public, private, and amateur radio stations.

Again, it is the range of frequencies, the types of radio services, and the type of monitoring that you want to do that will determine the database you'll want to use. I will provide you with a partial list of some of the better-known databases, go over how they can be used, and touch upon some of the many sources for these.

In general there are four main sources to consider: government agencies, commercial (for fee) services, radio-monitoring clubs, and individuals. Let's look at each.

Government Agencies—The FCC

In the United States the primary source for government databases listing non-military radio frequency use is the FCC. Frankly, the number of frequency databases that are available from the FCC is staggering. While the FCC has gone out of its way to ensure that the information is accessible and understandable for those with proper training and a knowledge of professional database systems, most of the FCC databases are out of the reach of most people. Users must be willing to invest in powerful, professional database programs, take the time to set up complex database structures, and have the storage capacity on their computers for huge files that may be nearly 100 megabytes in size.

All is not lost though. The FCC has set up special search areas on its website that allow people to access a considerable amount of information over the Internet. One good example of this is the AM, FM, and Television broadcaster database search engine.

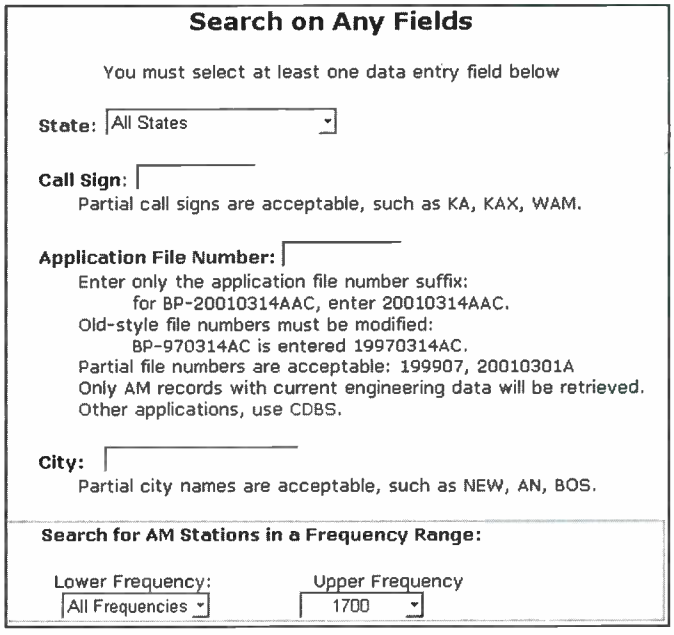


Photo 1. A portion of the AM Radio Station search page found at the FCC website. You can put in whatever information you wish to find, click the search button, and it will be brought up on a new screen. (Courtesy Federal Communications Commission)

If you go to the FCC's audio division search engine at <www.fcc.gov/mb/audio/index.html> you will be presented with some very powerful search tools, some of which are shown in Photo 1. From this location you get frequency and station information on all American radio and TV stations, as well as Canadian and Mexican stations along the U.S. border. You can also type in a latitude and longitude and find out the radio and TV stations found in a defined radius in kilometers. That search will also provide you with a list of low-power Traveler's Information Stations.

The databases allow you to find out information on a specific station or a group of stations. You can type in an individual callsign or ask for a list of all stations in a state. That search will provide you with the basic information about the stations' frequency, location, and power. By clicking on that information you can drill down deeper into the database, finding out further information, such as owner's name and address, antenna location, operation restriction, and callsign history, to name only a few items that are available.

WLIE	AM 540	kHz ND1	Nighttime	D B LIC	ISLIP
WLIE	AM 540	kHz ND1	Daytime	D B LIC	ISLIP
WLIE	AM 540	kHz DA2	Daytime	B B CP	ISLIP
WLIE	AM 540	kHz DA2	Nighttime	B B CP	ISLIP
WGR	AM 550	kHz DAN	Daytime	B B LIC	BUFFALO
WGR	AM 550	kHz DAN	Nighttime	B B LIC	BUFFALO
DWKNJ	AM 550	kHz DAD	Daytime	D B APP	LAKESIDE
DWKNJ	AM 550	kHz DAD	Daytime	D B CP	HARRIMAN
DWKNJ	AM 550	kHz DAD	Nighttime	D B CP	HARRIMAN

Photo 2. This is a partial result from making an inquiry in the AM Radio portion of the FCC database. You can "drill down" further by clicking on the radio station callsign, which will show you more information about the station. (Courtesy FCC)

If you take a look at Photo 2 you will see how the FCC database information has been structured following a standard database. You can freely use the FCC information for your own personal use. In a future column I will outline the exact method you can use to *transfer* this information into your own database.

The FCC search engine is not limited to these services. If you go to <http://svartifoss2.fcc.gov/reports/index.cfm> you will find several searchable databases that cover almost all of the frequencies and their related services in use today. From those searches you can get lists of all licensed radio services for a particular state, county, frequency, range of frequency, and a variety of other criteria.

Commercial Databases

There is a wide range of commercial databases available in a variety of formats and often at reasonable prices. Books of frequencies, CD-ROMs with large database files, and on-line services are available that support both the U.S. and international radio market.

Even though they are not directly usable by a computer, there are several lists of frequencies that are published in book form that can be used as a foundation for a personal database. The three most popular for shortwave broadcast listening are *Passport to World Band Radio,* by Larry Magne (Editor); *World Radio Television Handbook,* by David G. Bobbett (Editor); and *The Worldwide Shortwave Listener's Guide,* by John A. Figliozzi. All these books can be ordered through your favorite bookstore or can be purchased on-line through websites such as <www.amazon.com>.

If you're interested in going beyond the standard fare and want to monitor more difficult-to-hear targets, there are the books and frequency database CDs of Joerg Klingenfuss. His *Super Frequency List, Utility Radio List,* and *Shortwave Frequency List* are compiled using a wide variety of sources and are rigorously verified for accuracy. You can order them directly from his German-based company via the Internet at <http://ourworld.compuserve.com/homepages/Klingenfuss/> or though American retailers such as Universal Radio at <http://www.universal-radio.com>. The prices are reasonable for the amount of information provided.

For those of you who are interested in police, fire, railroad, marine, weather, space, and air services, there are a number of CD frequency lists that can be found on the market today. One of the most popular is *Mr. Scanner,* which uses the FCC database as the starting point, but organizes it according to a particular service and makes the information exportable in either ASCII text or dBase format. As a result you can use the *Mr. Scanner* data with popular CAT programs like Scancat-Gold, which has a built-in conversion utility specifically set up for *Mr. Scanner* files. *Mr. Scanner* is also available through Universal Radio or through its publisher, the Bearcat Radio Club, at <www.bearcat1.com/index. html>. The Bearcat Radio Club also publishes the *Betty Bearcat* CD, which contains additional frequencies.

There are many other radio frequency books and CDs on the market, some of which are geared to regional, state, province, or city locations, particularly for the scanner crowd. One good inexpensive book and CD combination is *Police Call,* which specializes in public safety and commercial frequencies and is available in nine regional editions covering the entire United States. You can get these through RadioShack stores or on line at <www.policecall.com>.

One of the best subscription on-line database services available is PerCon Corporation, which allows paying users to search their pre-organized and well-indexed information based on the FCC and other databases. The fee for the service is $24.95 for six months or $45.95 for one year. Some of the highlights of this database are all licensed U.S. stations, including amateur, aviation, and approximately 90 percent of the U.S. public safety stations. The database also contains all Canadian licensed stations.

Radio Monitoring Clubs

There is still a significant number of radio monitoring clubs around the world that specialize in different targets. One of the best lists of clubs that cover the radio spectrum "from DC to Daylight" can be found at the Association of North American Radio Clubs' (ANARC) website at <www.anarc.org/>.

A given club's interest and coverage can range from worldwide to a single city or county. Likewise, the types of frequency lists they may support may range from the very casual to the highest in professional standards. How you view these clubs' databases all depends upon your interests. As in all things, one person's gold is another's list of junk frequencies, so always approach a club list with some clear goals and intentions in mind.

Following is a brief description of some clubs and what they offer.

ANARC—They have a number of databases available, mainly from the work of individuals. Some of the lists include Mark Fine's databases, which are usable in a number of CAT programs or can be viewed as is. (See website above.)

All Ohio Scanner Club—This club offers a number of general lists of frequencies for services above 30 MHz. They can be contacted at <www.aosc.org/ genscan.html>.

Longwave Club of America—This group specializes in everything below the AM broadcast band and provides lists of Nondirectional Beacons, utility services, and military frequencies, and well as interesting phenomena such as Nature Radio. Their website is <www.anarc.org/ lwca/index.html>.

Association of Clandestine Radio Enthusiasts—This group specializes in Pirate Radio stations. While they don't have a list of frequencies, since only a few are actually used, they do have a discussion board where you can collect information on stations that have been monitored to use as a handy reference. Their website is <www.frn.net/ace/>.

Individual Sources

There are a number of databases that can be downloaded for free from individuals. Some of these are connected to the products of small companies that people have formed to promote software products or services. Some people have also set up database search services on their personal Web pages that you can use for free as well.

ILG Radio—Although this is a commercial company, it provides free shortwave radio schedules that can be downloaded from its site. These files can be viewed with software that ILG provides, or they can be imported into some CAT software. The website is <www.ilgradio. com/ilgradio.htm>.

Fineware—This is the home of the popular RLDB (Radio Listener's Database) CAT program that I have written about in the past. You can access the database software for that program for free from the site (<www.fineware-swl.com/>) and use it either with RLDB or other programs.

DxWorld—This is an individual's site that provides lists rather than downloadable files. You can create a list of various services, primarily in the mediumwave and HF range of frequencies. One of the main focuses of this site is AM radio lists, and you can compile one for a wide range of countries around the world, which makes this site rather unique. It is located at <http://dxworld.com>.

Wrapping Up

So as we have seen, there are many sources of database files out there that you can find and use. In each example, the database or list I provided follows the same basic format for databases I discussed in the last column (see "A Quick Review..." for a recap if you need one).

In future columns I will provide you with more detailed information on how to use the information provided in these databases or lists so you can create your own databases that reflect your own personal monitoring needs.

Really, with a bit of practice, experimenting, and understanding, putting together or editing your own databases will be a fairly straightforward proposition. There will always be a learning curve and mistakes, but it's not nearly as bad as you may think.

Next Month

For the next two columns I am going to be pulling all of the information I have been looking at in detail over these past six columns into focus. What is a computer-assisted radio monitoring station? How are all of the tools and techniques I have been talking about put into practice? How do you get the most out of your radio monitoring time by using a personal computer? Those are some of the questions I'll be answering. By the time I am finished, you'll see in practical terms how everything fits together and that it doesn't have to cost and arm and a leg to set up.

I will also be looking at logging programs separately in a future column as they are very important and require some special attention. I will, however, be mentioning some examples and talking about their use in the next two columns. Likewise, the actual mechanics of creating a database file will be looked at on its own sometime in the future as well.

Don't forget that you can e-mail or write to me with ideas, comments, and suggestions. The e-mail address is <joe@provcomm.net> and my mailing address is "Computer-Assisted Radio Monitoring," C/O Joe Cooper, PMB 121, 1623 Military Rd. Niagara Falls, NY 14304-1745.

Don't forget that I cannot answer general questions about computers, software, or operating systems, but I will do my best for any questions about the content of the columns or computer-assisted radio in general. Thanks again and I hope that the information provided here will help you get the more out of your computer and radio monitoring than you ever thought possible. ■

A Quick Review of a Database Structure

As I showed you last month, the actual structure of a database file is fairly simple. It is made up of rows and columns of information that is stored in a computer file as text (actually the same text as you use in a word-processing program).

A column is used to organize a specific type of information, such as callsigns, frequencies, or mode of operation, and they always have a title or header, whether it is shown in the database or not. Rows are used to store individual events, such as a logging of one station's activity. Rows sit across columns, going left to right. Where a column and row meet is called a cell. Cells hold a single piece of information, such as a callsign, frequency, or whatever is correct for that location. You can add a column heading and you have a finished database. The result may look like the following:

Call Sign	Frequency	Location	Type	Mode	Time	Target
A	339 kHz	Havana Cuba	LF Beacon	MCW	24 hr	Omni direction
WSM	650 kHz	Nashville TN	AM Broadcast	AM	24 hr	Clear Channel
Radio Prague	7.345 MHz	Czech Republic	SW Broadcast	AM	0000 hr	North America

Most Microsoft Windows programs come with word possessing programs, such as Word or Word Pad, which can be used to create or modify text-based database programs.

You may also have Microsoft Excel installed, which can be used to modify spreadsheet-style database programs. Even those who use Apple- and Unix-based operating systems are able to use equivalent programs to perform the same tasks.

clandestine communiqué

tuning in to anti-government radio

by Gerry L. Dexter

A Frequency Change In Afghanistan, And New Stations YOU Can Hear

A couple of new players have joined the clandestine game recently, and both are aimed at first-time target countries. Let's take a listen.

Sout Al Watan (Voice of the Fatherland) is broadcasting to Syria on behalf of the Syrian Muslim Brotherhood Movement (SMBM), which uses its program time to criticize the Damascus government for its human rights violations and for banning the SMBM within the country. The station is operating simultaneously on two 12-MHz channels: **12085** (which, of course, is one of Syria's regular frequencies) and **12115**, and it's also active on **9950**. Broadcasts are on the air from 0330 to 0400 on 9950 and 1500 to 1530 on 12085 and 12115 although the latter two are a bit out of sync. Two different out-of-country transmitter sites seem to be in play here, one of them perhaps in Russia. Needless to say, all of the programming is in Arabic.

The second new one is **Radio Dat** (I resisted the temptation to start this paragraph with "Who Dat?"). This one is beamed at Kazakhstan and calls itself "independent radio of Kazakhstan." It's active with Russian language broadcasts from 0100 to 0200 and 1500 to 1600 on **9775**.

The U.S. psy-war operation in **Afghanistan** has apparently discontinued use of **8700** in favor of **6100**, which makes what was difficult reception in the U.S. even more difficult. The broadcasts go out for 18 hours a day from a U.S. military base at Kandahar. All broadcasts are in Pashto and Dari.

Salama Radio uses a BBC transmitter to get its voice into Nigeria from 1900 to 2000 on **15250** with programming in Hausa and other Nigerian languages.

Radio Sagalee Oromia, beamed to Ethiopia, is active again, running from 1730 to 1800 on **12110**.

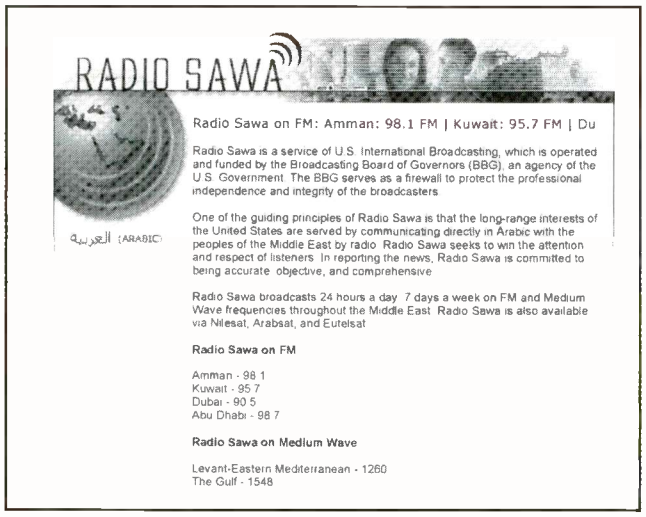
Richard D'Angelo (PA) has heard the anti-Zimbabwe clandestine **Voice of the People** from 0335 tune-in to 0420 tune-out on **7310**. This one has been heard fairly widely and frequently, despite the strong QRM it has to overcome.

D'Angelo also reports hearing the **Voice of Oromo Liberation** to 1759 closing on **15670**. This one is also beamed at Ethiopia and is broadcast via Julich, Germany.

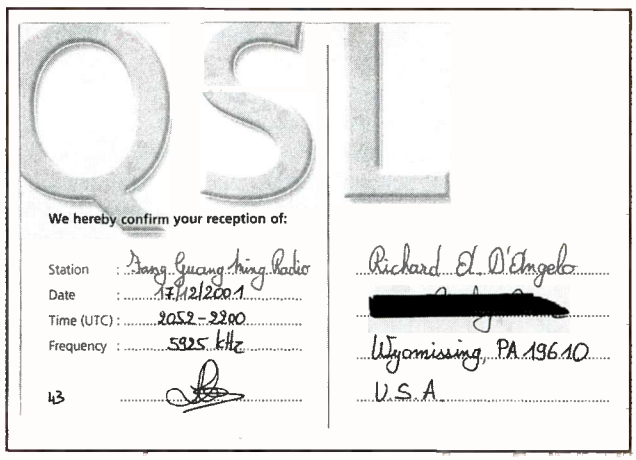
The **New Star Broadcasting Station**, which we have discussed on several occasions over the past year, continues to fascinate. It turns out that the Hotmail e-mail address they were reported to have announced as part of a request for listeners to write to them is a dud. But it must have been legit when it was announced, then later dumped. Endless speculation continues as to why they would do such a thing but, in the long run, we have to admit that little has changed as far as knowledge of this station is concerned—we're still left to guess at things!

That does it for this time. Remember that your input on the subject of clandestine broadcasting is always wanted and welcome! That includes your logs, station-operating schedules, addresses, postal or e-mail or websites of stations or the groups which operate them, as well as photocopies of any QSLs or other info you may receive from stations or otherwise run across. Thanks so much for your continued interest and support!

Until next month, good hunting! ■



Radio Sawa is the new U.S. Arabic language broadcasting service trying to tell the U.S. story to the Middle East. Although not mentioned on the website, the service can be heard on a few shortwave frequencies.



Richard D'Angelo got this QSL card from anti-PRC station Fang Guang Ming Radio.

Tap into *secret* Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

Plug this self-contained MFJ *MultiReader*™ into your shortwave receiver's earphone jack.

Then *watch* mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

You'll *read* interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . .

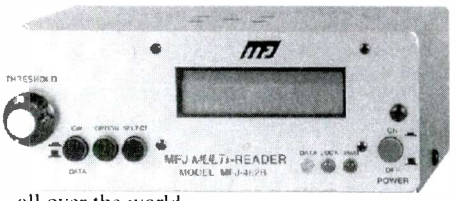
Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqui News in Iraq -- all on RTTY.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive *error-free* messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime



-- all over the world --
Australia, Russia, Japan, etc.

MFJ-462B **$179.95**

Printer Monitors 24 Hours a Day

MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

Printer cable, **MFJ-5412**, $9.95.

MFJ *MessageSaver*™

You can save several pages of text in an 8K of memory for re-reading or later review.

High Performance Modem

MFJ's high performance *PhaseLockLoop*™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a brushed aluminum front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ *AutoTrak*™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $14.95. 5¼Wx2½Hx5¼D inches.

No Matter What™ One Year Warranty

You get MFJ's famous one year *No Matter What*™ limited warranty. That means we will repair or replace your MFJ *MultiReader*™ (at our option) *no matter what* for one full year.

Try it for 30 Days

If you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping). Customer must retain dated proof-of-purchase direct from MFJ.

Super Active Antenna

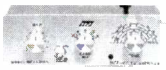
"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."*

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

MFJ-1024 **$139.95**

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $14.95.

Indoor Active Antenna



MFJ-1020B **$79.95**

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020B is a *"fine value... fair price... best offering to date... performs very well indeed."*

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

Compact Active Antenna

MFJ-1022 **$49.95**

Plug this *compact* MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz-200 MHz including low, medium, shortwave and VHF bands.

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, $14.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$179.95**

New! ***Completely*** eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959B **$99.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

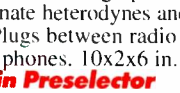
Dual Tunable Audio Filter

MFJ-752C **$99.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector

MFJ-1045C **$99.95**



High-gain, high-Q receiver preseletor covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, $14.95.

CW, RTTY, ASCII Interface

MFJ-1214PC **$149.95**

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, manual and *JumpStart*™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector

MFJ-956 **$49.95**

High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 inches.

Super Passive Preselector

MFJ-1046 **$99.95**

New! **Improves** any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

Easy-Up Antennas

MFJ-38 **$16.95**

How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

MFJ Antenna Switches

MFJ-1704 **$64.95**

MFJ-1702C **$24.95**

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. Good to 500 MHz. 60 dB isolation at 30 MHz. **MFJ-1702C** for 2 antennas.

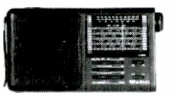
World Band Radio Kit

MFJ-8100K **$69.95** *kit*
MFJ-8100W **$89.95** *wired*

Build this regenerative shortwave receiver kit and listen to signals from all over the world with just a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands.

21 Band World Receiver

MFJ-8121 **$39.95**



MFJ's new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. *Sony*® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size!

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FAX: (662) 323-6551; **Add s/h**
Tech Help: (662) 323-0549

world band tuning tips

your monthly international radio map

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 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	9580	Radio Yugoslavia	
0000	15385	Radio Exterior de Espana, Spain	
0000	9737	Radio Nacional, Paraguay	SS
0000	9705	Radio Mexico Int'l	SS
0000	6145	Radio Japan/NHK, via Canada	
0000	4845	Radio Mauritanie, Mauritania	AA
0000	11690	YLE/Radio Finland	Finnish
0000	13605	All India Radio	
0000	11830	Radio Anhanguera, Brazil	PP
0000	11870	University Network, Costa Rica	
0000	6215	Radio Baluarte, Argentina	SS
0000	11570	IBC Tamil (clandestine), via Russia	
0030	11690	Radio Vilnius, Lithuania	
0030	9985	Radio Denmark, via Norway	DD
0030	4832	Radio Litoral, Honduras	SS
0030	4052	Radio Verdad, Guatemala	SS
0100	9440	Radio Slovakia	
0100	6536	Radiodifusora Huancabamba	SS
0100	11800	RAI Int'l, Italy	
0100	5930	Radio Slovakia	
0100	9925	Voice of Croatia, via Germany	EE/others
0100	9900	Radio Cairo, Egypt	AA
0100	9745	HCJB, Ecuador	
0100	6040	Deutsche Welle, Germany, via Canada	
0100	6420	Radio Tropical, Peru	SS
0130	11825	Voice of Russia	
0130	11765	RAI Int'l, Italy, via Ascension	II
0130	11675	Radio Kuwait	AA
0130	9560	Voice of Islamic Rep. of Iran	AA
0130	6895	Radio San Miguel, Peru	SS
0130	5678	Radio Ilucan, Peru	SS
0130	11635	Radio Denmark, via Norway	DD
0130	11745	Voz Cristiana, Chile	SS
0130	9580	China Radio Int'l, via Cuba	
0130	6155	Radio Telefis Eireann, via England	
0145	9650	Vatican Radio	
0145	6115	Radio Tirana, Albania	
0200	9720	RTT Tunisienne, Tunisia	AA
0200	9560	Radio Korea Int'l, S. Korea, via Canada	
0200	7180	Voice of Russia, via Moldova	
0200	6458	Armed Forces Network, Puerto Rico	USB
0200	6819	La Voz de Huaringas, Peru	SS
0200	6185	Radio Educacion, Mexico	SS
0200	11920	RTV Marocaine, Morocco	AA
0200	11585	Kol Israel	HH
0200	17510	KWHR, Hawaii	
0200	4875	Radio Difusora Roraima, Brazil	PP
0200	9475	Radio Cairo, Egypt	
0200	7210	Radio Minsk, Belarus	
0200	6075	Deutsche Welle, Germany, via Antigua	GG
0200	11710	RAE, Argentina	
0200	4960	Radio Villa/R. Cima, Dominican Republic	SS
0230	9490	Radio Sweden	
0230	15400	UAE Radio	AA
0230	11640	Far East Broadcasting Assn., Seychelles	Pashto
0230	4886	Radio Virgen del Carmen, Peru	SS
0230	9570	Radio Budapest, Hungary	
0230	4845	Radio K'ekchi, Guatemala	SS
0230	7475v	Voice of Greece	unid
0230	11600	Radio Prague, Czech Republic	
0230	7160	Radio Tirana, Albania	
0300	6265	Zambia National Broadcasting Corp.	
0300	9680	Radio Taipei Int'l, Taiwan via WYFR	
0300	7270	Voice of Turkey	
0300	4991	Radio Apinte, Surinam	
0300	7290	Voice of of America relay, Sao Tome	
0300	15355	Radio Oman	AA
0300	3360	La Voz de Nahuala	SS
0300	7385	Radio Prague, Czech Republic, via WRMI-FL	
0300	5025	Radio Rebelde, Cuba	SS
0300	9690	China Radio Int'l, via Spain	
0300	4919	Radio Quito, Ecuador	SS
0300	5920	WBOH, North Carolina	
0300	4820	Radio Botswana	
0300	6035	Channel Africa, South Africa	
0330	6175	Voice of Vietnam, via Canada	
0330	6940	Radio Fana, Ethiopia	vern.
0330	7120	Voice of Islamic Rep. in Iraq (cland) via Iran	AA
0330	7285	Sudwestfunk, Germany	GG
0400	6195	BBC England, via South Africa	
0400	7120	BBC England, via South Africa	
0400	12095	BBC England, via Cyprus	
0400	5855	Voice of America relay, Botswana	

UTC	Freq.	Station/Country	Notes
0400	9675	Radio Cancao Nova, Brazil	PP
0400	6180	Radio Nacional, Brazil	PP
0430	12060	Radio Voice of Hope via Madagascar	unid
0430	7255	Radio Sawa, USA via Morocco	AA
0445	7345	Vatican Radio	
0600	11765	BBC England, via South Africa	
0600	5100	Radio Liberia Int'l	
0600	11715	Radio Japan/NHK	RR
0600	5030	Radio Burkina, Burkina Faso	FF
0600	6070	CFRX, Canada	
0700	4835	RTV Malienne, Mali	FF
0800	3291	Voice of Guyana	
0800	6010	La Voz de tu Conciencia, Colombia	SS
0800	3280	La Voz del Napo/Radio Maria, Ecuador	SS
0900	6135	Radio Santa Cruz, Bolivia	SS
0930	9790	Radio Netherlands via Bonaire, NWI	
1000	12085	Voice of Mongolia	
1030	4960	Radio Federacion, Ecuador	SS
1100	4830	Radio Tachira, Venezuela	SS
1100	5020	Solomon Is. Broadcasting Corp.	BBC
1100	11675	Radio New Zealand	
1100	7295	Radio Malaysia	
1100	3905	Radio New Ireland, Papua New Guinea	
1100	17670	Radio Free Europe, via Greece	
1100	4800	Radio Buenas Nuevas, Guatemala	SS
1100	9615	KNLS, Alaska	
1100	4770	Radio Centinela del Sur, Ecuador	SS
1100	9665	Radio Singapore Int'l	II/EE
1130	3315	Radio Manus, Papua New Guinea	
1130	3345	Radio Northern, Papua New Guinea	
1130	15175	Radio New Zealand Int'l	
1130	3260	Radio Madang, Papua New Guinea	Pidgin
1200	11785	Voice of America via Thailand	
1200	11945	BBC England via Singapore	CC
1200	15550	Voice of Russia	RR
1200	15250	Voice of America relay, Philippines	CC
1200	4890	NBC, Papua New Guinea	
1200	15240	Voice of America relay, No. Marianas	
1200	11605	Radio Taipei Int'l, Taiwan	CC
1200	4753	Radio Republik Indonesia, Makassar	II
1200	6937	Yunnan PBS, China	CC
1200	9580	Radio Australia	
1200	9525	Voice of Indonesia	
1230	9840	Voice of Vietnam	
1230	17505	Radio Sweden	
1230	17670	YLE/Radio Finland	Finnish
1230	13570	WINB, Red Lion, PA	
1330	18940	Radio Afghanistan via Norway	Pashto
1330	15190	BBC, England	
1400	15225	Radio Romania Int'l	Romanian
1400	15760	Kol Israel	HH
1500	21600	UAE Radio	Dubai FM
1500	15425	Sri Lanka Broadcasting Corp.	
1500	11570	Radio Pakistan	
1500	11690	Radio Jordan	
1500	17630	Africa Number One, Gabon	FF
1530	11600	Far East Broadcasting Assn., Seychelles	
1530	11775	Voice of Islamic Rep. of Iran	
1600	15100	Radio Pakistan	Urdu
1600	15475	Africa Number One, Gabon	FF
1600	15605	Radio France Int'l	
1700	15255	Voice of America relay, Greece	
1700	12115	Voice of Mesopotamia (clandestine) via Russia	Kurdish
1730	15670	V of Democratic Eritrea (cland) via Germany	Mon/Th
1800	17720	Radio Pilipinas, Philippines	
1900	11805	Deutsche Welle relay, Rwanda	
1900	15735	Voice of Russia	
1900	21655	RDP Int'l, Portugal	PP
1900	17605	Radio Netherlands via Bonaire, NWI	
1900	17545	Kol Israel	
1900	12050	Radio Cairo, Egypt	AA
1900	11775	Caribbean Beacon, Anguilla	
1900	9780	Republic of Yemen Radio	AA
1930	13645	Swiss Radio Int'l	
1930	9925	Radio Vlaanderen Int'l, Belgium, via Russia	
1930	13720	Deutsche Welle, Germany	
1930	11900	Radio Bulgaria	
1930	13745	BBC, England	
1930	11655	Radio Netherlands via Madagascar	
2000	15220	Swiss Radio Int'l, via Germany	GG
2000	9895	Radio Netherlands	
2000	15345	RTV Marocaine, Morocco	AA
2000	11955	Radio France Int'l, via Gabon	FF
2030	9680	Voice of Thailand	
2030	11990	Radio Kuwait	AA
2030	15545	Voice of America relay, Sri Lanka	AA
2030	11645	Bible Voice Broadcasting Network, England	
2030	13750	Radio Havana Cuba	
2030	11905	Radio Tashkent, Uzbekistan	
2100	9840	Radio Exterior de Espana, Spain	
2100	15445	Voice of America relay, Morocco	
2100	15435	Radio Jamahiriya, Libya	AA
2100	11620	All India radio	Hindi
2100	9950	All India Radio	
2100	15445	Voice of America relay, Botswana	
2100	15325	Radio Canada Int'l	
2130	13610	Radio Damascus, Syria	
2130	15230	Broad. Svc of Kingdom of Saudi Arabia	AA
2200	11960	Voice of Turkey	
2200	15555	RDP Int'l, Portugal	
2200	15120	Voice of Nigeria	
2200	9580	Africa Number One, Gabon	FF
2200	9695	Radio Rio Mar, Brazil	PP
2200	17680	Voz Cristiana, Chile	SS
2230	11895	Radio Japan./NHK via French Guiana	JJ
2230	7210	Radiodifusion du Benin	FF
2300	12020	Voice of Vietnam	VV
2300	9570	Radio Romania Int'l	
2300	7125	RTV Guiniennee, Guinea	FF
2300	9400	Radio Bulgaria	
2330	7135	RTV Marocaine, Morocco	AA
2330	9875	Radio Vilnius, Lithuania	
2330	11780	Radio Nacional Amazonas, Brazil	PP
2330	5985	Radio Congo, Brazzaville	FF
2330	15565	Radio Vlaanderen Int'l, via Bonaire	
2330	5970	Radio Itatiaia, Brazil	PP

power up:
radios & high-tech gear

by Harold Ort, N2RLL

review of new, interesting, and useful communications products

New BP1700 Bearcat Scanner Battery

Lee Electronics Company of Pennsylvania announced a new, improved Bearcat scanner radio battery. The new BP1700 surpasses the popular BP1600 NiMH battery pack. According to Lee Electronics' news release, the new battery "uses the best cells on the market, averaging 1700 mAH. Customers report using the BP1700 for three to seven days on one charge."

The BP1700 charges right in your radio just like the original NiCD battery. NiMH-based batteries have no memory effects like NiCD batteries, so you can "top off" the BP1700 every night and start with a fresh, fully charged battery each day. This virtually eliminates the need for DC car chargers. The battery can be charged thousands of times.

The BP1700 fits Uniden models BC245XLT, BC235XLT, SportCats, and PRO-90, and may fit the new BC250D digital scanners. One of the best features of this improved product is the price. Since these are manufactured in the United States, Lee Electronics has kept the price the same: just $24.50 plus nominal shipping via U.S. mail. You can order the BP1700 by calling the company at 800-578-6006 or through their website at <www.LeesElect.com>, and be sure to tell them you read about their new BP1700 battery in *Pop'Comm*!

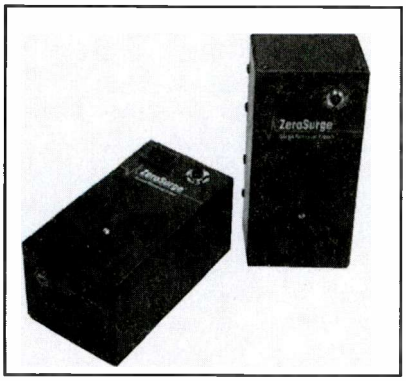
While this photo is the BP1600 battery, the new BP1700 scanner battery from Lee Electronics Company is still $24.50.

New Zero Surge Protector Offers Versatility!

Zero Surge Inc. of Frenchtown, New Jersey, recently introduced two new surge removal filters that offer much needed versatility. The new 2R8 and 2R8IEC are two-receptacle, 8-amp stand alone models that will protect a typical computer system. The IEC model comes with an IEC connector (the type that's on the back of a CPU) and a cord with a standard 120-volt plug. This versatility allows the surge protector to be plugged into a standard outlet or used directly with the IEC connectors supplied with computers, computer accessories, and even audio equipment.

The 2RIEC is also available with Spectrum WVR (wide voltage range) technology, making it ideal for international use. This patent-pending technology operates effectively from 85 to 265 volts, dynamically stopping surge current as well as surge voltage and is a necessity where voltage variations, such as brownouts, exist. With this option, the 2RIEC can be used for 120, 208, and 240-volt applications, which is ideal for overseas applications as it eliminates the need for an adapter.

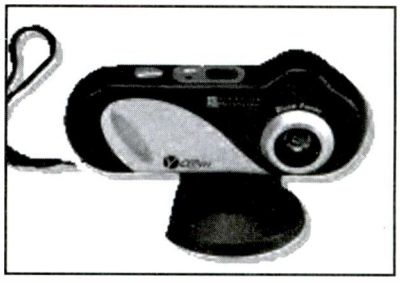
Zero Surge, Inc., manufactures *certified* Grade A endurance, Class 1 performance, Mode 1 application surge removal filters. They have over 50 models accommodating a wide range of applications. The products do not contain MOVs (metal oxide varistors) which wear out with use. For more information contact Zero Surge Inc. at 908-996-7700 or visit them on their website at <www.ZeroSurge.com>.



The Zero Surge models 2R8 and 2RIEC surge protectors.

New Webcam, Digitalcam, Videocam All-In-One Digital Camera

The new YC@M digital camera takes innovative technology to a whole new level. This unique 3-in-1 digital camera sports a webcam, digital, and video camera all in one simple-to-use compact unit with enough memory to hold 26 high-resolution images or 107 standard resolution images. Images can be downloaded to your PC or Mac using the provided USB cable; there they can be viewed and edited with the included photo editing software on CD-ROM. The camera runs on just two "AA" batteries (included) and comes with a cradle for video conferencing in webcam mode, a handy carrying strap, and storage pouch.



Scientific's all-in-one digital camera stores 26 high-resolution images.

The new YC@M 3-in-1 Digital Camera (No. 30392-00) is $89.95 from Scientifics at 716-874-9091 or 800-728-6999. You can also visit Scientifics on the Web at <www.scientificsonline.com> or write them at Dept. A021-C999, 60 Pearce Avenue, Tonawanda, NY 14150-6711.

Palomar Engineers' New Improved Loop Antenna System

Palomar announces a new improved version of their popular loop antenna system. It has over 10 dB additional gain and sensitivity, and features both rotation and tilt to match the incoming wave angle. This provides deep nulls on local noise and received signals.

The system consists of a loop amplifier and plug-in loops. Loops are available for the LF band (150 to 550 kHz); the AM broadcast band, including the new expanded band (530 to 1700 kHz); and the nighttime shortwave and 160- and 80-meter ama-

teur bands (1700 to 6000 kHz). The Loop Amplifier has a rear panel clip to hold a 9-volt battery and an SO-239 (UHF) connector for connection to the receiver.

For the broadcast band DXer, the loop's tilt feature can eliminate local noise and interfering stations. Nulls are very good on local stations and, in the low-frequency half of the band, on distant stations. On shortwave and the amateur 160- and 80-meter bands the loop is particularly useful in noisy locations, with less noise pickup than other antennas, and it can null out local noise while still providing reception of distant stations in all directions.

Palomar Engineers' new improved version of their popular loop antenna system.

The new loop system components are now available from factory stock. List prices for the amplifier and the plug-in loops are $135 for each. Please note that the loops do not work without the amplifier.

For more information visit <www.Palomar-Engineers.com> or write Palomar Engineers at P.O. Box 462222, Escondido, CA 92046 or phone 760-747-3343. You can also fax them at 760-747-3346.

PowerPort Radio Wallet™

Looking for a padded box to hold your handheld scanner and a few accessories? If you've tried everything from camera cases to cosmetic bags, you've found they all have one thing in common: All the parts bang into each other, rattle around and probably get scratched and damaged more than if you put it in your brother-in-law's tool box! The answer could be the Radio Wallet™ by Cutting Edge Enterprises.

The case comes in two sizes to accommodate a side variety of radios. The Standard RadioWallet™ is 7" x 4" x 2" at $29.95, and the Large RadioWallet™ is 10" x 4 1/2" x 2 1/2" for $34.95. Each is constructed of padded, heavy-duty nylon and nicely finished edges. There's a smooth, padded inner divided pocket that separates the two halves of the case, giving you a way to protect all your equipment without wrapping them in socks. The case fits well in the hand and has a belt clip on the smaller case and a hand strap if you prefer.

For more information on the PowerPort Radio Wallet™ contact Cutting Edge Enterprises at 800-206-0115 or visit them online at www.powerportstore.com. Be sure to tell them you read about it in *Pop'Comm*. ■

the propagation corner

by Tomas Hood, NW7US
<pc-prop-man@hfradio.org>

up-to-the-minute forecasts helping you get the most from the radio spectrum

Free Geophysical Alerts On Shortwave: WWV And WWVH

I have received a number of e-mails and letters from readers. One question that has come up several times regards the solar and geomagnetic reports transmitted on the WWV and WWVH radio stations.

The National Oceanic and Atmospheric Administration (NOAA) uses these radio stations to issue geophysical alert messages that provide information about solar terrestrial conditions. Geophysical alerts are broadcast from WWV at **18 minutes after the hour** and from WWVH at **45 minutes after the hour**. You may also access these alerts on the Internet at <www.sec.noaa.gov/ftpdir/latest/wwv.txt>. The messages are less than 45 seconds long and are updated every three hours (typically at 0000, 0300, 0600, 0900, 1200, 1500, 1800, and 2100 UTC). More frequent updates are made when necessary.

WWV radiates 10,000 watts on 5, 10, and 15 MHz, and 2,500 watts on 2.5 and 20 MHz. WWVH radiates 10,000 watts on 5, 10, and 15 MHz, and 5,000 watts on 2.5 MHz. Each frequency is broadcast from a separate transmitter. Although each frequency carries the same information, multiple frequencies are used because the quality of HF reception depends on many factors, such as location, time of year, time of day, the frequency being used, and atmospheric and ionospheric propagation conditions. The various frequencies make it likely that at least one frequency will be usable at all times. You may read the details about WWV and WWVH at <www.boulder.nist.gov/timefreq/stations/wwv.html>.

The geophysical alerts provide information about the current long-distance HF radio communication conditions. The alerts use a standardized format and terminology that requires some explanation. Check out the standing box for a definition of some of the terminology used in these messages and for the scales used in the alerts.

Every geophysical alert consists of three parts. Part One contains the solar-terrestrial indices for the day, specifically the solar flux, the A index, and the K index. Part Two covers Space Weather storms observed during the previous 24 hours, including all observed geomagnetic storms, solar radiation storms (proton events), and radio blackouts (class M1 and greater flares). Part Three gives the Space Weather expected during the following 24 hours. The following is an example of a geophysical alert:

Solar-terrestrial indices for 08 February follow. Solar flux 109 and Mid-Latitude A-index 27.
The Mid-latitude K-index at 1500 UTC on 08 February was 4.

Space Weather for the past 24 hours has been severe. Solar radiation storm(s) reaching the S4 level is in progress. Radio blackouts(s) reaching the R2 level occurred.

Another example:

Solar-terrestrial indices for 08 February follow. Solar flux 109 and Mid-Latitude A-index 17.
The Mid-latitude K-index at 1500 UTC on 08 February was 3.

No Space Weather storms have been observed during the past 24 hours. Space Weather for the next 24 hours is expected to be severe. Solar radiation storms reaching the S4 level are expected to continue. Radio blackouts reaching the R2 level are expected.

To hear the current geophysical alert message by telephone dial 303-497-3235, or tune to one of the frequencies of WWV or WWVH at the times listed above. My eAlert e-mails contain these reports plus other related information. You can sign up for my eAlerts by visiting <www.propagation.hfradio.org/ealert/>.

Current Solar Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 165 for October, down from September's 176. The 12-month smoothed 10.7-cm flux centered on April 2002 is 192, down from March's 196. The predicted smoothed 10.7-cm solar flux for February is 125.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for October 2002 is 98, down from 109 in September.

A year before, the smoothed sunspot number was 126. The 12-month running smoothed sunspot number centered on April 2002 is 110, three points down from March. Certainly, Cycle 23 is in a slow decline. The lowest daily sunspot value during October 2002 was recorded on the 1st with a count of 58. The highest daily sunspot count was 129 on the 10th. A smoothed sunspot count of 72 is forecast for February, 2003, by the Space Environment Center.

The observed monthly mean planetary A Index (Ap) for October 2002 is 23, up quite a bit from an Ap of 14 for September. The 12-month smoothed Ap index centered on April 2002 is 13. Geomagnetic conditions for February should be moderate as we approach the Spring Equinox.

HF Propagation

Solar Cycle 23 is slowly declining now that we have passed its peak. It takes about six or seven years to reach the solar cycle minimum, so we have plenty of activity for the next few years. The solar activity for 2003 is expected to be in the high range, with monthly smoothed sunspot numbers between about 60 and 90.

Since we are in still in the heart of winter, the noise level is very low on the HF bands and, at the same time, the average MUF (Maximum Usable Frequency) is increasing. During the first three months of the year the earth is at perigee with the sun. This causes long winter nights, which in turn allows the ions of lower layers to drift upward and add to the F_2 region. The F_2 layer contains the maximum ion density (foF_2), which usually defines the MUF for DX paths.

Throughout these winter months, the foF_2 increases slowly day by day until it reaches the highest monthly average of the year sometime during this quarter. Even during the year of the solar minimum, when solar energy variation is small, an

Optimum Working Frequencies (MHz) - For February 2003 - Flux = 125, SSN = 76 - Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TO/FROM US WEST COAST																								
CARIBBEAN	23	21	17	14	13	12	12	11	11	11	11	11	10	10	17	21	23	24	25	26	26	26	25	25
NORTHERN SOUTH AMERICA	32	30	27	20	19	18	17	16	15	15	15	14	14	14	20	27	30	32	33	34	35	35	35	34
CENTRAL SOUTH AMERICA	32	30	26	19	18	17	16	16	15	15	14	14	14	14	23	28	30	31	32	33	34	34	34	34
SOUTHERN SOUTH AMERICA	34	32	30	25	21	20	19	18	17	16	16	15	15	14	14	25	29	31	32	33	34	35	35	35
WESTERN EUROPE	10	10	10	10	10	10	10	9	9	10	10	10	10	9	13	16	18	19	18	17	15	12	11	11
EASTERN EUROPE	9	9	9	9	9	9	9	10	10	10	10	10	10	9	9	12	12	12	11	10	10	10	10	9
EASTERN NORTH AMERICA	25	23	19	15	14	14	13	13	12	12	12	12	12	12	20	24	26	27	28	28	28	28	28	27
CENTRAL NORTH AMERICA	15	14	13	10	8	8	8	7	7	7	7	7	7	6	6	11	13	14	15	15	16	16	16	15
WESTERN NORTH AMERICA	8	8	7	6	4	4	4	4	4	3	3	3	3	3	3	4	6	7	8	8	8	8	8	8
SOUTHERN NORTH AMERICA	25	23	21	16	14	13	12	12	12	11	11	11	11	11	11	20	23	24	25	26	27	27	26	26
NORTHERN AFRICA	11	10	10	10	10	10	10	10	10	10	10	10	10	9	14	17	19	20	20	18	13	12	12	11
CENTRAL AFRICA	13	13	13	12	11	11	10	10	10	10	10	10	10	9	13	17	18	19	20	17	16	15	14	14
SOUTH AFRICA	23	21	16	14	14	13	13	12	12	12	12	11	11	11	20	23	24	26	26	27	27	26	26	25
MIDDLE EAST	10	10	10	10	10	11	10	10	10	10	10	10	10	9	9	15	17	17	13	12	11	11	11	10
JAPAN	22	22	21	20	19	16	12	12	11	11	10	10	10	10	10	10	10	10	10	10	10	16	19	21
CENTRAL ASIA	22	21	21	20	19	16	12	12	11	11	10	10	10	10	10	10	10	13	12	12	12	12	17	22
INDIA	16	17	17	16	13	11	11	10	10	10	10	9	9	9	9	9	10	9	9	9	9	11	14	16
THAILAND	21	21	20	19	18	15	12	11	11	11	10	10	10	10	10	10	9	14	14	13	13	13	12	12
AUSTRALIA	28	30	31	31	29	24	18	17	16	16	15	15	15	14	14	14	14	19	18	17	18	21	24	26
CHINA	19	20	20	19	17	15	12	11	11	11	10	10	10	10	10	10	9	10	10	10	10	10	10	16
SOUTH PACIFIC	32	33	33	31	28	22	20	19	18	17	16	16	15	15	14	14	18	17	18	22	25	27	29	31
TO/FROM US MIDWEST																								
CARIBBEAN	26	23	19	17	16	15	14	14	13	13	13	12	12	19	24	27	28	29	30	30	30	30	29	28
NORTHERN SOUTH AMERICA	29	27	22	21	19	18	17	16	15	14	14	14	13	17	23	26	28	30	31	32	33	33	32	31
CENTRAL SOUTH AMERICA	31	27	22	21	19	18	17	17	16	15	15	15	14	23	27	29	30	32	33	33	34	34	34	33
SOUTHERN SOUTH AMERICA	33	31	27	24	22	21	19	18	17	16	16	15	15	16	25	28	30	31	32	33	34	35	35	35
WESTERN EUROPE	11	10	10	10	10	10	9	9	9	10	9	9	9	16	18	19	20	20	19	18	17	14	11	11
EASTERN EUROPE	10	10	10	9	9	9	9	9	10	10	10	9	9	14	16	16	16	15	15	13	11	10	10	10
EASTERN NORTH AMERICA	18	16	11	11	10	10	9	9	9	9	9	9	8	13	17	18	20	20	21	21	21	21	20	19
CENTRAL NORTH AMERICA	9	8	7	5	5	4	4	4	4	4	4	4	4	4	6	8	8	9	9	9	9	9	9	9
WESTERN NORTH AMERICA	15	14	13	10	8	8	8	7	7	7	7	7	7	7	6	12	13	14	15	16	16	16	16	15
SOUTHERN NORTH AMERICA	17	16	13	10	10	9	9	8	8	8	8	8	8	7	13	16	17	18	19	19	19	19	19	18
NORTHERN AFRICA	13	12	12	11	11	11	10	10	10	10	10	10	12	17	19	21	22	22	22	22	19	15	14	14
CENTRAL AFRICA	14	12	12	11	11	11	10	10	10	10	10	10	12	17	19	21	21	22	22	20	17	16	15	15
SOUTH AFRICA	24	19	18	17	16	16	15	15	14	14	14	14	19	27	30	32	33	34	34	34	34	31	28	26
MIDDLE EAST	10	10	10	10	10	10	10	10	10	10	10	10	9	16	18	20	20	19	15	12	12	11	11	10
JAPAN	21	20	19	17	12	12	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	16	19	20
CENTRAL ASIA	21	20	18	16	12	12	11	11	10	10	10	10	10	10	10	12	13	13	12	12	12	12	13	21
INDIA	13	15	14	11	11	11	10	10	10	10	10	10	9	9	14	17	16	14	11	11	10	10	10	10
THAILAND	20	19	17	15	12	11	11	11	10	10	10	10	10	10	9	14	15	14	14	13	13	13	12	12
AUSTRALIA	29	30	30	27	20	18	17	16	16	15	15	14	14	14	14	16	20	18	17	17	18	22	24	27
CHINA	18	19	17	15	12	11	11	10	10	10	10	10	10	10	9	11	10	10	10	10	10	10	10	14
SOUTH PACIFIC	33	33	31	27	22	20	19	18	17	16	16	15	15	14	14	19	18	17	20	23	26	29	30	32
TO/FROM US EAST COAST																								
CARIBBEAN	20	17	16	15	14	13	12	11	11	11	10	10	13	18	21	22	23	24	25	25	25	24	23	22
NORTHERN SOUTH AMERICA	26	24	22	20	18	17	16	15	14	13	13	12	14	18	22	24	26	27	28	29	29	29	29	28
CENTRAL SOUTH AMERICA	30	27	25	23	21	20	18	17	17	16	15	15	22	25	27	29	30	32	33	33	34	34	34	33
SOUTHERN SOUTH AMERICA	33	30	27	25	23	21	20	19	18	17	16	15	18	23	26	28	30	31	33	34	34	35	35	34
WESTERN EUROPE	10	10	10	9	9	9	9	9	9	9	9	14	17	19	20	20	20	20	19	18	17	14	11	11
EASTERN EUROPE	10	10	10	10	9	9	9	9	10	9	9	12	17	19	19	19	18	18	17	16	13	11	11	10
EASTERN NORTH AMERICA	8	5	5	5	5	4	4	4	4	4	4	4	5	8	9	9	10	10	10	10	10	10	9	9
CENTRAL NORTH AMERICA	19	16	12	11	11	10	10	10	9	9	9	9	9	14	18	19	21	21	22	22	22	22	21	20
WESTERN NORTH AMERICA	26	23	19	15	14	14	13	13	13	12	12	12	12	12	20	24	26	27	28	29	29	29	28	27
SOUTHERN NORTH AMERICA	20	18	14	13	12	11	11	11	10	10	10	10	9	15	19	21	22	23	24	24	24	23	23	22
NORTHERN AFRICA	13	13	13	12	12	12	12	12	12	12	12	20	24	26	27	28	29	28	27	24	21	15	15	14
CENTRAL AFRICA	15	14	14	13	13	12	12	12	12	12	12	20	24	26	28	28	29	28	26	23	19	18	17	16
SOUTH AFRICA	23	21	20	18	17	17	16	15	15	15	14	22	28	31	33	34	34	34	34	34	34	31	28	26
MIDDLE EAST	12	12	11	11	11	10	10	10	10	10	10	16	19	21	22	22	23	23	21	15	15	14	13	13
JAPAN	19	17	12	12	11	11	10	10	10	10	10	10	10	11	10	10	10	10	10	10	10	14	18	20
CENTRAL ASIA	18	15	12	11	11	11	10	10	10	10	10	10	10	14	14	13	13	13	12	12	12	12	12	20
INDIA	10	10	10	10	9	9	10	10	10	10	10	9	14	17	17	17	17	16	15	12	11	10	10	10
THAILAND	15	12	12	11	11	10	10	10	10	10	10	10	12	17	17	16	15	14	14	13	13	13	12	12
AUSTRALIA	29	29	25	19	18	17	16	16	15	15	14	14	14	14	23	21	20	18	17	17	19	22	25	27
CHINA	16	13	12	11	11	10	10	10	10	10	10	10	9	12	11	11	11	10	10	10	10	10	10	9
SOUTH PACIFIC	33	30	26	23	21	20	19	18	17	16	16	15	15	16	20	19	18	18	22	25	28	30	32	33

Terminology And Scales Used In NOAA Geophysical Alert Messages

Solar flux is a measurement of the intensity of 10.7-cm (roughly 2800-MHz) solar radio emissions. At 2000 UTC, the Dominion Radio Astrophysical Observatory of the Canadian National Research Council located at Penticton, British Columbia, Canada, records the daily solar flux measurement. The solar flux index broadcast ranges from a theoretical minimum of about 50 to numbers larger than 300. During the early part of each 11-year sunspot cycle, the flux numbers are low, but they rise and fall as the cycle proceeds. The numbers will remain high for extended periods around sunspot maximum.

The K indices are a measurement of the behavior of the magnetic field in and around the earth. The *K index* uses a scale from 0 to 9 to measure the change in the horizontal component of the geomagnetic field. A new K index is determined and added to the broadcast every three hours based on magnetometer measurements made at the Table Mountain Observatory, north of Boulder, Colorado, or an alternate middle latitude observatory.

The *A index* is a daily value on a scale from 0 to 400 to express the range of disturbance of the geomagnetic field. It is obtained by converting and averaging the eight 3-hour K index values. An estimate of the A index is first announced at 2100 UTC, based on seven measurements and one estimated value. At 0000 UTC, the announced A index consists entirely of known measurements, and the word "estimated" is dropped from the announcement.

Space Weather describes the conditions in space that affect earth and its technological systems. Space weather is a consequence of the behavior of the sun, the nature of earth's magnetic field and atmosphere, and our location in the solar system.

Figure 1. NOAA Space Weather Scales

Geomagnetic Storms	Solar Radiation Storms	Radio Blackouts	Descriptor
G4	S4	R4	Severe
G3	S3	R3	Strong
G2	S2	R2	Moderate
G1	S1	R1	Minor

Space Weather storms observed and expected are characterized using the NOAA Space Weather scales. The abbreviated table in **Figure 1** shows the levels of activity that are included in the announcements and the associated terminology. The descriptor used to identify observed or expected conditions is the maximum level reached or predicted. The NOAA Space Weather Scales are further described at the Space Environment Center's website at <www.sec.noaa.gov/NOAAscales>.

Figure 2. Geomagnetic Storm Levels

Planetary K indices	Geomagnetic Storm Level
Kp = 5	G1
Kp = 6	G2
Kp = 7	G3
Kp = 8	G4
Kp = 9	G5

Figure 3. Solar Radiation Storm Levels

Flux level of > 10 MeV particles	Solar Radiation Storm level
10	S1
102	S2
103	S3
104	S4
105	S5

Figure 4. Radio Blackouts

Peak X-ray Level by Class - (flux)	Radio Blackout Level
M1 - (10-5)	R1
M5 - (5 x 10-5)	R2
X1 - (10-4)	R3
X10 - (10-3)	R4
X20 - (2 x 10-3)	R5

Geomagnetic storm levels are determined by the estimated three-hourly Planetary K-indices derived in real time from a network of Western Hemisphere ground-based magnetometers. These levels are shown in **Figure 2**. When the K index reaches 6 and above, there is a very good chance that aurora conditions exist. When the K index reaches 5 or higher, you might wish to check Aurora conditions at <www.sec.noaa.gov/pmap/>.

Solar Radiation storm levels are determined by the proton flux measurements made by NOAA's primary Geostationary Operational Environmental Satellite (GOES). **Figure 3** details these levels.

Radio Blackout levels are determined by the x-ray level measured by the primary GOES satellite. X-ray radiation ionizes the *D*-layer causing absorption of HF signals, starting at the lower frequencies and increasing up to higher HF frequencies with higher levels of radiation. X-ray levels and related flares are categorized using the letters B, C, M, and X, with X being the most intense. **Figure 4** correlates x-ray levels and flux to Radio Blackout levels.

enhanced F_2 region can be expected to build up in the winter.

Geomagnetic storms during these months, however, may disrupt the mid-latitude ionosphere. As we approach the Spring Equinox, Earth's magnetic field is sufficiently perturbed by solar wind particles flowing into the auroral zone (between 50 and 70 degrees north geographic latitude) to cause the mid-latitude ionosphere to be depleted. This February, we are still at a High activity range, so expect a lot of these storms.

Below the auroral zone, during those periods where the solar wind is elevated, the ionosphere develops a trough that extends southward, especially on the dark side of the earth (at night) for two or three days in a row. At the same time, near the equator, geomagnetic disturbances enhance ionization. This is the reason for the higher MUF and ionospheric tilts that give us transequatorial propagation (TE). TE is prevalent during the

equinoctial months, and more so in the spring than in the autumn, and throughout the winter in general.

Nineteen meters through 11 meters will open shortly after sunrise and will remain open until early through late evening. Morning and evening DX openings between some areas in the Northern Hemisphere on these bands are very short because the band in question closes on one end of the path before it opens on the opposite end. TE propagation on these bands will be more likely toward sunset during days of high solar flux and a disturbed geomagnetic field (look for days with an Ap greater than 15, or a Kp greater than 3).

Paths on 31 through 15 meters remain in their seasonal peak much like in January, but with longer openings. Continue to look for great openings between North America and Europe in the morning and between North America and Asia during the late afternoon. Twenty-two and 19 meters continue to be the best daytime DX bands, with 31 and 25 running a close second. TE paths on 25 through 15 meters will be reliable and open for most of the daylight hours, especially where paths terminate in the Southern Hemisphere.

Ninety through 41 meters will be useful almost 24 hours a day. Daytime conditions will resemble those of 25 meters, but skip and signal strength may decrease during midday on days with high solar flux values. Nighttime will be good except after days of very high MUF conditions. Generally, the usable distance is expected to be somewhat greater on the higher of these bands than on 90. DX activity tends to increase later in the evening toward midnight. Look for Africa and South Pacific (Australia, Papua New Guinea, and so on) on 90 through 60 meters throughout the night. On 41, 49, and 60 meters, long path DX is possible along the gray line.

The 120-meter band continues to remain stable, with very low noise levels. Throughout the winter season, high noise may occur during regional snowstorms. The band opens just before sunset and lasts until the sun comes up on the path of interest. Except for daytime short-skip signal strengths, high solar activity has little impact. Geomagnetic disturbances near the Spring Equinox cause signal attenuation and fading on polar paths. Noise will be very noticeable on these lower frequencies. Continue to look for Europe and Africa around sunset until the middle of the night, and then Asia, the Pacific, and the South Pacific as morning approaches.

Signals below 120 meters will remain strong and exciting, except during times of regional storms and high geomagnetic activity. Mediumwave DX is still quite hot throughout February.

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) means stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when transpolar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A-indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

For more information, see <http://prop.hfradio.org>.

Get The Latest Info

Again, thank you to all of you who have written an e-mail or a letter to me. I appreciate your feedback, and welcome your questions. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at <www.prop.hfradio.org/> and for WAP users at <http://wap.hfradio.org/>.

Enjoy the great DX of this season! ■

the wireless connection

a look behind the dials

by Peter J. Bertini <radioconnection@juno.com>

Restoring 1940 Zenith Consoles

One might expect that all restorations are routine, that the drill for doing one set is the same as any other. Yet every brand has its unique quirks and eccentricities. For example, restoring the Bakelite boat capacitors used in Philco sets—even different model years can yield new surprises and challenges for the unwary restorer to overcome.

Zenith's 10S464

This month, and in at least one future column, we'll look at restoration techniques that are unique for the Zenith 11S474 and 10S464 1940 model year consoles. These consoles use different chassis: the 11S474 uses a Zenith 11-tube 1103 chassis, and the 10S464 uses the Zenith 10-tube 1005 chassis. Both consoles were sold in large numbers and are popular with collectors.

Photo A. The author's Zenith 11S474 console. The radio was found at an estate sale and is in exceptional condition. This 11-tube console is a real bandcruiser on AM and sounds as sweet as it looks.

The most highly sought after Zenith consoles are pre-1940s vintage models with high tube counts—some models featured 15 tubes! Of course, that's excluding the Zenith Stratosphere line; those consoles were produced in limited quantities, and even the bottom-of-the-line 16A61 or 16A63 Strats used 16 tubes and currently command stratospheric collector prices starting at $30,000! No doubt about it, you had to be well-heeled in the waning depression era of 1938 to boast a Zenith Stratosphere in your parlor, and perhaps even more so to own one in 2003. Alas, you won't be seeing one featured in this column for some time!

My 11S464 came from an estate sale several years ago, and I believe I paid $200 for the radio (see **Photo A**). It was a bit steep at the time, but the cabinet finish and chassis were pristine, and the radio was kept in the living room until the household was broken up and sold. It would be hard to find a finer original example.

A few weeks ago I received a request to restore a Zenith console. The owner related hearing speeches by Roosevelt over the radio. It was a family heirloom and a proper restoration was a must, so arrangements were made. The set turned out to be a Zenith 10S464 console that needed considerable work. The cabinet finish was in poor condition, and there was damage to the surface veneer and substrate at the top front of the cabinet. It looked as if someone took a steel ruler and whacked the cabinet, leaving a deep indentation where it would be most noticeable! The grill cloth was rotted, the *ironing board*-style Zenith keyset push buttons for the station preset selection were missing, and the main tuning knobs were distorted—a common problem with certain Zenith plastic knobs.

I'll show you how most of the cosmetic fixes were done in a future column, but the next few columns dealing with these radios will cover the electrical and mechanical details of the chassis restoration.

Fit For Polite Society

A friend, Peter Wieck, often refers to making a vintage set fit for use in *polite society*. What he means is simple: AC line bypass caps should be replaced with UL-approved devices, asbestos heat shields should be removed or sealed to prevent asbestos fibers from becoming airborne, and sets should be fused for obvious reasons before being returned to their owners. *Polite society* means the owner is a non-collector or not a technical person by trade or hobby. Since the set was for *polite society*, all the under-chassis resistors and capacitors were replaced with new components.

Now, some folks would go as far as restuffing the older wax capacitors, while others simply clip out the parts and use a "hook-and-crimp" technique to quickly replace the older parts. Hooking and crimping simply means the ends of the leads to be joined are formed into small hooks, joined together, and then the hooks are squeezed closed with needle-nose pliers to form a mechanical bond between the wires before soldering. This

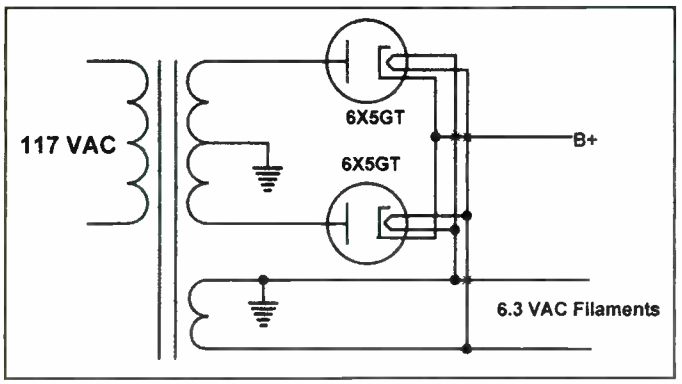


Figure 1. The original circuit in the Zenith 11S474 and 10S464 consoles uses two 6X5 tubes wired with their plates paralleled. Each tube acts as one-half of a full-wave rectifier. If the cathode-to-filament insulation breaks down, the radio's transformer and tubes can be destroyed in just seconds.

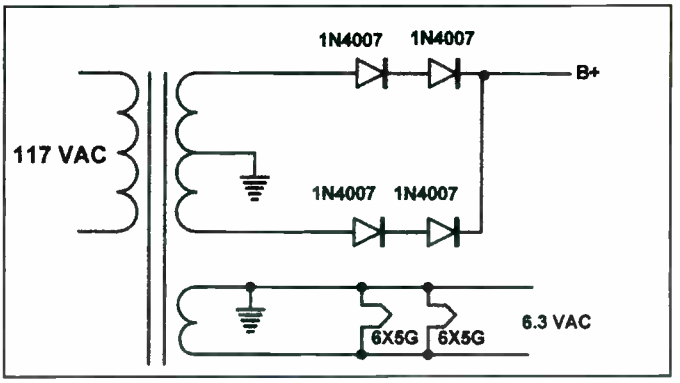


Figure 2. The 6X5 rectifiers can be replaced by two sets of 1N4007 diodes mounted on terminal strips. All leads to the 6X5 cathode and plate pins must be removed and rerouted. Only the filament connections remain. The 6X5 filaments provide the nostalgia, while the silicon diodes do the work.

Photo C. The 6X5GT rectifiers are in a prominent spot on the rear chassis, so keeping them glowing is important to the esthetics of the restoration. They are still doing their job, and the likelihood of damage due to rectifier failure has been greatly diminished.

Photo B. Desoldering the old parts is a lot of labor, it but keeps things neat under chassis. Be careful not to damage the tube socket terminals or other tie points when removing the old leads. I also advocate using PVC jacketed fiberglass spaghetti over the component leads.

technique has it advocates, and certainly follows the technique used by most service shops to effect a repair. It is quick and effective; some note there is less likelihood of damage to tube socket terminals or other tie points when using this method. But I like to take some pride in my work, so I prefer to take the time to desolder every component lead from the terminal using a desoldering wick, and I like to use a black PVC coated fiberglass *spaghetti* insulation over the exposed component leads as a further enhancement (see **Photo B**).

The 6X5 Rectifier Tube Dilemma

Both the 10S464 and 11S474 use a unique arrangement of two 6X5 rectifiers serving as the full-wave rectifier for the set's high-voltage supply. Each 6X5 is wired with its plates in parallel, and each tube serves as a half-wave rectifier on either side of the center-tapped HV transformer secondary winding. A single, full-wave rectifier with a heftier current rating could have been used. So w hy did Zenith opt for this odd arrangement? Perhaps it was to increase the tube count since most consumers looked to this as some indication of value and performance.

The 6X5 has an indirectly heated cathode and uses the same 6.3-volt filament winding used by the remainder of the tubes in these models. This saves needing a dedicated 5-volt winding on the transformer for a 5Y3 or similar directly heated rectifier. But here's the problem: One side of the filament line is grounded, and should either tube develop heater to cathode leakage sparks would fly as the rectified B+ shorts to ground! (See **Figure 1**.) A 6X5 failed in my restored 11S474, resulting in the tube overheating and putting on quite a light show until the AC line fuse failed! Had I failed to fuse the radio's chassis, the transformer would have failed in short order, leaving a major and costly repair.

Even more worrisome was finding that the original Zenith power transformer had been replaced in the 10S464 at an earlier date, and that the set arrived with only the 6X5 tubes missing. I concluded that the set had lost the original transformer early in its service life due to a failing 6X5 rectifier, and probably had been "retired" when yet another 6X5 failed and was not replaced. Fortunately, the replacement transformer showed no signs of having been overheated.

Some brands and styles of 6X5 tubes seem more prone to the cathode-heater breakdown problem, but for a set readied for *polite society* one cannot specify that only certain tubes within specified manufacturing dates are suitable replacements! I've been told to avoid pre-1950 tubes, to avoid using the early ST (shouldered glass)-style tubes (which were "proper" for this vintage set), and to use only 6X5GTs with "X"-style plates, etc. But what control would a restorer have over what is used in the future, or what's available when a replacement is needed? Others relate horror stories with 6X5s regardless of date of manufacture or style.

Solutions

The easiest fix would be to replace the tubes with modern silicon rectifiers hidden under chassis. To keep outward appearances original, the 6X5's filaments could be left wired, while the leads to the plate and cathodes are removed and rerouted to the silicon rectifier diodes. These could be mounted on terminal strips. The rectifiers enjoy a prominent placement at the rear of the chassis, and their warm glow is part of the nostalgia associated with the enjoyment of vintage radio (see **Photo C**). For the uninitiated, choosing the proper rectifier diode can be more involved than it might first appear. The most obvious considerations are Peak Reverse Voltage (PIV) and Forward Current requirements. The most popular diode, a 1N4007, has a PIV rating of 1000 volts, and is rated at 1 amp continuous service.

The 6X5 indirectly heated cathode provides a delayed turn-on before the rectifier cathode is warm enough to allow rectification action to occur. This means the B+ comes on at about the same time as the other tubes have reached operating temperature and will begin drawing current. This limits the period of time where no current is being drawn, otherwise the filter caps may be exposed to over-voltage surge conditions for 20 or 30 seconds during warm-up. Obviously, the 1 amp rating greatly exceeds the 6X5 90-mA rating, so in that aspect the 1N4007 will do fine.

Let's assume the transformer high-voltage winding delivers about 325 volts RMS either side of center tap. The peak reverse voltage will be about 1.707 times this amount, or about 555 volts peak. At first glance, the 1N4007's 1000-volt PIV rating seems doable, and even allows some safety leeway to boot. But, this is not so! When the set is first powered on, the filter caps will attempt to charge to near the peak voltage—figure 500 volts for the 325-volt secondary example we are using. If you look at the circuit, everything is in series: the transformer voltage, the diode, and the ***charged*** capacitor! Thus, the charged capacitor voltage must be considered when calculating the RMS voltage. The 1N4007 diode with its 1000-volt PIV rating is now marginal at best, so we need at least 1100 volts, and that should be, at a minimum, doubled to allow for an ample safety margin (voltage spikes, etc.).

The solution is to use at least two 1N4007 diodes on each side of the full-wave rectifier. Don't bother with equalizing resistors and capacitors paralleling each diode; modern diodes such as the 1N4007 are controlled avalanche devices and do not require the archaic practice of equalizing resistors and capacitors as was advocated by many early handbooks. 1N4007s are cheap, selling for pennies apiece (see **Figure 2**).

A Proper Solution

While *faking* the 6X5s with hidden 1N4007 diodes was a good idea, it was

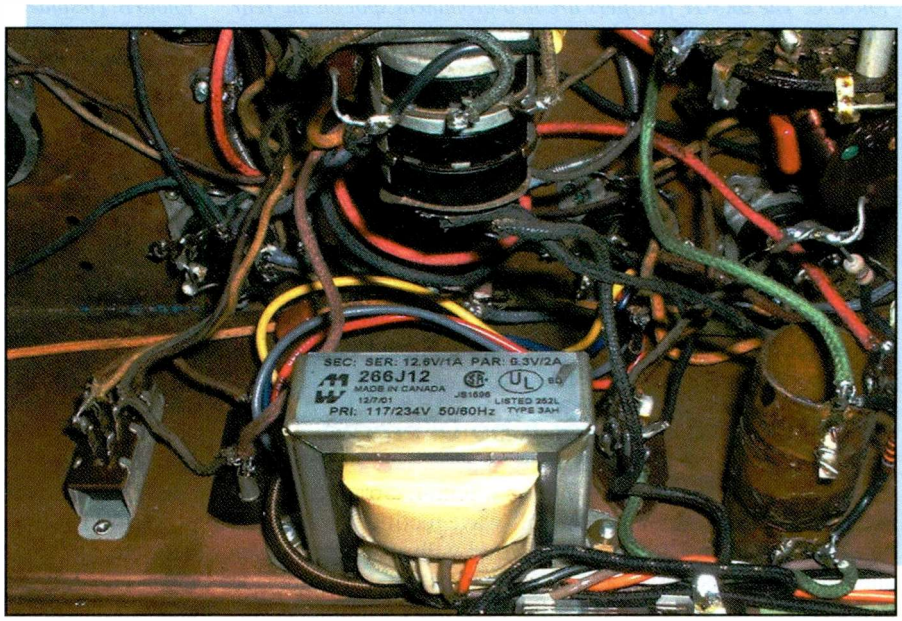


Photo D. The Hammond transformer for powering the 6X5 heaters was mounted on the inside of the rear apron. Note the fuse holder, which was also added to the radio. A 1.5-amp fuse will do for this set.

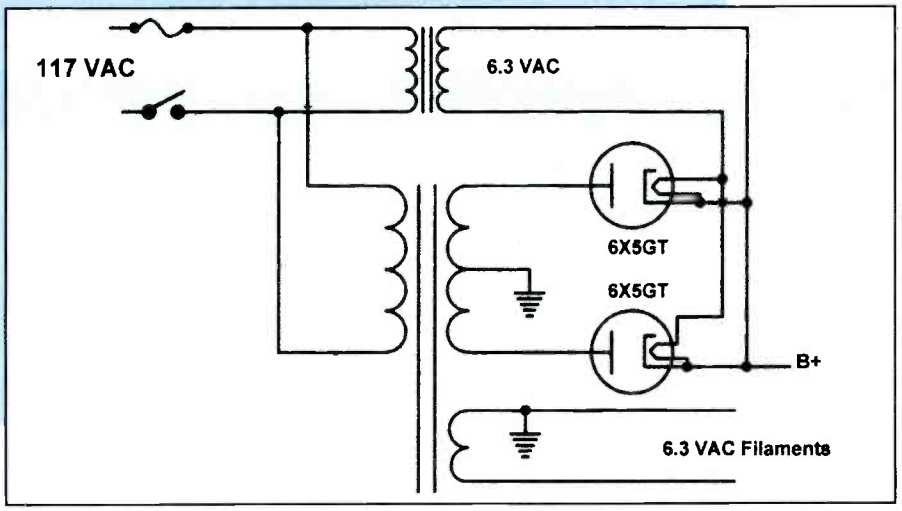


Figure 3. Adding a dedicated filament transformer to power the 6.3 heaters is perhaps the more elegant solution. The 6X5 warm-up time provides the desired B+ turn on delay, and internal voltage drop keeps the B+ at a reasonable level. Note that the 6.3-Vac filaments are at the full B+ potential.

not the best solution for my needs. This was based on the voltage delay offered by the warm-up time for 6X5 tubes, the voltage drop across the silicon diodes compared to the internal resistance of the 6X5 tubes (which means an increased operating voltage of about 22 volts), and the fact that there were options more in line with 1940 technology that could be employed.

A dedicated 6.3-volt transformer was used to power the 6X5GT tube filaments. This involved some chassis rewiring, so the radio's 6.3-volt tube filament string could be completely separated from the 6X5 filament string. The 6X5 requires 6.3 volts at 0.6 amps, or 1.2 amps total. I used a high-quality 6.3-volt at 2-amp transformer (the Hammond 266J12) for the 6X5 filaments (see **Figure 3**). This particular transformer has two separate windings for the primaries and secondaries, so it can operate on 120 or 240 volt primaries, or deliver 6.3 Vac at 2 amps or 12.6 Vac at 1 amp depending on whether the secondaries are paralleled or wired in series. For this application, both of the primary and secondary windings were paralleled. The tranny is a bit large, but there are numerous places where it can mounted and hidden under the chassis (see **Photo D**). The 6.3-volt filament line for the 6X5s is left floating.

An Internet newsgroup discussion netted a suggestion that one side of the filament winding should be returned to ground via a 1-megohm drain resistor. This would keep the floating filaments from reaching a high DC-to-chassis potential due to small leakage currents or tube inter-element capacitances.

I decided that the cathode of each tube should instead be tied to the nearest filament pin, i.e., pins 7 and 8. This would place the full B+ on the filament winding, which is well within the Hammond transformer ratings, and it would also prevent possible "static" on reception caused by micro-arcing between the filaments and cathodes if the tubes should start to breakdown. I'll admit this scenario is far fetched, but I don't want to work on the same set more than once if I can avoid it!

In any event, any available version of the 6X5 tubes will work reliably in the modified Zenith. For display purposes it's nice being be to safely use the early shouldered-style ST 6X5G versions. The AC line was fused with a 2-amp fuse for additional safety and protection.

We'll continue with our Zenith restoration saga in a future column. Now for a good deed...

In Search Of...

Reader Vernon Justice writes,

I am looking for a Philco portable radio made either in the late '50s, early '60s. It is made of cowhide, has a moonfaced dial, meal grill speaker, and is powered by six C batteries. I have its sister model made almost exactly like it, but AC/DC powered and a tube rather than a transistor set. I'd appreciate any help in locating this radio. I am looking for my youth.

If anyone can identify Vernon's radio, please drop us a line. ■

overheard

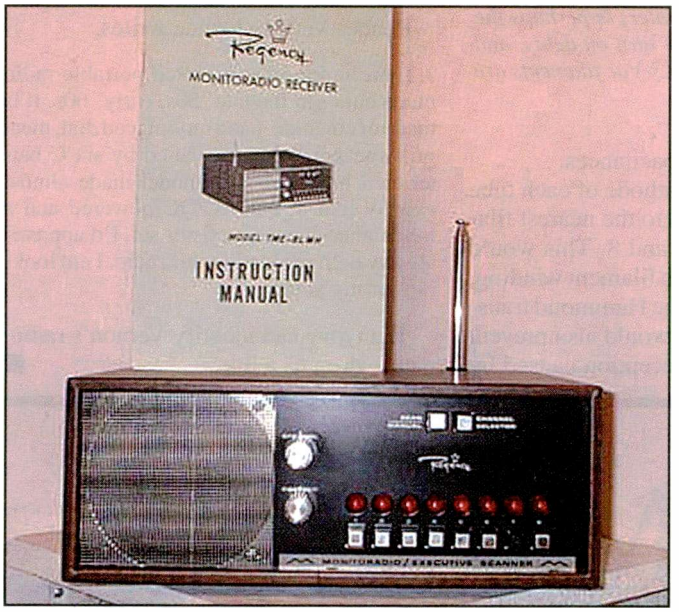
by Ken Reiss <radioken@earthlink.net>

strategies and techniques to keep YOU informed

Your Favorite Radios Right Here!

In honor of *Popular Communications*' 20th Anniversary last year, I ran a History of Scanning column that you may remember. There were lots of photos of old radios that some of you had never seen and many that brought back memories. At the end, I asked you to share your favorite radio and send a picture if you could.

Many of you did just that! Boy what a good time I've had going through the e-mail and sorting them out. It's been a tough job cutting it down to a manageable number, but here they are.



The Regency Monitoradio.

Craig Clemmons from PA starts us off.

Hello Ken—I had to send you a photo of my first scanner after reading your anniversary column in the October issue of *Pop'Comm*. What a great idea for an anniversary contest! I hope we will get to see some of the photos that you receive from fellow readers.

Actually, the scanner in my picture belonged to my father, who was a volunteer firefighter and officer for many years. This Regency Monitoradio/Executive Scanner was in our house as long as I can remember. When I was growing up, I used to listen to fire dispatches and fire radio traffic in Montgomery County, Penn., on 33.7 and 33.66, along with police on 45.26 and other area agencies. We even had an external speaker running into our kitchen, and when I learned how to splice speaker wire, I ran another extension into the basement with about 50 feet of wire! This was the only way to hear calls in other parts of the house, as the price of scanners and crystals was a bit too high to be running multiple receivers at that time. I even remember going to a neighbor's house and seeing a programmable scanner for the first time in the late '70s. But until I got my own scanner when I was older, I relied on this Regency and a bag of crystals to hear all the action. So you could say it all started with this Regency scanner.

I got involved in collecting and restoring old scanners as a hobby, and as technology continues to evolve, I'm trying to keep up as best I can with the newer developments. But vintage scanners like the Regency still bring back a lot of memories, and there are a few older units like the one pictured (with the original manual!) that I will never give up. In fact, my dedicated local receiver is an old wood grain Bearcat 8 that receives fire calls on low band as good as any modern scanner in my house. These classics will never be obsolete to me.

Thanks for a great column, and keep showcasing those classic radios!

Harold, did you notice he said "great" column? Well, let's not get carried away, but thanks for the kind words, Craig. And you're in luck! We're going to see some of those great photos this month!

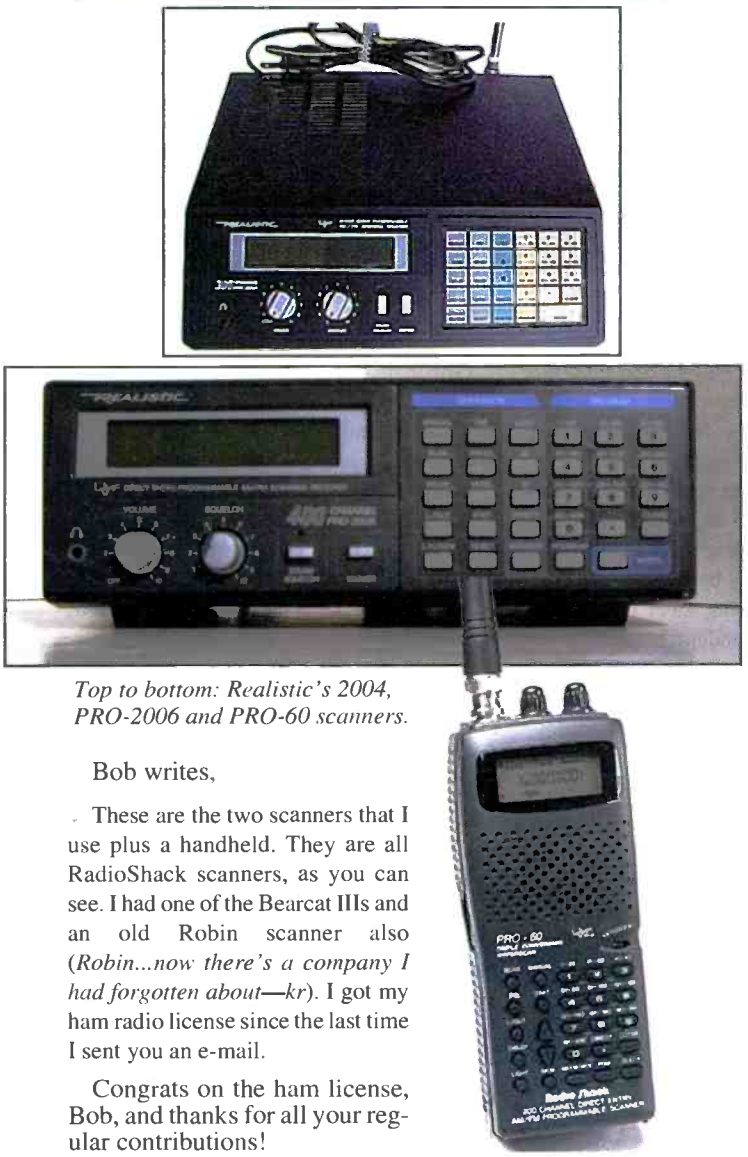
The Surveyor 10P that Jim still uses today.

Jim Williams from Connecticut sent in this classic! I had forgotten all about this one. Jim writes:

Not my favorite, but my first. This is the Surveyor 10P, 10-channel UHF/VHF. Purchased in 1977, it is still in use today. With the exception of one area fire department moving to 800 MHz, all the frequencies are still the same. This unit resides in my garage and is subject to temperature swings from 0 to 100 degrees. I give it an A+ for durability.

Great, Jim. It never ceases to amaze me how little some of the frequency information changes, while in other places the whole thing gets turned upside down within months. Jim said the Surveyor wasn't his favorite, so I asked him which one was his No. 1. He responded, "The RadioShack PRO 32. Got this one in '86, still works great and I can still program it without having to look at the manual."

Bob Davis sent in a threesome of radios, the 2004, 2006, and this PRO-60. The first, the 2004, was a favorite for many listeners. The PRO-2006 is a significant radio in many ways. It's one that had a very long run as the top-of-the-line for RadioShack. Right about the end of its life, Optoelectronics came along with their computer interface boards that could be added to it and interest was renewed in the radio.



Top to bottom: Realistic's 2004, PRO-2006 and PRO-60 scanners.

Bob writes,

These are the two scanners that I use plus a handheld. They are all RadioShack scanners, as you can see. I had one of the Bearcat IIIs and an old Robin scanner also (*Robin...now there's a company I had forgotten about—kr*). I got my ham radio license since the last time I sent you an e-mail.

Congrats on the ham license, Bob, and thanks for all your regular contributions!

Steve Kachmarsky brought back many memories with his old radios. Steve writes,

I read with interest your article on early radio receivers in the October, 2002, issue of *Popular Communications*. Although I still own my first scanner, a RadioShack four-channel crystal-controlled unit...most of my listening in the early days was done on tunable receivers, such as the one shown.

The unit at the top is a Realistic Jetstream Mini which provided me with aviation monitoring capability. It tunes 108 to 136 MHz (and also has the AM broadcast band). This radio provided me with much good reception of local airport activity before I could afford to buy a programmable scanner which could receive aviation signals.

The other receiver is a Realistic Patrolman-3 which actually has a squelch circuit—something one didn't see in many early compact portable receivers! In addition to the AM broadcast band, this radio covers 144- to 174-MHz VHF and 450- to 470-MHz UHF.

Both of the depicted units still work, and neither of them would owe me a dime if they were to go kaput today. These radios were a sound investment that made possible many happy hours of listening.

Here's hoping that you enjoyed sharing these memories of the good old days of radio monitoring. Keep up the good work with your column.

Realistic's Patrolman-3 receiver with small Jetstream on top.

I certainly did enjoy the memories, Steve. I had forgotten about the squelch on the Patrolman-3. I had its predecessor which only covered the VHF-Hi band (144 to 174 MHz) , but with no squelch. It's amazing how you got used to listening to all that noise after a while!

A Hallicrafters S-38B and Patrolman Pro-3.

Paul, who didn't provide his last name, wrote in with these great receivers:

The old Hallicrafters model S-38B was given to me by my father 40-plus years ago! It is still in good operating condition. I fire it up once every couple of months to keep everything working. The old receiver pictured below it is much newer. It is a Realistic Patrolman Pro-3. It is also in good working order! My home scanner is a Uniden 800XLT. I have a Uniden BC56XLT scanner installed in both my pickup and my wife's pickup. I could go on and on, but I think that will do it for now. Thanks for the very excellent articles in *Pop'Comm*."

The AOR 8000 in Mike's shack.

Mike J. sent in this great picture of the AOR 8000 and says,

My favorite receiver is still the AOR 8000 that I bought from Grove in 1986. My first receiver was a Knight R55A. I first used it to listen to shortwave broadcasts. It didn't have an RF amp in the front end and it was not too stable. You couldn't breathe on the table without it changing frequencies. While I had it, I got an amateur license, I used it with a Heath DX60 Transmitter and crystal control on the transmitter. It was a good thing I was crystal controlled. I could find my transmitter on the dial and then I knew where I was at. As long as I didn't bang on the table, the receiver would be OK. I was able to work 45 states and two foreign countries with the setup, until I graduated to a better receiver. I sold the receiver after that, but I wish I had saved it just for nostalgia.

I agree Mike. I have sold very few radios over the years because I always seem to regret it.

Several readers mentioned the great R-7000: the first of the really great communications receivers, although there were others before it. The R-7000 put a whole new class of receiver into consumers' hands, and we certainly had fun with it and the many that followed!

Finally, a few more notes without pictures, but some great comments!

Michael Grzyb of Spring Lake Fire writes,

My first radio was a Midland, four-channel, crystal-controlled scanner. I bought it to track my buddies that I hunted with, who were also on the local "on call" fire department. It probably got me onto the department back in 1974 as it must have showed them that I was interested in what was going on.

The ICOM R-7000 is a super radio!

My buddies also each had a Midland that they carried since the only Fire department equipment was a 110-volt Plectron alerting receiver which did not travel well. That radio was responsible for getting me to numerous emergency calls until the department got around to buying the first model of Motorola pager which was tone activated. I treated it royally by making a leather case for it with a spring steel clip that I removed from an old handgun holster.

Things have sure changed as we have just received one of the first shipments of the Motorola Minitor IV alerting pagers. Your column brought back some good memories from "the good old days." Thank you very much!

My pleasure. Good listening!

And I knew someone would send a letter about the Patrolman 6, which was my first VHF receiver. Someone always does! Robert Doran wrote,

I have been a subscriber to *Popular Communications* for a number of years and, while I am not a serious scanner, I do enjoy the magazine and the articles. In the October issue in your article, I saw the picture and your write up on the Patrolman 6. Like you, this was the first receiver I bought that would receive low-band, VHF, and UHF frequencies, although I have now graduated to a couple of more sophisticated scanners.

I still have this radio and the box it came in but somehow I have misplaced the manual, although I think I saw it around here somewhere and thought at the time, that was a strange place for it to be. However, I didn't pick it up at that time and now, in a senior moment, I can't recall where I saw it.

Unfortunately, Robert, we're all heading there. Robert did write back and say that he had found his manual, so he's all set.

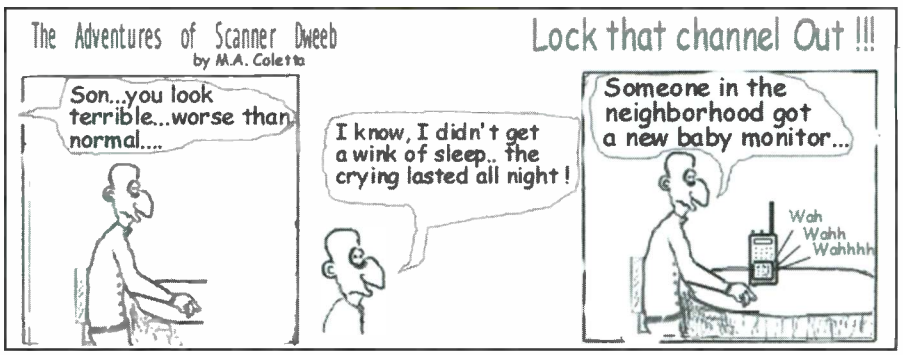
Thanks to all who wrote in! Please don't hesitate to send pictures or questions at any time. I certainly enjoyed the old radio stories and pictures, and it appears from your letters that many of you did too.

I promised a special drawing of just the entries for this month to celebrate the *Popular Communications* Anniversary. Believe it or not, the random number generator has selected **Craig Clemmons** as our winner. He'll receive a one-year gift subscription to *Pop'Comm*. Just goes to show you that flattery does sometimes get you somewhere. Congrats, Craig, and a big thanks to all those who wrote in with pictures and stories about this topic that so much fun for all of us!

Frequency Of The Month

Our frequency for this month will be **153.890**. Have a listen and let me know what you hear or don't hear. We'll put your name into the drawing for our one-year subscription drawing coming up soon.

Send your entries or anything elseabout scanning to me via e-mail at <radioken@earthlink.net>, or via more traditional methods at Ken Reiss, 9051 Watson Rd. #309. St. Louis, MO 63126. Until next month, Good listening! ■

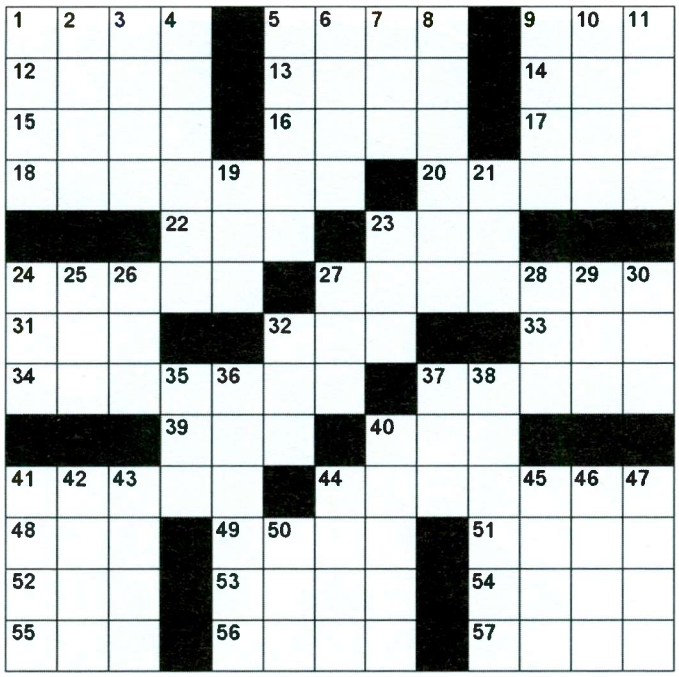


the Pop'Comm puzzle corner

test your radio knowledge

by Eric Force <eric@dobe.com>

(RevSp = Reverse Spelling – e.g. "SPELLING" = "GNILLEPS" in puzzle)

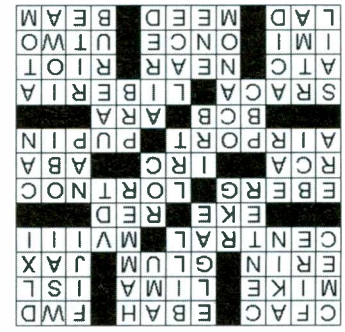


ACROSS

1 AM 960, Calgary
5 "Would have", German (RevSp)
9 CW abvr., Forward
12 Phonetic dah dah
13 Phonetic dit dah dit dit
14 Iceland Radio, ITU code
15 ____ Brockovich
16 Sullen
17 Airport code, Jacksonville, FL
18 The "C" in CPU
20 1008 as Roman Numeral
22 Scanty addition
23 Resistor color code 2
24 Pre 1925 radio manufacturer (RevSp)
27 First 32 ASCII characters these codes (RevSp)
31 "Stratoworld" manufacturer
32 Redeemed for airmail postage, abvr.
33 Abampere
34 Threshold and fixed distance markers found here
37 Electrical resonator inventor
39 Medium Wave freqs, abvr.
40 Amateur Radio Association (abvr)
41 Aircraft reporting system (RevSp)
44 Country of ITC Prefix 5LA-5MZ
48 Provides aircraft separation services
49 Field immediately surrounding an antenna
51 Severe public disturbance
52 CW abvr, Repeat, Say Again
53 A single time
54 Spy aircraft
55 Airline abvr., Delta (RevSp)
56 A fitting recompense
57 Directional antenna

DOWN

1 AM 690, Santa Clara, CU
2 CB 10-70, "_____ at ..."
3 Related by blood
4 FM unmodulated carrier frequency
5 Browning's Golden Mark IV (RevSp)
6 Pop' Comm's _____ Price
7 AKA "Dalton" (abvr.)
8 "____ Down", CB slang
9 Country of ITC Prefix 3DN-3DZ
10 AM 1530, Cincinnati
11 561 as Roman Numeral
19 Radio of Kirghizia, ITU code
21 Video-display terminal
23 Airport code, Rochester, NY
24 Voice of Greece, ITU code
25 Broadcast radio interference, abvr.
26 Hearing organ
27 Lithuanian National Radio & TV, ITU code
28 Phonetic "N" (U.S. Army 1916)
29 Star Wars ___-Wan
30 Metal capacitor case style
32 Islamic Republic of Iran Broadcasting, ITU code
35 Pakistan Broadcasting Corporation, ITU code
36 Country of ITC Prefix 3AA-3AZ (RevSp)
37 Personal Rescue Beacon, abvr.
38 FCC subdivision (RevSp)
40 Broadcasted
41 Phonetic "S" (U.S. Army, 1916)
42 Radio & TV manufacturers assoc., abvr.
43 This core not for electrical soldering
44 Obsolete cable bundling
45 Dit dah dit, dit dit, dah, dit
46 Area code 319 here
47 Defines a chemical element
50 About 057-078 degrees, abvr.



This Month In Radio History Cypher

(Hint: Completed crossword holds the key)

On February 23, 1927 . . .

FK I HE I CC I BL I JA I DL I MM I BA I FH I KC| EM I LM I BG I EJ I GM I CB I
E
MI I JG I HA I EH I MK I MC I FC I AK I GD I AF I AI I KM I EB I CF I FK I DM I

HG I GK I MK I FD I FM I LD I BF I MA I DM I MJ I IL I KA I EC I MH I FA I KE I

CF I BK I JA I EG I JJ I FE I MH I BG I JG I HE I FL I LG I AE I HM I BB I DJ I
P ■
DG I KA I FM I EC I KM I KE I AF I MC I GF I BL I KF I CB I HK I IK I

Solution: PRESIDENT CALVIN COOLIDGE SIGNED A BILL CREATING THE FEDERAL RADIO COMMISSION

Pop'Comm Trivia...

One of the places I appeared was the Anzio Beachhead during WW II. My detector was a razor blade, my ground connection via a bayonet. A safety pin, thumbtacks and paperclips were part of my construction. What was I?

Ans. *"FOXHOLE" RADIO - More info at http://members.aol.com/djadamson7/articles/foxhole.html*

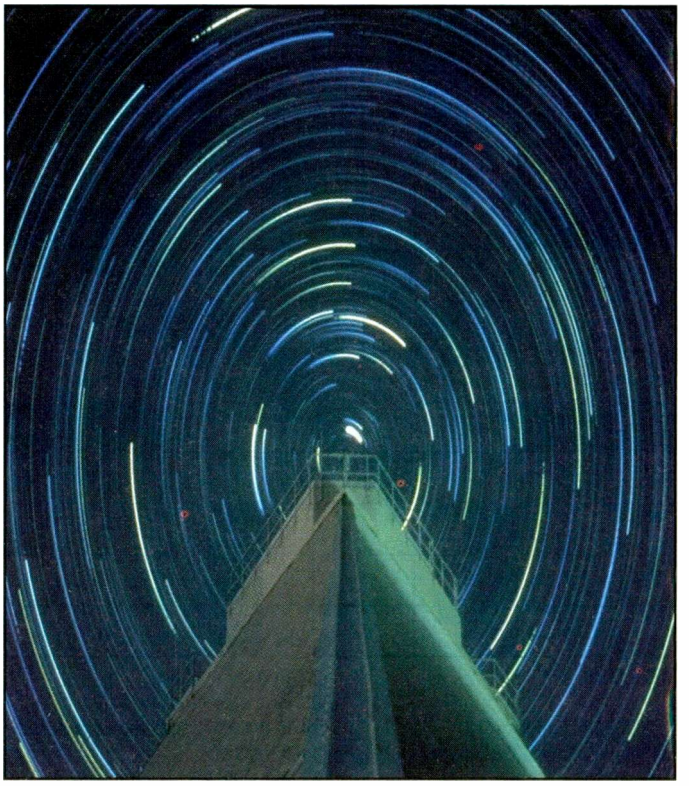
by Bruce Conti <baconti@aol.com>

Digital Radio Mondiale: Europe's Version Of IBOC

Digital Radio Mondiale (DRM) is set to take on In-Band On-Channel (IBOC) digital AM radio broadcasting for the world standard. Like IBOC, DRM will undergo a hybrid transition period where both analog and digital coexist via the same transmission, with analog eventually totally replaced by wideband digital. Unlike IBOC, DRM has been approved for fulltime (day/night) operation across the AM broadcast spectrum of longwave, mediumwave, and shortwave frequencies. (IBOC is presently limited to *daytime* operation on the AM broadcast band.) According to a press release, "The DRM system provides audio quality which is by far superior to analogue systems even in the worst propagation conditions."

Here's more of the sales pitch from the folks at DRM:

DRM is the only universal, non-proprietary digital AM radio system with near-FM quality sound available to markets worldwide. The quality of DRM audio is excellent, and the improvement upon analogue AM is immediately noticeable. DRM can be used for a range of audio content, including multi-lingual speech and music. Besides providing near-FM quality audio, the DRM system has the capacity to integrate data and text. This additional content can be displayed on DRM receivers to enhance the listening experience.



Little Modification Required

Like IBOC, initially DRM will fit within the existing AM broadcast band plan, based on signals of 9- or 10-kHz spacing. The hybrid analog/digital mode only requires as little as 4.5- to 5-kHz bandwidth for the digital signal. Full digital implementation will use up to 18- or 20-kHz bandwidth. Many AM transmission facilities will require little or no modification to begin digital broadcasting. Hybrid simulcast testing is underway fulltime on **531 kHz** in **Burg, Germany**. Testing is also taking place on shortwave on the following: **5975 Juelich, Germany**; **9590 Radio Canada International, Sackville**; **11660** and **11750 Radio Netherlands, Bonaire, Netherlands Antilles**; and **15440 Deutsche Welle, Sines Portugal**.

Similar to the European standard for digital television (see the August 2002 "Broadcast Technology"), the DRM system uses Coded Orthogonal Frequency Division Multiplex (COFDM), a multi-carrier system of several parallel data streams over subcarriers orthogonal to each other. The orthogonal signals make reception less susceptible to multi-path interference and receiver antenna orientation.

The number of carriers can be varied, depending on factors such as the allotted channel bandwidth, propagation conditions, and degree of robustness required. COFDM is ideally suited for single-frequency networks broadcasting in Europe where a frequency may be assigned to a single national network. Examples would be TalkSport **1089** and **1053**, Virgin **1215**, and BBC Five Live on **909** and **693 kHz** in the United Kingdom, or the so-called synchronized transmitter sites of the COPE, RNE, and SER networks in Spain. With COFDM, if two DRM signals were identical and their time of arrival at the receiver was within a specified guard interval, then they would reinforce each other and the digital signal would be decoded.

The DRM system is designed for flexibility using three different types of audio coding, depending on broadcasters' preferences. They tell us,

MPEG4 AAC audio coding, augmented by SBR bandwidth extension, is used as a general-purpose audio coder and provides the highest quality. MPEG4 CELP speech coding is used for high quality speech coding where there is no musical content. HVXC speech coding can be used to provide a very low bit-rate speech coder."

This allows broadcasters to divvy up the digital bandwidth for multicasting or data services.

DRM regular broadcasting is slated to begin May 2003, with receivers expected to be widely available by 2004. In the event that Europe's DRM and the United States' IBOC digital radio both establish worldwide strongholds, DRM member organizations and IBOC developer iBiquity have indicated on record with the ITU their intention to cooperate over issues of compatibility such that receivers would be designed to work with either system.

Digital AM Technical Issues

DRM and IBOC are experiencing similar technical issues when it comes to AM broadcasting. The level of interference to

existing analog AM caused by the digital signal continues to be a sore spot for IBOC, with the option contained in the specifications to decrease the digital signal by 6 dB if interference proves to be a problem. DRM hybrid tests are presently underway in part to establish an appropriate digital signal level that won't cause significant interference with analog reception. The release continues,

> Provided the level of the digital signal is set correctly the noise level induced in the analogue receiver should be negligible. However a series of laboratory and field tests is currently being carried out, and this will provide the required information on what should be the optimum levels for the analogue and digital signals, in these modes, to ensure the best receiver compatibility.

Many AM broadcast antennas are tuned for narrow-band operation on the intended frequency. Increasing antenna bandwidth for digital broadcasting in either DRM or IBOC may be at substantial cost, a major concern for broadcasters. For example, an antenna might be tuned for transmitting at 720 kHz with bandwidth limited to 9 kHz in Europe or 10 kHz in the Americas to prevent interference to adjacent frequencies.

Full implementation of a DRM or IBOC signal can require up to 20 kHz bandwidth. The wider bandwidth is especially a problem for directional arrays and where two or more signals are multiplexed on the same antenna. High-Q tuned circuitry is often used to create phase shifts between antennas in directional arrays, thus producing a directional signal through phase cancellation and reinforcement. Obviously, when radio stations broadcasting on different frequencies share the same antenna, tuning of the transmission is critical to prevent interference. Physical properties of a transmitting antenna, including antenna type, size, and ground conductivity, can impact bandwidth as well.

The bottom line: any significant fall off of the outer edges of the digital signal due to bandwidth limitations would need to be corrected for reliable transmission. Since part of the sales pitch for IBOC and DRM is the minimal cost to broadcasters through the use of existing facilities, this could instead spell disaster for some.

IBOC Update

iBiquity has formed alliances with several receiver manufacturers for rapid deployment of IBOC digital under the name HD Radio. Kenwood hopes to be the first to offer HD Radio receivers with a launch set for the 2003 Consumer Electronics Show. The first receivers will use Texas Instruments DSP architecture in their new IBOC digital module. Alliances are also in place with Alpine, Crutchfield, Fujitsu, Harman Kardon, Hyundai, Mitsubishi, and Sanyo. Alliances have been created with AccuWeather, the Associated Press, and SmartRoutes to provide future data stream content.

In addition to ongoing tests at WOR and WTOP, iBiquity is testing IBOC via two experimental AM transmitters. **WD2XXM Frederick, Maryland,** is testing on **650 kHz** with 4,000 watts daytime only. The other IBOC test station is **WI2XAM Warren, New Jersey,** on **1700 kHz**. "iBiquity told me it would operate intermittently with 50 watts into a 35-foot antenna with four ground radials," reports Patrick Griffith. "From what I gathered, it appeared that some of the transmissions from this facility were to experiment with the IBOC signal on AM at night." Per a letter received from iBiquity in August, reception reports should be sent to Russ Mundschenk, c/o iBiquity Digital, 8865 Stanford Blvd, Suite 202, Columbia, MD 21045.

Bell Retiring Again

Art Bell is retiring again, this time citing health reasons. Art Bell's discussions about the metaphysical and unknown will be missed by many listeners in the night. George Noory takes over fulltime duties at Coast-to-Coast AM while Barbara Simpson continues the weekend shift.

QSL Information

594 R. Rhema, Timaru, New Zealand, sent full detail QSL card, letter, and booklet on Radio Rhema in 50 days, signed Dudley Scantlebury-Dir. of Administration. Address: Radio Rhema, 55 Upper Queen Street, Private Big 92-636, Symonds Street, Auckland. Listed as 5 kW. New Zealand QSL #108. (Martin, OR)

750 CKJH Melfort, Saskatchewan, received QSL letter in 27 days, signed Bayne Opseth VE5BKO, CE. Address: Box 750, Melfort SK S0E 1A0. SK QSL #36, Canada QSL #279, MW QSL total #2822, my 50th QSL of the year! (Martin, OR)

1140 KCLE Cleburne, Texas, partial-data letter on plain paper and two Solid Gold 1140 AM stickers in 8 days, signed Gary L. Moss, President, M&M Broadcasters. Address: 919 N Main, PO Box 1629, Cleburne TX 76033-1629. (Griffith, CO)

1410 KOOQ North Platte, Nebraska, full-data letter in 7 days, says music programming comes from Jones Networks (satellite), signed Chuck Schwartz, GM. Address: 1301 East Fourth, North Platte NE 69103. (Griffith-CO)

1680 WS2XTR Evergreen Hills, Virginia, is an experimental AM station testing a new low-profile antenna design, operating during daylight hours only, between approximately 8:30 a.m. and 5:15 p.m. EST, with 250 watts, with a sinusoidal tone and periodic voice identification announcement. Reception reports are appreciated and can be sent to: WS2XTR, Star-H Corporation, 119 S Burrowes St, Suite 601, State College PA 16801. Verified reception reports will be acknowledged with a QSL card. For more information, visit <www.star-h.com> and then follow the link to Products, Low-Profile MF Broadcast Antenna. (McGinnis)

Broadcast Loggings

All times are UTC.

580 CKUA Edmonton, Alberta, at 2355 very good with a jazz program and mention of the CKUA Radio Network. (Martin, OR)

640 XEHHI R. Uno, Mexico, at 0608 blasting in with a powerhouse signal in the null of KFI with ranchera and norteno music and frequent "Radio Uno, La Numero Uno" IDs. (Griffith, CO)

680 WPTI Raleigh, North Carolina, at 0155 a weak signal with Carolina Panthers football. (Ressler, OH)

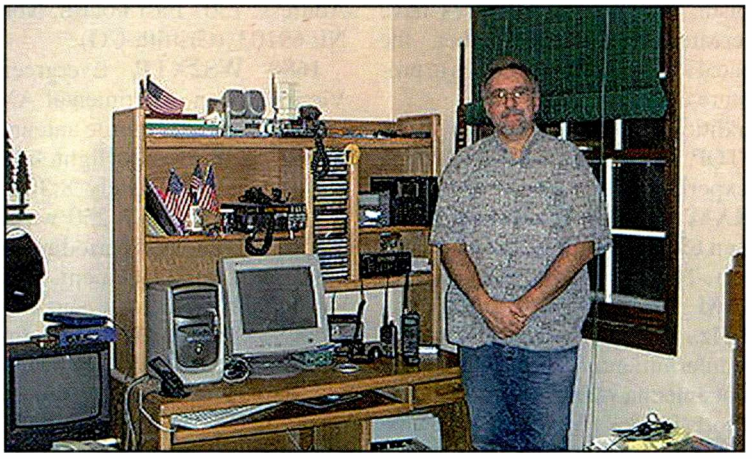
720 KUAI Eleele, Hawaii, at 0630 good way over KDWN with Phil Collins and Hawaii pops, "Thanks for checking us out. We're KUAI on the western side of the beautiful island of Kauai at Eleele." (Martin, OR)

780 ZBVI Tortola, British Virgin Islands, at 0202 fair with urban contemporary music, then sign-off: "Zed-BVI now concludes its broadcasting day...with a power of 10,000 watts," a short choral piece and anthem, then off, leaving 18-watt WTME clear in WBBM null and a het from 783 Mauritania. (Conti, NH)

783 R. Mauritanie, Nouakchott, Mauritania, at 2230 is audible here, with a woman speaking in Arabic. Fair signal,

v.i.p. spotlight

Congratulations to Rick Garrett Of Indiana!



Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

Each month, we'll select one entry and publish it here. Submit your entry only once; we'll keep it on file. All submissions become the property of *Popular Communications,* and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to <popularcom@aol.com>, letting us know if you're sending photos. Please print your return address on the envelope if using the postal mail system. Not doing so will delay your submission being processed. If you're e-mailing photos, please send them in a separate e-mail with your name in the "subject" line.

Our January Winner: Rick Garrett, N9GSU, of Muncie, Indiana

Pop'Comm reader Rick Garrett tells us,

My wife Donna and I live in rural Indiana near Muncie. My first radio memory is rather vivid. I was five years old and my parents put a radio on my nightstand, and I remember laying there listening to a Cincinnati Reds ballgame, thinking they must be a thousand miles away. That started a lifelong fascination with radio.

As soon as I was barely old enough to, I stated mowing lawns, and purchased my first radio for myself: a Regency 8-channel scanner. Who could forget those flashing red lights across the front! From that time, I've accumulated a house (and garage) full of radios, from fairly state-of-the-art to a few classic rigs.

I earned my Amateur Radio license in 1985, and it's been an endless source of fun and community service for me. I'm a traveling musician; you might hear my callsign, N9GSU, as I travel around. I'm active on HF, VHF, and UHF.

I'm also a volunteer firefighter for the Monroe Township/Cowan Fire Department. If you live in East Central Indiana you might hear me on 154.190, the Cowan Fire 731.

I still love AM DXing and shortwave listening, in addition to scanning and ham radio. One of my favorite parts of the hobby has been Elmering a others to get started and attain their ham tickets. Wherever I travel, you can be certain I have several radios with me!

If you'd like to find out my traveling schedule, drop me an e-mail at <Rick@RickGarrett.com> and perhaps we can hook up on the air!

but it is definitely parallel to 4845 kHz. I had it logged last year as presumed, so now it goes into the confirmed category. (Hochfelder, NJ)

840 4VEH R. Evangelique, Port au Prince, Haiti, at 0400 fair to good at peaks under WHAS and mixing with Spanish music, presumably Cuba. Male speaking with occasional music; very poor and muddy audio. No ID heard, but format and content matches (religion in French). New. (Hochfelder, NJ)

890 KVOZ Del Mar Hills, Texas, at 0300 presumed this blasting in at S+10 in the null of WLS with Tejano Christian music. Heard mention of Marion Hotel in Albuquerque, New Mexico, and frequent mention of Alamogordo New Mexico, and a Radio Cristiana ID with mention of several states—CA, NM, TX, AZ, and ND. No English IDs. (Griffith, CO)

1150 CKBL Kelowna, Alberta, at 2345 good on top with country music, "Real Country, The Bullet." (Martin, OR)

1160 WCCS Homer City, Pennsylvania, at 0206 a fair signal with oldies and caller dedications, interference from an unidentified station carrying high school football. (Ressler, OH)

1170 KFAQ Tulsa, Oklahoma, heard at 0530 completely obliterating any chance of hearing the WDFB DX test. OK Farm Bureau Friday Night Finals program. Frequent PSAs from FEMA. (Griffith, CO)

1310 WDPN Alliance, Ohio, at 1900 a fair signal with Mount Union College football play-by-play by former Cleveland Indians and Cavaliers anchor Joe Tait. (Ressler, OH)

1360 WKAT North Miami, Florida, at 0300 fair to good in a jumble, carrying classical music, but no definite ID heard over several nights listening. New. (Hochfelder, NJ)

1360 WMJC Washington Township, Pennsylvania, at 0200 a weak signal with talk about NFL football on Fox Sportsradio. (Ressler, OH)

Many thanks to Patrick Griffith, David Hochfelder, Patrick Martin, Keith McGinnis, and Lawrence Ressler. For now, 73s and Good DX! ■

Note: Because the FCC document system has been down for the last few days we're unable to provide the latest callsign changes this month. We're sorry for the inconvenience.

global information guide

listening to what your world says every day

by Gerry L. Dexter

Shortwave Mysteries Solved

That strange transmission on **25775**, noted last time by a couple of eastern time zone reporters, turns out to have been a test of a digital **Radio Mundial** (DRM) format involving a simulcast of analog and digital. The broadcast came from a 200-watt transmitter at Rennes, France—which makes it a pretty good DX catch in anybody's book.

Another mystery transmission has also been solved. Last winter East Coast listeners discovered a Korean language station on **6715 USB** airing services from the Full Gospel Church. It turns out this broadcast is intended for Koreans (fishermen) working in the West Africa area. The church involved is the Yoido Full Gospel Church in Las Palmas, the Canary Islands! If this one is still active as you read this you might give it a try while this band is still "in season." The broadcasts fade in around 2200 and the station goes off the air at 2230. Although the station has been heard on days other than Sundays it may not be on the air daily, so check for it over a multi-day period. If you get lucky, the address for reports is Full Gospel Las Palmas Church, Plaza de Agustin del Castillo 3, Las Palmas de G.C., Spain.

Marty Foss, NZ7X/DU1, got to Radio TV Brunei recently but could not get past the non-English security guards. Brunei was once a good DX catch on the 60 and 41-meter bands.

An Elusive Paraguayan And AWR's New Transmitter In Guam

That still low-powered and thus still elusive Paraguayan, **Radio Americas**, is now airing test broadcasts 24 hours a day on listed 9980, but it's actually more like **9983**. Other frequencies in use at various times include **2300**, **7385** (**86**) and **7737**. How long these will continue is anybody's guess. Hopefully they'll settle on a frequency with minimal interference and will also pump up the power once things come together. Meantime, North American loggings of this one have been virtually nil. Normally the only station from Paraguay heard with any regularity is **Radio Nacional**, **9737** during our evening hours.

The installation of the BBC's new relay facility in Oman has been completed, which means the transmissions from the Masirah relay site have completely ended, replaced by relays from the new BBC site at A'Seela.

Adventist World Radio has announced the inauguration of a new transmitter at KSDA in Guam. This is step one in a modernization project aimed at replacing the four transmitters at KSDA, two of which are 16 years old (the other two have been in operation for seven years). By now, two of the old transmitters should have been replaced by two new ones, and eventually KSDA will have five 100-kW transmitters on the site, one of them used as a standby. The old units are now in the process of being sold. A new switching system will also be installed to allow any transmitter to use any antenna.

YLE/Radio Finland won't be dropping shortwave as earlier threatened, but it will (and probably has, by now) cut back on hours and dropped other languages. Broadcasts in Finnish and Swedish will continue to air on shortwave. The loss of the other services will open up transmitter time for other broadcasters.

Radio Polonia says it will keep on using its in-country transmitting site rather than opting to go with relay stations in different countries. The total amount of airtime will be cut back, however. Sadly, Poland has been one of the more difficult European countries to hear for several decades now. The only chance to hear them in English is from 1200 to 1300 (OK, 1259) on **6095**, **9525**, and **11820**. Believe it or not, Radio Polonia has no transmissions in any language during our local evening hours.

In Venezuela **Radio Amazonas** (**4940v**) has been reactivated. That may or may not be real news since all of the three or four active Venezuelans on shortwave seem to be irregular. On any given day it's even money whether tuning to **4830** will find **Radio Tachira** or **4980 Ecos del Torbes**. Given the left-wing Chavez regime in power there, it's not hard to imagine all shortwave outlets being closed by the government should that particular whim strike.

Voice International (Christian Voice) has a new address: Voice International Ltd., Killick St., Kunda Park, Queensland 4556, Australia.

HCJB says you have to provide return postage for QSLs. That can be in the form of a dollar bill, a Euro, an Inter-national Reply Coupon, or three unused 37-cent U.S. stamps.

Indonesia Cutbacks And New Peruvian

Just as things started to heat up in Indonesia, it looks as though the **Voice of Indonesia** is cutting back somewhat. Its higher frequencies (**11785** and **15150**) seem to have been dropped, so that **9525** is the only remaining channel—active from 0030 to 0400, 0800 to 1300, and 1730 to 2100. The domestic RRI service still uses **15125**.

A new one in Peru is **Radio Tropical** in Huancabamba on **6419**, running to sign-off around 0200.

Reporter Mike Miller is our book winner this month. Mike receives a copy of the 2003 edition of *Passport to World Band Radio*, courtesy of CRB Books. Get their large catalog of radio and other fascinating books by calling them at 516-543-9169 or writing to P.O. Box 56, Commack, NY 11725. You can also check their website at <www.crbbooks.com>.

Needless to say your reception logs are of utmost importance. We make every effort to use most, if not all, of the logs sent in, so don't be shy or feel that yours aren't good enough. They are! Just be sure to list your logs by country and leave enough space between them so we can navigate scissors easily. Logs are cut into strips and then sorted by country, so be sure to use only one side of the paper, otherwise some of your logs won't survive the cut, so to speak! Also include your last name and state abbreviation after each logging.

As always, thanks so much for your continued interest and participation. Remember: station photos, pictures of you at your listening post, spare QSL cards, and any other station materials are welcome for use as illustrations. Thanks again!

Loggings

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e., 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language is noted it is presumed to be EE. Away we go!

ALASKA—KNLS, **9615** in RR at 1154 with music, talk, ID and off at 1159. (Jeffery, NY)

ALBANIA—Radio Tirana, **6115** at 0145 with sign on, schedule. (Moser, IL) **7160** at 0230 with ID, schedule, news. (Burrow, WA)

AFGHANISTAN—Radio Afghanistan, via Norway, **18940** at 1329 with open carrier, opening ID and anmts by man in Pashto, then news, interview features, and traditional music. (D'Angelo, PA) 1330 in Tajik and AA with news, folk music, Koran. Runs to 1630. (Ziegner, MA)

ANGUILLA—Caribbean Beacon on **17775** at 1700 with Gene Scott. (Paradis, ME) 1932. (Moser, IL)

ANTIGUA—BBC relay, **5975** at 0003. (Moser, PA) 0113. (Newbury, NE) Deutsche Welle relay, **6075** at 0205 in GG, **//6100** from Germany. (MacKenzie, CA)

ARGENTINA—Radio Baluarte, tentative, heard on **6215** at 0004 with SS talks, music. Noted UTE communications in background on this maritime frequency. (Montgomery, PA) Unidentified broadcast relay, **15820** in SS at 0315. (Alexander, PA) RAE, **11710** in EE at 0233 with Argentine music scene, immigration to Argentina, and sports. (Burrow, WA)

ASCENSION ISLAND—BBC relay, **6005** at 0400, **//5975** Antigua. (MacKenzie, CA) **7105** to West Africa at 0610. (Becker, WA) **12095** at 0153 and **17830** at 1955. (Jeffery, NY) **15400** at 2100. (Linonis, PA) VOA relay, **11855** at 2018. (Newbury, NE)

AUSTRALIA—Radio Australia, **9580** at 1300. (Quinby, PA) 1105. (Northrup, MO) 9580//11650 at 1231. (Moser, IL) **11650//11880** at 1205 with "This is the ABC" ID. (Brossell, WI) 11880 at 1700. (Burrow, WA) **17580** at 0210. (Jeffery, NY) 0430. (Newbury, NE) **21725** at 0143. (Foss, Philippines) **21740** with news items at 2215. (Wood, TN) ABC Northern Territories Service, tentative, **2485** from Katherine at 1923. ABC news at 1930. (Foss, Philippines)

BANGLADESH—Bangladesh Betar, heard on **7185** at 1542 with local music, woman annor at 1544 and suddenly off at 1545. (Foss, Philippines)

BELARUS—Radio Minsk, **7210** at 0209 with EE news, ID at 0210 "This is Radio Minsk" and into music and talks. (Montgomery, PA)

Abbreviations Used In This Month's Column

//	—	Parallel frequency
AA	—	Arabic
ABC	—	Australian Broadcasting Corporation
AFRTS	—	Armed Forces Radio Television Service
AFN	—	Armed Forces Network
AIR	—	All India Radio
annor	—	announcer
anmt(s)	—	announcement(s)
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CC	—	Chinese
CNR	—	China National Radio
EE	—	English
GG	—	German
GOS	—	General Overseas Service
ID	—	identification
Int'l	—	international
IS	—	interval signal
Lang	—	language
LSB	—	lower sideband mode
NBC	—	National Broadcasting Corporation
OA	—	Peru, Peruvian
PBS	—	People's Broadcasting Station
Pgm	—	program
RRI	—	Radio Republick Indonesia
sked	—	schedule
SIBC	—	Solomon Islands Broadcasting Corporation
TOH	—	Top of the Hour
TT	—	Turkish
unid.	—	unidentified
USB	—	upper sideband mode
vern	—	vernacular (any local dialect or language)
VOA	—	Voice of America
VOIRI	—	Voice of the Islamic Republic of Iran

BELGIUM—Radio Vlaanderen Int'l, **15565** via Bonaire at 2343. (Miller, WA) 0401. (Moser, PA)

BENIN—Radiodiffusion du Benin, **7210.3** at 2250 with highlife vocals, FF woman annor, ID at 2259, sign-off anmts and orchestral anthem. (D'Angelo, PA)

BOTSWANA—VOA relay, **15445** at 2100. (Linonis, PA)

BOLIVIA—Radio Santa Cruz, **6134.8** at 2320 with futbol coverage then talks with TCs and network IDs for Radio Cadena Deportiva, Santa Cruz." (D'Angelo, PA)

BRAZIL—Radio Rio Mar, **9695** at 2223 with man/woman annors hosting "A Voz do Brazil" program to 2310 ID by man and into religious talk. (D'Angelo, PA) Radio Anghanguera, **11830** at 2336 with PP talks by two men, ad string, more talk. (D'Angelo, PA) Radio Difusora Roraima, **4875** in PP with talk, music. Barely audible under static. (Jeffery, NY) Radio Nacional do Amazonas, **11780** at 2329 with PP music. (Miller, PA)

BULGARIA—Radio Bulgaria, **9400** at 2323. (Newbury, NE) Here and **//11700** at 2330 with woman annor and pops, ID 2332, and news items. Also **11900** at 2155 with mailbag program. (MacKenzie, CA) 9400//11700 at 0215 with feature on Bulgarian tourism after 9/11. (Burrow, WA) 9400//11700 at 2309. Also 11900 at 1933 with report on organized crime. (Moser, PA) 11700 at 0215 on modernizing the Bulgarian army. (Brossell, WI) 11900at 1930. (Paradis, ME)

BURKINA FASO—Radio Burkina, **5030** at 2315 in FF with African music and possible phone interview. (Linonis, PA)

CANADA—RCI, **13650** with "As It Happens" at 2130. (Quinby, PA) **15325** with news at 2103. (Moser, PA) Deutsche Welle via Sackville on **6040** at 0107. (Moser, PA)

CHILE—Voz Cristiana, **6070** in SS at 0830, **//11745** and **15375**.

(Alexander, PA) 11745 in PP at 0145. (Brossell, WI) **17680** in SS with ID at 2200, music. (Paradis, ME)

CHINA—China Radio Int'l, **9565** at 1650, **//9870**. Also **11685** in RR at 1930 and **13790** in EE at 1930. (MacKenzie, CA) **9570** via Cuba in CC at 0210. (Brossell, WI) **9690** (via Spain) at 0306 with news about China, "Life in China." (Burrow, WA) **13680** via Canada at 2311. (Moser, PA) **15100** in CC at 0039. (Jeffery, NY) **15265//15285** in CC at 1315. (Northrup, MO) Central People's Broadcasting Station, Beijing, **9645** in FF at 1855. (MacKenzie, CA) **15710** in CC at 0146. (Foss, Philippines) **17605** in CC at 0245 and **17625** in CC at 0225. (Jeffery, NY) Yunnan PBS Kunming, **6937** in CC at 1228. (Strawman, IA) Zinjiang PBS Urumqi, **6160** at 2347 in CC with pops and CC talk. (Foss, Philippines)

COLOMBIA—La Voz de Tu Conciencia, **6010.9** at 0815 with SS talk ID. (Alexander, PA) 0940 with long religious talk in SS, ID over music at 1000. (D'Angelo, PA)

CONGO—RTV Congolaise, **5985** heard at 2340 with highlife, FF anmts. (Strawman, IA)

COSTA RICA—University Network, **11868.7** (nominal 11870) at 0005 with EE sermon and SS translation. **//5029, 6150, 9725, 13749.9**. (Alexander, PA)

CROATIA—Croatian Radio, **9925** via Germany heard at 0131 with "Voice of Croatia" ID. (Moser, PA) 2300 with news. (Ziegner, MA) **13830** at 1615 in presumed Croatian. (Foss, Philippines)

CUBA—Radio Havana Cuba, **9580** at 0135. (Newbury, NE) **15230** in SS at 1230. (Northrup, MO) **13750** at 2031 with news. (Moser, PA) 2100 with DX program. (Wood, TN) Radio Rebelde, presumed, **5025** in SS at 1115. (Jeffery, NY)

CYPRUS—BBC relay, **11845** with IS, ID and into RR at 0200. (Brossell, WI) **12095** at 0410. (Moser, PA)

CZECH REPUBLIC—Radio Prague, **6200** heard at 0119 with feature on violin making. (Newbury, NE) **7385** (via WRMI) and **9870** at 0300 with ID, news. (Burrow, WA) **11600** at 2213 in FF. **//15545**. (MacKenzie, CA) 2240 with interview. (Moser, PA) 0230. (Paradis, ME)

DENMARK—Radio Denmark, via Norway, **9985** in DD at 0048 and off at 0054. (MacKenzie, CA) **11635** in DD at 0130. (Brossell, WI)

DOMINICAN REPUBLIC—Radio Villa, **4960** in SS at 0200 with lively music, ID, and many mentions of Santo Domingo. (Linonis, PA)

ECUADOR—La Voz del Napo, **3280** at 0750 with SS ballads, local religious program from "Radio Maria." Heard earlier around 0100 but weak. (Alexander, PA) Radio Federacion Shuar, **4960** at 1034 in local Indian language, rustic music, more talks. (D'Angelo, PA) Radio Centinella del Sur, **4770** in SS at 1107. (Miller, WA) Radio Quito, **4919** in SS at 0657. (Miller, WA) HCJB, **9745//11960** with DX Party Line at 0107. (Moser, PA)

EGYPT—Radio Cairo, **9475** at 0252 with music and letters. (Burrow, WA) In GG at 0208. Also **9900** in AA at 0108 and **12050** in AA at 1942. (MacKenzie, CA) 0215 in AA with music and talks. (Brossell, WI) 2312 in AA. (Moser, PA) 0245 in AA. Also 9900 in FF at 2010. (Newbury, NE)

ENGLAND—BBC, **7120** (via South Africa) at 0405. (Moser, PA) **13745** at 1950 in EE/RR. (MacKenzie, CA) **15190** (via Antigua) at 1209 with recipes for sour cream and caviar ice cream! (Ziegner, MA) 1330. (Northrup, MO) Bible Voice Broadcasting Network, **11645** at 2034 with canned EE religious programming. (D'Angelo, PA)

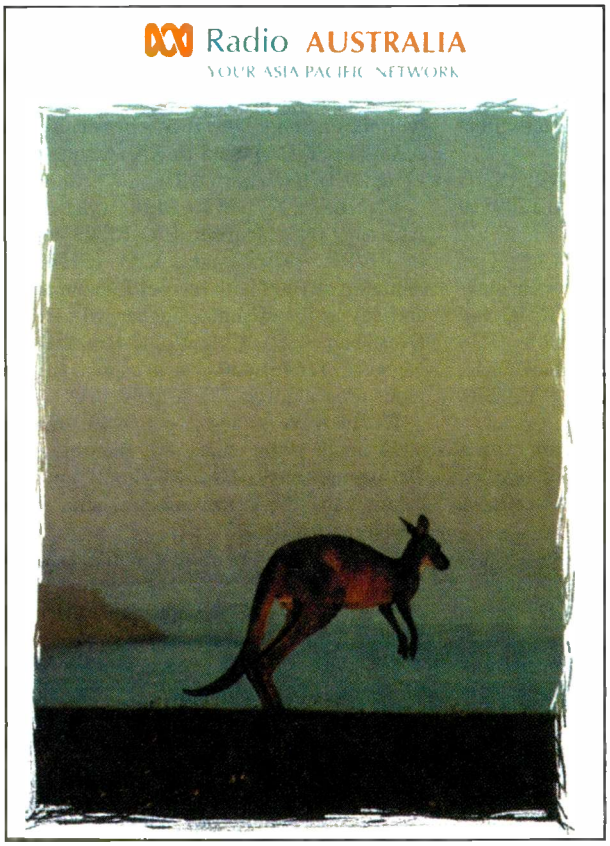
ETHIOPIA—Radio Fana, **6940, //6210** at 0324 with long talks in possible AA. Occasional music, ID at 0328 and apparent Radio Fana IS. Being jammed after 0330. (Montgomery, PA)

FINLAND—YLE/Radio Finland, **11690** at 0006 in Finnish with domestic news. (Miller, WA) **17670** with chimes IS and "Radio Finland" ID at 1234. (Brossell, WI) **21670** with weather, news, "Finland This Morning." (Foss, Philippines)

FRANCE—Radio France Int'l, with news and features, sports, and "Club 9516" from 1600. (Paradis, ME)

FRENCH GUIANA—Radio France International relay, **11665** in FF heard at 0133. (Brossell, WI)

GABON—Africa No. One, **9580** in FF at 2200. (Miller, WA) **15475** in FF at 1600.



A classy card from Radio Australia with room to confirm four reports on the back, complete with transmitter sites! (Tnx: Ray Paradis)

إذاعة المحبة والوفاء
على الموجة القصيرة
١٩ مترا بديلبة مقدارها
١٥،٥٣٥ ميغاهرتز

إذاعة صوت الغفران

Voice Of Forgiveness

"Annie Hall"
<ahall@cytanet.com.cy>
09/05/2002 09:20 AM

To: <rdangelo@gpu.com>
cc: (bcc: Richard A D' Angelo/GPU)
Subject: Reception Report

Dear Richard

Warm greetings from the team here in Cyprus.

We have been forwarded your reception report and thank you for taking the time to listen to our programms and sending this report. I have been in touch with our Station in Seychelles, who will send you a QSL card.

If there is anything else you need or would like to know about our programs, please don't hesitate to let me know.

Best wishes
Annie

----- Original Message -----
From: <rdangelo@gpu.com>
To: <Webmaster@arabicradio.org>
Sent: Wednesday, September 04, 2002 11:25 PM
Subject: Reception Report

The Voice of Forgiveness religious broadcast confirmed Rich D'Angelo's report with this letter from their Cyprus office.

(Paradis, ME) RFI relay, **11955** in FF at 2023. (Newbury, NE) 2114. (Brossell, WI)

GERMANY—Deutsche Welle, **13720** with medical program at 1929. (Moser, PA) Bayerischer Rundfunk, **6085** at 0158 with IDs, news in GG, then a current affairs program with frequent IDs. Was due to close at the end of 2002. (D'Angelo, PA) Sudwestfunk, **7265** at 0350 with U.S. pops, news, weather in GG. (Wood, TN)

GHANA—GBC, **4915** at 2200 with pops and news. (Wood, TN)

GREECE—Voice of Greece, **7477** at 0240 with Greek music, unid. language, ID at 0300. (Brossell, WI) VOA relay, **15255** at 1700 with News Now format. (Paradis, ME)

GUATEMALA—La Voz de Nahuala, **3360** at 0309 with instl music, talks in SS and Quechua, marimba music after 0321 ID (D'Angelo, PA) Radio Chortis, **3280** at 0520 with Hail Mary and rest of SS church service. (Wood, TN) Radio Buenas Nuevas, **4800** with gospel tunes at 1107. (Miller, WA) Radio K'ekchi, **4845** with Quechua Bible broadcast at 1114. (Miller, WA) Presumed this at 0215 with what sounded like mariachi music. (Linonis, PA) 0250 with sign-off anmts at 0258. Off with national anthem at 0303. (Alexander, PA) Radio Verdad, **4052.5** at 0045 with variety of religious organ music, light instrumentals and marimbas, IDs, SS anmts but very little talk. EE ID with address and request for reports at 0221 and 0303. (Alexander, PA)

GUINEA—RTV Guineenne, **7125** in FF at 2256. Mostly music. Blasted by Radio Liberty at 2308. (Ziegner, MA) 2258 with man in FF and into domestic music, tentative ID at 2301. Also at 2324 with long FF talks and string instrumentals in background. Appeared to be a second language in use as well. (Montgomery, PA) 2345 to 0000 close. Afro-pops, very little talk. Off with national anthem. (Alexander, PA)

HAWAII—KWHR, **17510** with music program at 0210. (Jeffery, NY) 0342 with ID and South Bend, IN address for schedule followed by Bible Prophecy Broadcast. (D'Angelo, PA)

HONDURAS—Radio Litoral, **4832** at 0031 with tentative ID at 0032, woman annor, more music, ID by man at 0033. (Montgomery, PA)

HUNGARY—Radio Budapest, **9560** at 0105. (Moser, PA) 0126 with times and frequencies, sign off. (Newbury, NE) **9570** at 0230 with ID, news. (Burrow, WA)

INDIA—All India Radio, New Delhi, tentative, **4860** at 0056. Man annor at top of hour with short talk, more music. (Montgomery, PA) **4920** (Chennai) at 0014 with Song of India IS, Hindi anmts at 0015. (Strawman, IA) **9950** with music and history feature at 218. (Ziegner, MA) **11620** (Bangalore) at 1842 with news. (Miller, WA) 1900 blasting Pakistan. (Linonis, PA) 2050 with Indian music and news. (Wood, TN) 2100 in Hindi with local music, woman annor. (Quinby, PA0 2105 with news. (Moser, PA) 2040, 0130 and 0220. (Brossell, WI) **11715** at 2208 and **13605** in Hindi at 1815. (MacKenzie, CA) **13605** at 0000 in EE with ID. (Newbury, NE)

INDONESIA—Voice of Indonesia, **15150** hearrd at 2003 with Indo news and tourism report. (Burrow, WA) 2030 in EE/II. (Linonis, PA) 2042 in EE with talks and local music. Close with news at 2057 and woman with times, frequencies, ID and "Love Ambon" at sign-off. (D'Angelo, PA) (*Note: Use of **15150** is reported to have been discontinued.—gld*) RRI Jakarta, **15125** with songs at 0231. (Jeffery, NY) RRI Makassar, **4753** in II at 1200. (Miller, WA) RRI Serui, **4606.4** at 1210 with pops. (Strawman, IA) RRI Ternate, **3344.8** with II music, **//3266.4**/Gorontolo. (Strawman, IA) RPD Manggarri, Flores Island, **2960** at 1150 in unid language. (Foss, Philippines)

IRAN—VOIRI, **9560** in SS at 0130. (Newbury, NE) **9610//11970** at 0102. (Moser,

PA) **9635//11775** with news at 1538 and 1541. (Burrow, WA) **11675** at 2007. (Ziegner, MA) **11840** in AA at 2050. (Brossell, WI) **15200** with Middle Eastern music at 1325. (Northrup, MO) **21470** at 1133 with anti-American commentary. (Foss, Philippines) 1221 with anthem, EE ID, news in EE. (Montgomery, PA)

ISRAEL—Kol Israel, **9435** at 0400. (Moser, PA) **11585** with pop tunes in HH. Also **17535** in HH at 1240. (Brossell, WI) 2323 with talk show in HH. (Miller, WA) 2014 in HH with rock and phone. Also **15640** at 2138 with rock bits and phone talks. (Newbury, NE) **11605** in EE at 1907. //**15615** and **17545**. (MacKenzie, CA) **15760** at 1426 in HH. (Foss, Philippines) 17545 in SS at 1545. (Burrow, WA) 1900 with news and commentary. (Paradis, ME)

ITALY—RAI Int'l, **11765** (Ascension) //11800 at 0147 in II. (Brossell, WI) **11800** at 0059 with feature. (Moser, PA) IRRS, **13840** at 0800 with UN program, environmental news, IRRS ID an address at 0831. (Alexander, PA)

JAPAN—Radio Japan/NHK, **7230** via England in EE/JJ at 0648. Beamed to Russia and Central Europe. Also **11715** at 0617 in RR to Eastern Russia. (Becker, WA) (Becker, WA) **6145** via Canada with mailbag at 0015. (Moser, PA) 0042. (D'Angelo, PA) **9505** at 1730. Also **9835** in JJ at 1857 and **11895** at 2258 in JJ. (MacKenzie, CA) **17810** in JJ at 0253. (Jeffery, NY)

JORDAN—Radio Jordan Amman on **11690** at 1505 with domestic call-in program in EE. (Burrow, WA)

KUWAIT—Radio Kuwait, **11675** in AA at 0144. (Brossell, WI) **11990** at 1943. (Moser, PA) 2024 with non-stop rock. (Newbury, NE) 2030 with radio drama. (Linonis, PA) 2030 with soft rock. (Wood, TN) 2057 with ID and close down at 2100. (Miller, WA) 0235 with pops, ID, schedule. (Burrow, WA)

LIBERIA—Radio Liberia Int'l, tentative, **5100** at 2310. Weak to closing at 0000. (Montgomery, PA)

LIBYA—Radio Jamahiriya, **15435** at 1547 with AA news and political discussion. (Miller, WA) 2115 with AA music, mentions of Palestinians and Khadafi. (Linonis, PA) 0227 in AA. (Brossell, WI)

LITHUANIA—Radio Vilnius, **9875** at 2300 in LL with announcement, anthem, and news. EE starts at 2330. (Miller, WA) 2330 with ID, IS, program notes, news. (Burrow, WA) **11690** at 0037 with ID, schedule. (Moser, PA)

MADAGASCAR—Radio Netherands relay, **11655** with music heard at 1941. (Moser, PA)

MALI—RTV Malienne, **4835** heard at 2330 with Afro-pops to 0000 sign off. (Paradis, ME)

MALAYSIA—Radio Malaysia, **7295** heard at 1107 with Asian stock market quotes. (Foss, Philippines) 1510 with ID 1520 and domestic music program. (Burrow, WA)

MAURITANIA—Radio Mauritanie, **4845** at 0000 with AA traditional music and Koran. (Paradis, ME) 0651 with AA prayers. (Miller, WA)

MEXICO—Radio Educacion, **6185** in SS at 0222 and continuous ranchero music. (MacKenzie, CA 0621 in SS with jazz. (Miller, WA)

Radio Mexico Int'l, **9705** heard at 2340 in EE with some SS. Lots of Mexican music. (Quinby, PA)

MONGOLIA—Voice of Mongolia, **12085** at 1000 with discussion on throat singing. (Ziegner, MA) 1008 with man/woman anncrs commenting on EE news items. (Montgomery, PA)

MOLDOVA—Voice of Russia via Moldova, **7180** with EE features. (Newbury, NE) **11750** heard at 0210. (Brossell, WI)

MOROCCO—RTV Marocaine, **7135** heard at 2237 in AA with lots of AA style music. Off in mid-tune at 2359. (Montgomery, PA) **11920** in AA at 0239. (Newbury, NE) **15345** in AA at 2007. (MacKenzie, CA) VOA relay, **15445** with Jazz America program. (Paradis, ME)

NETHERLANDS—Radio Nether-lands, **9895** at 2007 with news features. (Newbury, NE) 11655 about sports programs in Africa. (MacKenzie, CA) **13700** with music at 1941. (Moser, PA)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, **9790** at 0930. (Jeffery, NY) 0946 with news. (Foss, Philippines) **21590** at 1925, //**17605**. (MacKenzie, CA)

NEPAL—Radio Nepal, presumed, **5005** at 1220. Mushy audio and strong het. (Strawman, IA)

NEW ZEALAND—Radio New Zealand Int'l, **11675** at 0900. (Newbury, NE) 1100 with news. Switched to **15175** at 1105. (Moser, PA) **11725** at 1648 with IS, music, ID at 1653, schedule, ID: "Pacific Service of Radio New Zealand International," anthem in possible Maori and news of the Pacific. (Burrow, WA) **15160** with news at 1803. (MacKenzie, CA) 2030 to 2045 close with birds IS. (Linonis, PA) 15175 with sports news at 1126. Also **15340** at 0538 with news and **17675** at 0232 with "In Touch with New Zealand." (Jeffery, NY). 0200-0230 with "Cadenza." (Quinby, PA)

NIGERIA—Voice of Nigeria, **7255** at 2235 with news, ID, frequencies. //15120. (Wood, TN) **15120** with news items at 1955. (MacKenzie, CA) 2023 on Nigerian politics. (Brossell, WI) 2233 on Nigerian development. (Miller, WA) 0546 with "VON Scope." (Jeffery, NY)

NORTHERN MARIANAS—VOA relay, **15240** with news heard at 1202. (Jeffery, NY)

NORTH KOREA—Voice of Korea, **3560** at 1000 with anthem, EE ID. (Foss, Philippines). **9335//11710** at 1502 with ID and Kim Il Jung news. (Burrow, WA) Frontline Soldiers Radio, **3025** in KK at 1747. Slow chorus. (Foss, Philippines)

OMAN—Radio Oman, **15355** in EE monitored at 0300 with "The Holy Koran," AA Koranic verses with EE commentary to 0310 then into Western pops. Gongs, ID, anthem at 0330, news to 0340, then Oman weather. (Burrow, WA)

PAKISTAN—Radio Pakistan, **11570** at 1457 with distinctive IS, time pips, ID at 1500, and into news. (Burrow, WA) **15100** at 1603 with news in Urdu, music segment, talk. ID monitored at 1610. (D'Angelo, PA)

PAPUA NEW GUINEA—NBC, **4890** with music at 1256. (Miller, WA) Radio Northern, **3345** at 1141 with pop tunes in unid. language. (Foss, Philippines) Radio Manus, **3315** at 1027 with island music to ID and news at 1030, sports at 1047, more music to 1101 ID. (D'Angelo, PA) Radio New Ireland, **3905** at 1051 with Pidgin/EE talks, mentions of New Ireland, vocal, ID at 1100, and news. (D'Angelo, PA)

PARAGUAY—Radio National, **9737.2** with SS coverage of Paraguay futbol match. (D'Angelo, PA)

PERU—Radio Ilucan, **5678** at 0145 with SS talk, OA folk music, ID, anmts, abrupt sign-off at 0245. (Alexander, PA) Radio San Miguel, **6895.4** at 0145 with SS echo anmts, ID, OA folk music, ads. (Alexander, PA) La Voz de las Huaringas, **6819.5** heard at 0200 with SS anmts, OA folk music, ID, and promos. Off at 0237. (Alexander, PA) Radiodifusora Huancabamba, **6536** at 0145 with SS anmts, OA folk music. Off with anthem at 0159. (Alexander, PA) Radio Union, presumed, **6144.7** at 0650. Latin music, SS ballads and talk but no ID heard to past 0800. (Alexander, PA) Radio LTC, tentative, **5005.8**, very weak in SS with OA music. (Montgomery, PA) Radio Virgen del Carmen, **4886** in SS at 0245. Music, anmts, talk by man. (Jeffery, NY)

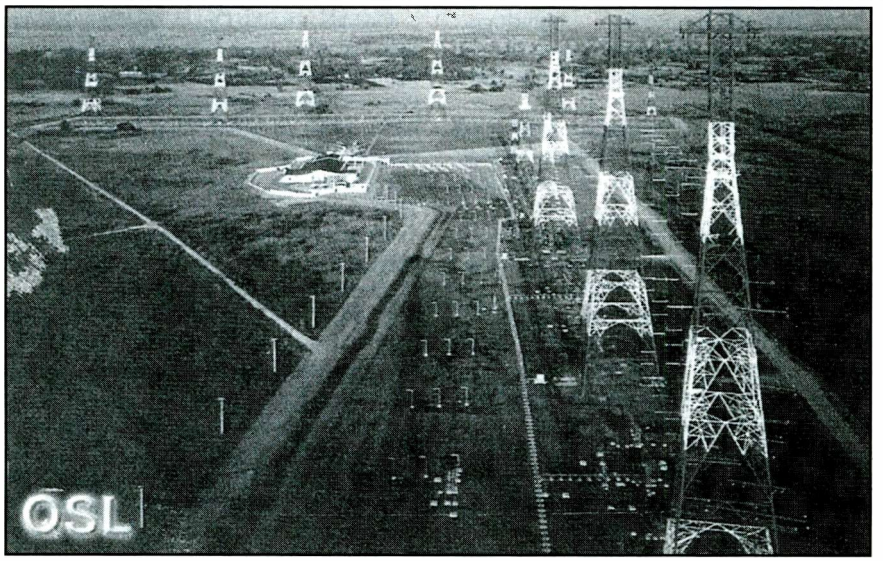
PHILIPPINES—Radio Pilipinas, **15190** at 1916 with ID, music, commentary. Also **17720** at 1809. Woman giving speech. //15190. (MacKenzie, CA) VOA relay, **15160** at 1218. (Jeffery, NY) **15250** at 1210 in CC. (Brossell, WI)

PORTUGAL—RDP Int'l, **15555** with sports broadcast in PP heard at 2219. (MacKenzie, CA) **17615** in PP at 1245 with talk. (Brossell, WI) **21655** with live sports in PP at 1922. (MacKenzie, CA) Deutsche Welle relay, **13790** heard at 0727 in unid. language. (Foss, Philippines)

PUERTO RICO—Armed Forces Network, **6458 USB** with football game at 0218. (MacKenzie, CA)

ROMAINA—Radio Romania Int'l, **9570//11740//11775//15105** with ID at 2313. (Moser, PA) **11740** at 2149 with sports and news. (Miller, WA) **11940** with news at 0200. (Brossell, WI) 0242 with listener mail. (Burrow, WA) **15225** in Romanian at 1410. (MacKenzie, CA)

RUSSIA—Voice of Russia, **7180** (via Moldova), //**17595** (Petropavlovsk) at 0210 with pops. (MacKenzie, CA) **7390** at 1834



Towers of power! A view of the antennas at the BBC Asia Relay station in Thailand on the QSL they sent to Rich D'Angelo.

with classical music. Also **17635** with EE news at 0718. (Foss, Philippines) **9725//11825** at 0109. (Moser, IL) **9775** at 1800. (Paradis, ME) **15550** in RR at 1218. (Brossell, WI) **15735** with Joe Adamov and mailbag at 1900. (Ziegner, MA) **17595** with a science program at 0215. (Jeffery, NY) Radio Arkhangelsk, **6160** at 0617 in RR to Northern Russia. (Becker, WA) Radio Rossii, **15455** in RR with piano music and talk. (Jeffery, NY)

RWANDA—Deutsche Welle relay, **11805** at 1929. (Moser, PA) **15275** in GG at 0046. (Jeffery, NY)

SAO TOME—VOA relay, **7290** heard at 0307 with "Daybreak Africa" at 0307. (D'Angelo, PA)

SAUDI ARABIA—BSKSA, **15230** with Koran at 2035. (Brossell, WI) Holy Koran service at 2145. (Linonis, PA)

SEYCHELLES IS.—FEBA, **11600** at 1548 with EE religious program, ID and sign off with address in Bangalore, India at 1558. (Burrow, WA) **11640** in AA at 0223. ID 0229 and mailing address in Rawalpindi, Pakistan. Brief IS and into Pashto. (D'Angelo, PA) BBC relay, **21470** heard at 1050 with Blair speech. (Foss, Philippines)

SINGAPORE—BBC relay, **11945** in CC at 1220. Jammed. (Brossell, WI) Radio Singapore, **6150** with simulcast of 98.7 FM "Singapore's favorite music." ID at 1529. (Burrow, WA)

SOLOMON ISLANDS—SIBC, **5020** at 1057 with prayer reading at 1100, woman with ID at 1102, national anthem at 1103, then BBC news. (Montgomery, PA) 1220 with BBC news. (Miller, WA)

SOUTH AFRICA—Channel Africa, **17860** at 1658 with EE/PP ID, news. (Brossell, WI) BBC relay, **6195** at 0400 with World Service News. (Moser, PA) **11765** with news at 0600. (Jeffery, NY)

SOUTH KOREA—Radio Korea Int'l, **9560** monitored at 0205 with news, ID, Web address, news, comment. (Burrow, WA) 0206 with "That ends the news from Radio Korea International as read by Jennifer Downing." (Brossell, WI) 0211 with comments on North Korean violations, "Seoul Calling" at 0214. (MacKenzie, CA) *(9560 is via Canada.—gld)*

SLOVAKIA—Radio Slovakia Int'l, **5930** at 0105 with commentary. (Moser, PA) **9440** at 0120. Shortage of film actors. Address, ID. (Newbury, NE)

SPAIN—REE, **9620** at 0146 with Mozart. SS talk. (Newbury, NE) **9840** at 2125 with talk on marine biology. (Wood, TN) **15385** with talk about art exhibition at 0002. (Moser, PA)

SRI LANKA—SLBC, **9770//15425** in EE at 1515. 9770 drops off at 1520. (Burrow, WA) VOA relay, **15545** in AA at 2030. Off at 2100. (Paradis, ME)

SURINAM—Radio Apintie, tentative, **4991** with music heard at 0255 UTC. (Montgomery, PA)

SWEDEN—Radio Sweden, **9490** with interview at 0229 with chimes, ID, into half hour EE program. Also **17505** at 1240 with rock interview. (Brossell, WI) 9490 at 0241. (Moser, PA)

SWITZERLAND—Swiss Radio Int'l, **13645** with interview at 1940. (Moser, PA) **15220** via Germany with news at 2004. Also **17735** in AA at 1905, **//13645**. (MacKenzie, CA) 15220 in GG at 2033. (Brossell, WI) **17736** at 2045 in GG with possible sports. (Linonis, PA)

SYRIA—Radio Damascus, **13610** at 2124 with news, music, ID. (Burrow, WA)

TAIWAN—WYFR relay, **15060** heard at 0141 with Bible program. (Foss, Philippines) Radio Taipei Int'l, via WTFR, **5950** in CC at 0239. (Moser, PA) 0255. (Newbury, NE) **7520** in CC at 0145. (MacKenzie, CA) **9680** in EE at 0308. (Burrow, WA) **11605//15465** in CC at 1220. (Brossell, WI)

THAILAND—Radio Thailand, **9680** at 2035 with discussion on knee surgery. (Ziegner, MA) VOA relay, **7125** at 1552. (Foss, Philippines) **9840** with news for Asia at 1900. (MacKenzie, CA) **11785** in CC at 1225. (Brossell, WI)

TUNISIA—RTT Tunisienne, **9720** and **12005** in AA at 0204. (Brossell, WI)

TURKEY—Voice of Turkey, **7270// 11655** at 0323 with tourist program. (Burrow, WA) 11655 with press review at 0305. (Moser, PA) **11885** in TT at 2202. (Miller, WA) 11885 in TT at 2225. Also **11960//12000** in EE at 2200 (MacKenzie, CA) 0200 in TT. (Brossell, WI) **17590** in presumed TT at 0714. (Foss, Philippines)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13675** at 0330. (Moser, PA) **15400** with Koran at 0248. (Brossell, WI) **21600** at 1500 with EE annor and pops. Think this is a relay of domestic "Dubai FM." Not on listed 21605. (Wood, TN)

UZBEKISTAN—Radio Tashkent, **11905** heard at 2030 UTC with IS, ID, news. (Burrow, WA)

VATICAN—Vatican Radio, **7345** with EE closing at 0458. (Miller, WA) **9650//12055** at 0139 with IS and into EE. (Moser, PA) **11830** in CC at 2219. (MacKenzie, CA) Voice of Russia relay, **11825** at 0150. (Brossell, WI)

VENEZUELA—Radio Tachira, **4830** in SS at 1130. (Miller, WA)

VIETNAM—Voice of Vietnam, **5925** at 0956 and 1408. Also **12020** at 2255 in presumed VV. News at 2300. (Foss, Philippines) 1224 in VV. (Strawman, IA) **6175** via Canada in EE at 0345. (MacKenzie, CA) **9840** in EE at 1233, **//12020**. (Montgomery, PA)

YUGOSLAVIA—Radio Yugoslavia, **9580** at 0000 sign-on to 0028 close. ID, news, weekly folk music program. **11870** also announced but not heard. (D'Angelo, PA) 0000 to 0027 with report on business developments, light instrumental music, local rock, ID. (Alexander, PA)

ZAMBIA—ZNBC, **6265** at 0243 sign on with Fish Eagle IS, tribal vocals, drums, unid language ID, EE ID, 2+1 time pips, more tribal music. (D'Angelo, PA)

And that's the lot. A rousing blast of trumpets and thundering applause for the following who supplied the goodies this time: Rich D'Angelo, Wyomissing, PA; Robert Montgomery, Levittown, PA; Mark Northrup, Gladstone, MO; Brian Alexander, Mechanicsburg, PA: Stewart MacKenzie, Huntington Beach, CA; Robert Brossell, Pewaukee, WI; Tricia Ziegner, Westford, MA; Ray Paradis, Pittsfield, ME; Mike Miller, Issaquah, WA; Samuel Quinby, Farrell, PA; Jack Linonis, Hermitage, PA; Dave Jeffery, Niagara Falls, NY; Pete Becker, Clarkson, WA; Bruce R. Burrow, Snoqualmie, WA; Marty Foss, Guinayangan, Philippines, Ed Newbury, Kimball, NE; William Moser, PA; Jerry Strawman, Des Moines, IA; Joe Kenneth Wood, Gray, TN.

Thanks to each one of you! And until next time, good listening! ■

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

FCC Authorizes 406.025 MHz, And More

The FCC has authorized the use of Personal Locator Beacons (PLBs) on 406.025 MHz. Much like aviation Emergency Locator Beacons and marine Emergency Position Indicating Radio Beacons, PLB will allow people hiking, biking, or camping in remote areas to be able to signal for assistance in the event of an emergency. In its Report and Order (WT Docket No. 99-366), the Commission has decided to license individual 406 MHz PLB "by rule" (no individual licensing requirements), require mandatory registration of these devices with the National Oceanic and Atmo-spheric Administration, and require manufacturers of 406-MHz PLB to comply with the Radio Technical Commission for Maritime Services (RTCM) Recommend-ed Standards. The Commission was quick to point out that these changes will

> ...further the public interest by facilitating the use of radio spectrum to increase the safety of the general public in life-threatening conditions in remote environments after all other means of notifying search and rescue (SAR) responders have been used.

Requests for waivers of Commission Rules by ACR Electronics, Inc., and McMurdo Limited (reported on in this column previously) were denied, as the new rule change allows these devices.

FCC To Allow Wireless Spectrum Use Shift

The Federal Communications Com-mission will allow wireless carriers more flexibility in using future spectrum licenses. A new Commission policy relaxes a requirement that carriers receive FCC permission before changing the type of services they offer in a particular part of the spectrum. The policy will affect the next allocation of licenses. "We're moving toward more flexible allocations," said Wireless Bureau Chief Tom Sugrue. "As technology and the marketplace shifts, license holders can shift their use of the spectrum from one market to another."

WWAC-TV Asks To Operate As Digital-Only Station

The FCC's Media Bureau received a request from Lenfest Broadcasting, LLC, for permission to cease analog broadcasting. Lenfest is a licensee of analog television station WWAC-TV, NTSC Channel 53, and permittee of digital television station WWAC-DT, DTV Channel 44, Atlantic City, New Jersey. The company is seeking Commission authority to cease analog broadcasting on NTSC Channel 53, surrender its license for the channel prior to the end of the DTV transition, and operate WWAC-DT as a single channel, digital-only television station on DTV Channel 44. This request is in line with the FCC's Report and Order in GN Docket No. 01-74 adopting the reallocation of the 598- to 746-MHz Spectrum Band (television channels 52 through 59) from use by television broadcasters to new uses on a flexible basis. The Commission stated that it would consider requests by incumbent broadcasters on channels 52 through 58 to voluntarily vacate their NTSC channels prior to the end of the DTV transition on a case-by-case basis.

Lack Of Funding For Interoperable Radios

When the Arlington County, Fairfax County, city of Alexandria, and Washington, D.C. fire departments arrived at the Pentagon on September 11, 2001, they could communicate with each other over their Motorola radios, but they couldn't talk with federal emergency workers: the local and federal radio systems weren't interoperable. Though many manufacturers offer interoperable products, the lack of available funds to make the switch has many agencies unable to communicate with each other, and the result is downright dangerous. Congress is now considering a $3 billion federal grant to support interoperable radios for local and federal radio systems, but experts predict that amount will be too little to complete the job.

Emergency Notification Plan For Federal Workers Approved

The White House has approved a plan that would allow federal employees to be quickly notified in the event of an attack or imminent chemical, biological, or radiological threat. Under the plan, the directors of the Office of Personnel Management, the Federal Emergency Management Agency, and the General Services Administration would make the decision whether to release up to 350,000 federal employees in Washington and up to 1.8 million nationwide if a threat were confirmed. Three 24-hour-a-day operations would maintain contact with the FBI, federal anti-terrorist teams, the U.S. Capitol Police, and state and local police. The alerts would go to key federal and other government employees who are now equipped with cellular or satellite phones, wireless e-mail devices, radios, and other gear. The directors would also notify the White House, local elected leaders, Metro officials, regional emergency managers, and the news media.

LoJack Early Warning Service

Remember those car alarms that sensed an intruder and played a message saying "back away from the car!" In a new twist on an old idea, LoJack, the stolen car finder company, has unveiled a new service that equips cars with sensors to detect anyone that comes too close. The vehicle's owner is then notified of possible tampering or intrusion by e-mail, text message, pager, or telephone. A key pass allows owner-authorized people access. The early warning service is priced at $9.95 per month or $115 yearly. ■

plane sense

your link to global aviation communications monitoring

By Bill Hoefer <flacap388@hotmail.com>

Answers To Your Air Questions

In this issue I'll be covering only questions you've asked me over the last three years that I feel should be answered at this time. Some questions have been asked more than once.

But before I do let me present my monthly aviation trivia question. We know of the Cessna 150, the 172, the 210, the 310, the 421, the 500, and the 650. But what was the Cessna 620? The answer, along with some true aviation humor, is found at the end of the column.

Weather

Q: I hear the temperatures in weather broadcasts much lower than the temperature I feel outside. Why?

A: The temperature is now given in Celsius as opposed to Fahrenheit. When pilots work on flight plans they normally use temperatures in Celsius anyway, so why give the temperatures in Fahrenheit when they must convert it? All flight service station controllers have a quick conversion chart if needed.

Q: On my local ASOS frequency I hear the sky conditions as "clear below one-two thousand" yet I see a distinct overcast above me. Is there a problem with the ASOS?

A: Not at all. The ASOS (Automated Surface Operations System) as well as the AWOS (Automatic Weather Observation System) can only detect clouds up to 12,000 feet above the surface of the airport. Weather observers can override the system if needed as the systems are not foolproof. But there's no real need for any cloud reports below 12,000 feet anyway for most pilots. Nothing wrong with the system, just the nature of the beast.

Q: What is icing and what is the problem with it?

A: Icing is a build up of ice on or in the aircraft. There are three kinds of icing: structural (that found on the leading edges of wings, horizontal and vertical stabilizers and propellers), instrument (covering radio antennas and air holes or ports around the aircraft which can interfere with instruments showing performance or radio transmissions with ATC), and induction (found primarily in the carburetors of aircraft and which can impede the efficiency of the engines, causing the possible failure of the engine). Any of the three can be dangerous, even more so for smaller aircraft.

For structural and instrument icing the flight must be in clouds and in a specific temperature range. However, induction icing can be found year round and even in temperatures over 100 degrees Fahrenheit. If icing is severe enough and not dealt with as soon as possible the outcome can be deadly.

The Airports

Q: Why are runways numbered the way they are? Why not just number them in numerical sequence?

A: The easiest way to describe the numbering system is to add a zero to the end of the runway number, and that tells you the magnetic heading of that particular runway to the nearest 10 degrees. For example, at Albany, Georgia, the Southwest Georgia Regional Airport (ABY) has runways 4, 16, 22, and 34. They are normally called the opposite runways at the same time when describing the whole runway. For example, in 4/22 and 16/34 Runway 4 is heading roughly 40 degrees magnetic, 22 is 220 degrees, 16 is 160 degrees, and 34 is 340 degrees.

At some airports there may be more than one runway heading the same magnetic heading. At that case we use the additional designators of L (for left) and R (for right) for dual parallel runways. An example of this is Jackson, Mississippi's Allen C. Thompson Field (JAN) where the runways 13L/31R and 13R/31L are in use. The controllers would use the designator 13 Left or 31 Right as appropriate. They run 130 and 310 degrees respectively. Some airports may have triple runways, adding a C for the middle, or Center runway. An example of this is also found in Mississippi at Columbus AFB (CBM) where they use 13L/31R, 13C/31C (called runway 31 Center), and 13R/31L.

Some airports are forced to use quadruple parallel runways. An example is Atlanta's Hartsfield International Airport (ATL) where they use 9L/27R, 9R/27L, 8L/26R, and 8R/26L. All four runways run 090/270 degrees magnetic, but the 8/26 runways cannot also be named 9L/27R, etc. So to solve the problem just change the number by 1 and voila, it's fixed.

Q: Do the different colors on the turning lights on airports hold any meaning?

A: Yes. The colors, other than white, indicate if the airport is either a land airport (green) or a seaplane base (amber). A single white or clear flash indicates the airport is a civilian airport, but not if it is a public or private one. A dual or double white or clear flash means the airport is military. You will rarely find one with a single white, single green, and a single amber flash. These rare ones are normally heliports. Oh, by the way, they are called rotating beacons.

Q: What do the white, yellow, red, and blue lights on the airport mean?

A: I assume you mean the lights on the ground. White lights are runway edge lights and are found up and down both sides of active airport runways. Blue lights are taxiway edge lights, again found on both sides of the taxiways. Yellow lights are found at some airports at the last 1,000 feet of the runways in use. When viewed from one side they are white and from the other side yellow, indicating you better slow down and quick. Red lights are found at the approach to ends of the runways and as obstruction lights on buildings and towers indicating you better not run into them.

Q: What are "rabbits"?

A: When you go by certain airports at night you may see what appears to be a fast running light going up to one of the main

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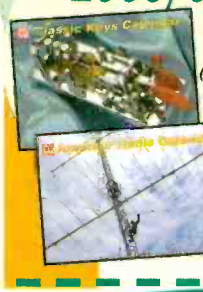

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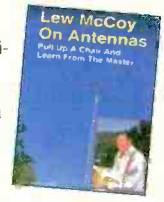

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Fort Rucker/Goodman, IOC Stage Field AHP (25AL)
Cairns Apch 126.2/371.35
Fort Rucker/Hartford, Highbluff Stagefield AHP (14AL)
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Fort Rucker/Kirklands Crossroads, Goldber Stagefield AHP (12AL)
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Fort Rucker/Louisville Stagefield AHP (18AL)
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Fort Rucker/New Brockton, Stinson Stagefield AHP (22AL)
Cairns Apch 126.2/371.35
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Fort Rucker Ozark, Hanchey AHP (HEY)
Cairns Apch 125.4/327.125
Fort Rucker/Ozark, Hatch Stagefield AHP (13AL)
Cairns Apch 126.2/371.35
Fort Rucker/Ozark, Hooper AHP (16AL)
Cairns Apch 126.2/371.35
Fort Rucker/Ozark, Knox AHP (FHK)
Cairns Apch 125.4/327.125
LC 139.075/299.95
CD 118.075/380.1
Fort Rucker/Ozark, Molinelli Stagefield AHP (19AL)
Cairns Apch 126.2/371.35
Fort Rucker/Ozark, Tabernacle Stagefield AHP (23AL)
Cairns Apch 126.2/371.35
Fort Rucker/Wicksburg, Allen Stagefield AHP (05AL)
Cairns Apch 126.2/371.35

FL
Jacksonville, Cecil Field (VQQ)
ILS 36R Localizer (I-VQQ) 109.5

IN
Poseyville, Garrett Field (7IN3)
Unicom 122.8

KS
Pittsburg, Atkinson Municipal (PTS)
AWOS-3 118.775

MI
Lambertville, Toledo Suburban (DUH)
AWOS-3 119.175

MN
Minneapolis ARTCC (ZMS)
Apch 121.725 for the following airports:
Bigfork Municipal (FOZ)
Fosston Municipal (FSE)
Glenwood Municipal (GHW)
Hutchinson Municipal-Butler Field Airport (HCD)
Jackson Municipal (MJQ)
Marshall Municipal-Ryan Field (MML)
New Ulm Municipal (ULM)
Orr Regional (ORB)
Ortonville Municipal-Martinson Field (VVV)
Rush City Regional (ROS)
St. James Municipal (JYG)
Wadena Municipal (ADC)

MS
Batesville, Panola County Airport (PMU)
ILS 19 Localizer (I-PMU) 110.35

NC
Holly Ridge, Topsail Airpark Airport
Multicom 122.9

LaGrange, Smith Farm Airport
Multicom 122.9

NM
Clayton Municipal Airpark (CAO)
Albuquerque ARTCC Apch 127.85/351.7

OH
Cincinnati, Blue Ash (ISZ)
AWOS-3 118.375

WA
Point Roberts Airpark (1RL)
Unicom/CTAF 122.8

WI
Boyceville Municipal (3T3)
Minneapolis ARTCC Approach 125.3/335.6

CHANGED

AL
Andalusia/OPP (79J)
GC was 241.2, now 273.45
LC was 244.6, now 317.75
Apch was 237.5, now 239.4
Clayton Municipal (11A)
Cairns Apch was 232.5, now 319.25
Dothan Regional (DHN)
Cairns Apch was 234.4, now 327.125
Enterprise Municipal (EDN)
Cairns Apch was 237.5, now 239.4
Florala Municipal (0J4)
Cairns Apch was 237.5, now 239.4
Fort Rucker Ozark, Cairns AAF (OZR)
PMSV was 123.7, now 134.1
PMSV was 344.6, now 348.8
Operations was 127.95, now 126.2
Operations was 347.5, now 371.35
Apch was 232.5, now 319.25
Apch was 234.4, now 327.125
Apch was 237.5, now 239.4
Apch was 356.45, now 291.65

LC	was 241.0, now 248.55
LC	was 248.2, now 288.25
CD	was 304.45, now 380.1
ATIS	was 374.3, now 316.15
Fort Rucker Ozark, Hanchey AHP (HEY)	
Cairns Apch	was 232.5, now 319.25
CD	was 304.45, now 380.1
CD	was 120.325, now 118.075
Fort Rucker Ozark, Lowe AHP (LOR)	
Cairns Apch	was 237.5, now 239.4
LC	was 237.3, now 289.15
GC	was 265.6, now 357.15
Ozark, Blackwell Field (71J)	
Cairns Apch	was 121.1, now 125.4
Cairns Apch	was 232.5, now 327.125
Troy Municipal (TOI)	
Cairns Apch	was 232.5, now 319.25
LC	was 246.5, now 306.9
GC	was 366.2, now 294.7
AK	
Crooked Creek (CJX)	
Unicom/CTAF	was 122.8, now 122.9
CT	
Groton New London (GON)	
CD	was 118.55, now 119.85
FL	
Bonifay, Tri-County (1J0)	
Cairns Apch	was 356.45, now 291.65
Marianna Municipal (MAI)	
Cairns Apch	was 356.45, now 291.65
GA	
Blakely, Early County (11J)	
Cairns Apch	was 234.4, now 327.125
Donalsonville Municipal (17J)	
Cairns Apch	was 234.4, now 327.125
NC	
Goldsboro, Seymour Johnson AFB (GSB)	
LC	was 266.8, now 370.875
ND	
Fargo (FAR)	
Grand Forks FSS RCO	was 122.45, now 122.425

DELETED

AK	
Wrangell (WRG)	
Unicom	122.8
IN	
Poseyville, Garrett Field (yIN3)	
Unicom	122.8
NJ	
Matawan, Marlboro (2N8)	
McGuire Apch	120.25
TX	
Edna, Jackson County (26R)	
Apch	128.6/360.8

runways. These "sequential flashing lights" move quickly in one direction and appear as one quick light moving "like a rabbit."

Flight Plans

Q: What do pilots mean when they say they are a Cessna 172 "slant uniform" or Mooney "slant gulf"?

A: On domestic flight plans (those in the United States and Canada) this tells the controller what kind of navigational equipment is on board. It also tells if the aircraft is equipped with a transponder and altitude encoding. Those aircraft with slant (/ on flight plans) alpha means the aircraft has normal navigation equipment with DME (distance measuring equipment) and altitude encoding. This shows the pilot can use the navigational aids on the ground to find his way with reasonable precision and air traffic can observe on radar his height above sea level. Those pilots using GPS will file as /G. Military may use /P, or /N if they are not GPS equipped. Most military aircraft are indeed GPS equipped, so /P or /N are rarely seen. A running joke among ATC is an aircraft, usually small aircraft and some aircraft for training, is called slant uniform, or slant "uninformed."

Q: What do tango slant, heavy slant, and bravo slant mean?

A: These are found at the beginning of a type of aircraft. What was in the previous answer is called a suffix; these are prefixes. The "tango" means the aircraft is equipped with TCAS (Terminal Collision Avoidance System), which allows the pilot to see where his aircraft is in proximity to other aircraft, showing their altitudes in relationship to him. This also gives him a possible solution to the problem of a possible midair collision.

The "heavy" means the aircraft is considered a heavy aircraft. The definition is "(An a)ircraft capable of takeoff weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight." This is also a reminder to give these aircraft some extra space or separation due to wake turbulence following the aircraft. The only indication to controllers that the aircraft is a heavy is the prefix "H/." However, with one exception, the controller will use the word heavy in the callsign. Example, an American B747 would be identified something like "American two forty two heavy." The one lone exception is that the word "heavy" is never used with Air Force One (or whatever military aircraft the President is on) regardless of type of aircraft.

The "bravo slant" is extremely simple. It is a heavy aircraft that's TCAS equipped. It is Both TCAS and Heavy. Makes sense, huh?

Aviation Charts

Q: On my local sectional I see what I assume are radio towers. What do the numbers next to them mean?

A: The top number is the altitude of the top of the tower above sea level. The lower number, in parenthesis, is the height of the tower above the ground. Those of you who are hams may have used King Videos to help you get your license or upgrade. (I hope they come out with a series for the Extra class license.) Well, before the ham tapes they did a series on pilot licenses. In these, the instructor describes the numbers next to tower emblems like this: "If you're flying along and you strike the top of the tower your altimeter will indicate how high you are

NEW/CHANGED/DELETED IDs/ABANDONED AND CLOSED AIRPORTS

NEW

AL
Cedar Bluff, Flying M Ranch Airport — AL32

IL
Belleville, St. Elizabeth's Hospital Heliport — IL73
Capron, SD Aero Airport — LL28
Hammond, Adkisson Airport — IL32

IN
Hammond, St. Margaret Mercy Heliport — 7IN4
Poseyville, Garrett Field — 7IN3

KS
Pittsburg, Atkinson Municipal — PTS

MD
Towson, St. Joseph Hospital Heliport — 08MD

MN
McGregor, Krezowski Seaplane Base — MN75

MT
Helena, Bar E Airport — MT86

ND
Epping, Moen Airport — ND34

OR
Silver Lake, Mahogany Mountain Airport — 1JY2

SD
Hot Springs, Black Hills Health Care System Heliport — SD23
Hoven, Holy Infant Hospital Heliport — SD22

TX
Graham, Front Yard Landing Area Heliport — TX14
Liberty Hill, Britts Crosswind Airport — 91TE

WA
Point Roberts Airpark — 1RL

WI
Birchwood, Florida North Airport — WN98
Dodgeville, Southwind Airport — 22WN
Pleasant Prairie, St. Catherine's Hospital Heliport — WN97
Washburn, Old Dairy Airport — 3WN2

CHANGED

CA
Los Angeles County Sheriff's Department Heliport
Was 52L, now 01CN

MS
Batesville, Panola County Airport — was 0M6, now PMU
Picayune Municipal Airport — was M76, now MJD

NJ
Belmar/Farmingdale Allaire — now Monmouth Executive (BLM)

NM
Tatum, Lea County/Tatum, now Tatum (E07)

VA
Virginia Beach, Atlantic Airpark — now Virginia Beach Airport (42VA)

ABANDONED/CLOSED

AK
Wasilla, Settlers Bay Airstrip (A89)

NJ
Matawan, Marlboro (2N8)

TX
Mount Pleasant Municipal (MSA)

above sea level, which will be the top number on the map. The bottom number tells you just how far you will fall until you die." They make dying so much fun.

That's all for this month, but I have numerous questions to answer in next month's column.

The Trivia Answer

The answer to this month's trivia question: The Cessna 620 was a single aircraft built in the mid-1950s to study the use of a four-engine propeller aircraft for business use. The original idea was to take the better part of two Cessna 310s to make the 620. Get it? A 310+310 makes 620. Today if you hear of a 100 or 200 series Cessna it is normally a single engine high wing aircraft. A 300 or 400 series is a twin engine and normally low wing. If you hear of a 500, 600, or 700 series it is a business jet.

Aviation Humor

Air traffic around the world is in English by decree from ICAO. In Munich, Germany, a while back a pilot for a Lufthansa Airbus requested push back from the gate in German. The ground controller spoke back to him, "Please talk in English."

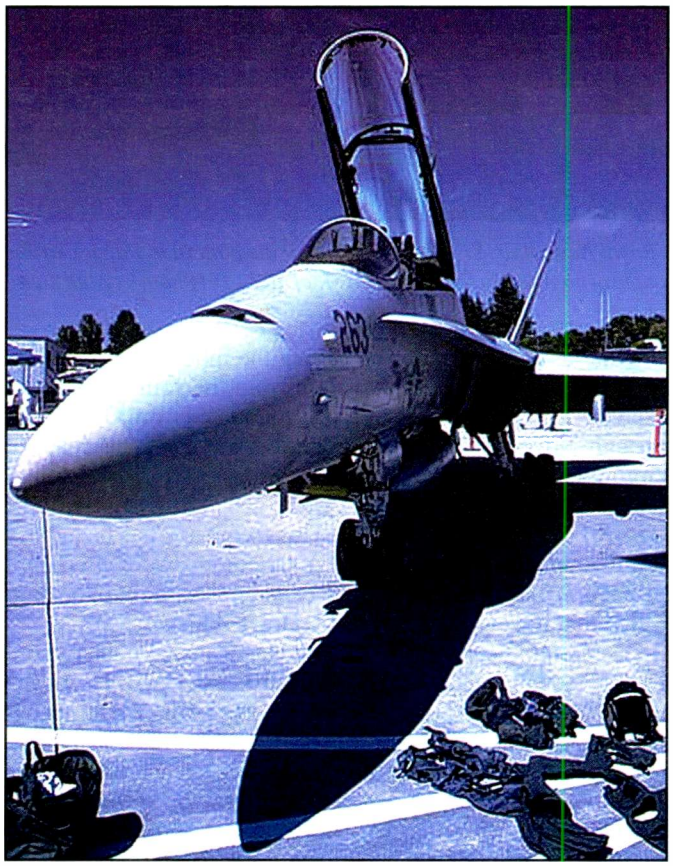
The German pilot, in his inimitable way, said, "I'm a German flying a German aircraft in Germany. Why do I have to speak in English?"

The Munich ground control replied in perfect Elizabethan English, "Because you lost the bloody war!" ■

The only Cessna 620 ever built.

by Joe Cooper <ur-review@provcomm.net>

The Ethics Of Monitoring



A Marine Corps F/A-18 from the VMFAT-101 Sharpshooters squadron based at MCAS Miramar. (Photo by Craig Rose)

This month Craig Rose has written on a rather serious and important topic. We, as radio monitors, check out the utility radio frequencies in order to listen into the world around us. It should go with out saying that if we are truly living in a democracy then we should be living in an open society. A good measure of that openness is our ability to monitor radio frequencies.

Having said that, with any kind of freedom comes responsibility. Craig raises this issue of responsibility by asking at what point do we turn off our radios when it is obvious that the events that we are listening to are very personal and tragic for the people living through them.

I've already written in depth about the "gentleman's agreement" that lies behind the current laws governing radio monitoring. It clearly states that when we listen to a point-to-point radio transmission we do not divulge the information heard to third parties, nor do we use what we have heard for personal financial gain.

Yet at this point we clearly do not have a set of guidelines that helps us understand the point at which radio monitoring moves beyond information gathering and into morbid curiosity or out-and-out eavesdropping into things that are none of our business. I am sure some people will never really care about issues like this and will argue that it's nobody's business what they listen to on their radio. Still, read through Craig's contribution and see what you think. I'd be very happy to get some reader feedback on this issue.

Alan Stern has put together some excellent points on HF military and a report on a scrubbed space shuttle mission. Al, by the way, is very knowledgeable on monitoring the activity around the Kennedy Space Center since he lives in Florida. He's also asking for reader feedback, so please drop him a line. I know that people have already been sending Craig feedback, and what has been sent so far is very positive.

We also have some new and returning log contributors this month, and it is good to see people respond to my request to help contribute to the success of this column. I'm in negotiations now with some of the readers of this column for articles and maybe even monthly submissions, so it looks like things are going to start getting interesting over the next few months.

Don't forget, it's your column, so please drop us a line, send in a log, or share a picture or two with fellow readers. So on to the assistant editor's contributions.

More Than Just Voices

By Craig A. Rose <hfaerocomms@hotmail.com>

At 9:41 a.m. on October 18th the skies above the Pacific Ocean, some 80 miles west of Monterey, California, were slightly overcast and the winds were light and variable. Eight F/A-18F Super Hornets of the VFA-41 Black Aces squadron, based at Naval Air Station Lemoore, were participating in routine air-to-air combat training within an offshore warning area (W-283) when something went terribly wrong.

Although there were no eyewitnesses to the tragedy that occurred, it is probable that two of the fighters collided during maneuvers leading to the disintegration of both aircraft as they plunged seaward. The ensuing rescue effort was both rapid and massive, but unfortunately four naval aviators remain missing and are now presumed dead.

It was this event, and the subsequent rescue communications heard in the aftermath of this tragedy, that forced me to begin to think about how we as radio hobbyists tend to relate to disastrous events and the disembodied voices we hear over our radio gear.

Where exactly do we draw the line between legitimate listening and auditory voyeurism? It sometimes seems that when we listen to the routine, and sometimes not-so-routine, com-

munications conducted on HF, we tend to perceive these voices as being almost inanimate. However, in the wake of this horrendous accident, and other catastrophic events, it becomes painfully apparent that what we are really hearing are the voices of people involved in extraordinarily trying circumstances. It is events like these that may serve to define the limits of what we share with each other and the rest of the world.

Since the 9/11 terror attacks on the United States, each of us in the radio hobby, and especially those who tune to military communications, have been confronted with the question of how circumspect we should be when monitoring radio transmissions. Some suggest that sharing any information heard via our radios, no matter how seemingly innocent, should be kept perfectly quiet. However, many others have taken it upon themselves to withhold only those portions of radio communications that might be seen as confidential in nature. While still others—a small minority—have opted to ignore any sense of caution by continuing to share specific, even critical, details with the rest of the world.

A simple example of this attitude can be found in the sharing of highly specific communications details such as last names, phone numbers, or locations. This may take the form of someone hearing a phone patch between a U.S. military aircraft and a ground station in which there is a discussion of the individuals aboard the airplane.

How exactly does this relate to the crash of two Navy F-18s? The communications heard between the U.S. Coast Guard, Navy, and Air Force following the loss of these two planes was rife with details that in my estimation were best left between the party transmitting the information and his or her intended recipient. Is this a matter of censorship? No! This is much more a matter of humanity and common sense.

In the case of the F-18s and their crews, it quickly became an issue of respect—for those lost and for those that placed themselves in harm's way to provide comfort and aid. In choosing to withhold certain details of what I heard that day I can honestly say that I feel the right choice was made.

I believe it is imperative that each of us remembers that the application of common sense when sharing what we hear over our radios will go a long way to affirming our own humanity. It will also serve to remind each of us that not only are the voices we hear those of humans, but often times these are humans facing life or death situations.

HF Utility Report

By Alan Stern <AllanStern@aol.com>

Among the most significant events in military HF monitoring this past month was the noticeable change in the methods U.S. Air Force Global High Frequency System (GHFS) radio operators used to accommodate aircraft requesting phone patches on 11175. Instead of keeping the aircraft on that frequency for the duration of their patch, operators often requested that the aircraft shift to other discrete frequencies, thereby freeing up the 11175 frequency for its "calling" purpose. This seemed to streamline the load handling on that very, very busy military frequency; we will have to watch and see if this practice continues. Among the frequencies used as discrete were 6730, 7325, 8058, 9120, 10589, 11053, 11181, 11214, 11220, 11460, 11484, 13200, 13272, 13440, 20313, and 23265 (all kHz USB).

A Royal Australian AF KC-135, working the pattern at Patrick AFB a couple of hours before departing to MacDill AFB. (Photo by Alan Stern)

As far as Navy monitoring during the month, the most significant receptions seemed to stem from the Joint Task Force Exercise 3 (JTFEX-03), which was conducted from October 28 through November 6 in the Atlantic waters off the coast of Virginia and North Carolina. One of the busiest frequencies used in the exercise was **3167.4 kHz USB**, which was busy with the JTFEX 03-1 Foxtrot Juliet Net. This frequency has been busy in previous JTFEX games. JTFEX 03 comms were also heard on **2250.5, 4372, and 6967**. The callsigns heard on 6967 suggested that it was the JTFEX 03-1 Hotel Whiskey Net.

This month there were also more Hurricane comms to monitor. I personally snagged comms from Keesler AFB Hurricane Hunter aircraft TEAL 55 on **13927.0 kHz USB**. We all recognize that as one of the busiest U.S. Air Force MARS frequencies, with almost constant use on phone patches both of the Morale & Welfare variety and of the official type as well. I heard a *National Geographic* magazine reporter aboard TEAL 55 reporting her experience back to *National Geographic*, and it was a fabulous phone patch to hear. The reporter described very vividly what is was like to fly through the storm and through the very eye of the hurricane. Listening to her, one could almost feel the buffeting that she and the crew experienced.

In another MARS patch from a Hurricane Hunter aircraft, I heard a pilot calling his home back near Keesler to warn his family of the storm that was headed their way. In a totally different part of the world, Diego Garcia ATC Tower was once again heard from on **13254**. Months ago that frequency was extremely busy handling military and civilian air traffic in that part of the world. It was good to hear it come alive again. On a calmer note, some new U.S. Coast Guard HF frequencies were discovered. COMSTA Kodiak was reported to have passed frequencies **5421.0 and 9170.5** to Coast Guard Cutter *Polar Star*. It will be worthwhile to monitor those for a while.

And lastly, one of the most popular targets of radio monitors, the Space Shuttle, contributed to our listening pleasure. During preparations for its November 11 launch, which was scrubbed, we were able to monitor radio traffic on HF frequencies **10780, 5190 and 7765**. 10780 is Cape Radio, the principal HF frequency for the launch support team, and it was active with Florida-based participants speaking to down-range units such as Ascension Radio. The 5190 frequency is often used by the

solid rocket booster ships *Freedom Star* and *Liberty Star* to keep in communications with the Booster Recovery Director from the time they depart Cape Canaveral to position themselves near the booster impact area, until the time they return with the spent solid rocket boosters in tow. The 7765 kHz frequency was designated as the shuttle mission frequency very early on Monday, November 10, and carried traffic among Cape Radio, DoD Cape, Cape Osbourne, and the USS *Robert G. Bradley*. It was on 7765 that I heard DoD Cape pass the news of the launch scrub decision to the Bradley at about 9:45 p.m. EST (0245Z). The launch was scrubbed due to an oxygen leak, but DoD Cape quaintly described it as a "rub-a-dub scrub."

If there are any questions about military HF monitoring that you would like to ask, I will do my best to answer you or find someone else who can. And if there are any subjects you would like me to address, feel free to make suggestions so I can accommodate you. My e-mail address is <AllanStern@aol.com>.

Reader's Logs

We have a new contributor this month, and an "old" contributor who has returned in a new guise.

First, I'd like to welcome Hector Vazquez of Los Angeles, California, to our ranks. Hector is using a Japan Radio NRD 545 hooked up to a dipole tuned to the civilian aero frequencies. Hector also speaks Spanish, so he also logs some interesting activity from Mexico. I'm hoping that he will drop us a line to tell us more about the HF activity that is taking place south of the border.

For many columns I used to feature the many logs of Mid Atlantic DXer (MADX). He recently relocated to Japan and will be sending along new logs that focus on the Far East. Don't discount these logs as possible targets. Even though we are starting to slide into the down side of the DX cycle, it doesn't mean that the bands are dead. Those who are on the West Coast should be able to hear what has been logged here.

So, with that all being said, let's go on to the logs!

Remember that all frequencies are in kiloHertz and times are Universal (Z).

0000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z (Z), personal comments here. (JC)

2187.5: UNID, GMDSS ALERT CHANNEL DSC//100/E/170 No distress in 1 hr. Two (corrupt) bursts. 1655 Bermundan (?) flag ship clng UKCG Humber with safety/test. (DW)

2381.6: PBC, DN GOEREE ISLAND RTTY//75/N/850 CARB. (DW)

2463: IDR, IN ROME RTTY//75/N/850 CARB. (DW)

2474: PBC, DN GOEREE ISLAND RTTY//75/N/850 CARB. (DW)

2643: A9M, BAHRAIN RADIO CW Channel free marker "de A9M tlx." (DW)

2789: FUE, FN BREST RTTY//75/N/ 850 Marker "FAAA de FUE RYs SGs Figs int zbz kkkk." (DW)

2795: ESA, TALLINN RADIO CW Channel free marker "de ESA." (DW)

2813.3: MTI, RN PLYMOUTH VFT//2 chan Fleet broadcast VFT on USB. (DW)

2813.9: MTI, RN PLYMOUTH RTTY// 75/R/200 CARB "02 02a MTI." Chan 1 in VFT. (DW)

2829: SPB, SZCZECIN RADIO CW Channel free marker "SPB." (DW)

2845: PBB, DN DEN HELDER RTTY// 75/N/850 CARB. (DW)

3799: UNID, UNID, MIL.STD 188-141A ALE on USB. Clng MHQ, interference Mil.Std 188-110A 39 tone// modem. Same net? (DW)

3799: MHQ, UNID, MIL.STD 188-141A ALE on USB. Clng FWD. (DW)

3799: FWD, UNID, MIL.STD 188-141A ALE on USB. Clng MHQ. (DW)

3799: 10T, UNID, MIL.STD 188-141A ALE on USB. Clng FWD. (DW)

3799: 10T, UNID, MIL.STD 188-141A ALE on USB. Clng FWD. Also 1816Z. 1902Z clng SPD. (DW)

3799: 9SR, UNID, MIL.STD 188-141A ALE on USB. Clng MHQ. (DW)

3799: SPD, UNID, MIL.STD 188-141A ALE on USB. Clng MHQ. 1902z responds to 10T. (DW)

3799: 16A, UNID, MIL.STD 188-141A ALE on USB. Clng 23P. (DW)

3799: 27R, UNID, MIL.STD 188-141A ALE on USB. Clng SPD. (DW)

3799: 33F, UNID, MIL.STD 188-141A ALE on USB. Clng MHQ. (DW)

3803: UNID, UNID, CW tfc in offline encrypt. [20 wpm]. (DW)

3831: S8BD, UNID CW Slowish. 5-fig groups with no apparent header from start; ends "=S8BD" then opchat/cls "AJV5 de S8BD." Later 5-ltr groups ending "=S8BD." (DW)

3841: UNID, UNID CW tfc in offline encrypt with accentuated letters. [29 wpm] (DW)

4210.5: UFL, Vladivostok Radio 0629 CW/SITOR-A w/id and free idle. (JUM)

4271: CFH, CF HALIFAX FAX//120/ 576/N/800. (DW)

4273: FUO FN TOULON RTTY//75/ N/850 Marker "NAWS de FUO 4 / 6 / 12 znr uuuuu testing RYs sg's figs." (DW)

4295: FUE, FN BREST RTTY//75/N/ 850 Wkng w/ship "FK," or idle on MARK. "qsl R 290356z" "qrv" "qsl O 290714Z" etc wkng thru 1820Z before reversting to marker. (DW)

4317.9: NMG, USCG *New Orleans* FAX//120/576/N/800 Sfc analysis. Vague outlines. (DW)

4372: N6P, U4D, 2IN, R8R, 8KZ, V6C, U.S. Navy ships in Link 11 Coord net in VACAPES OPAREA. At 0217 they are told to bring transmit power up to 200 watts. (MC)

4525: 5ST ASECNA Antananarivo 1726 RTTY 100/400 Met codes. (RH2)

4553: af1b LITHUANIAN MIL ?LOC MIL. STD 188-141A ALE on USB. Wkng KO7V [data] ratau [data] rysio [data]patikr. (DW)

4570: HZN46 JEDDAH MET RTTY// 100/ R/450 Met tfc, poor copy. 80 Hz high. (DW)

5181: Yokohama 0520 NAVTEX 100/ 170 w/EE NavWarnings. (JUM)

5403: Several U.S. Army MARS stations in discussion about training procedures for new members at 2357. (MC)

5472.5: UNID, GAF ?LOC ARQ/E// 85.7/I/170 4rc. Betas. (DW)

5696: 97A (USCG HH-65 #6597) wkg CAMSLANT on anti-drug patrol at 0033. 97A has 3 POB and 3+ hours fuel. (MC)

5781: UNID, GAF ?LOC ARQ/E//85.7/I/ 170 4rc. Online encryption. (DW)

5801.4: FUE, FN BREST RTTY//75/ N/1700 Marker "FAAA de FUE ry sg Figs 0-6 int zbz kkkk." Faulty shift s/b 850 Hz. Looks like but not 2nd harmonic. (DW)

5910: UNID, UNID PICC//VFT on USB. 2 chan vft. (DW)

5910.5: UNID, UNID PICC// 5910.510. Eng chan(1) in vft. On standby thru 1900Z till offair. No app tfc. (DW)

5910.9: UNID, UNID PICC// 5910.910. Tfc chan (2) in vft. On line encrypted. (DW)

6234: USCG ANDVT encrypted traffic at 0111. (MC)

6370.9: GYU, RN GIBRALTAR RTTY// 75/R/200 CARB "06a 08a GYU" then idle space. (DW)

6372: GYU, RN GIBRALTAR RTTY// 75/N/850 CARB "06a 08a GYU." (DW)

6501: NMN CAMSLANT Chesapeake wkg A8P, UNID USCG vessel. Tells them to pass their SITOR traffic on 13484 kHz in USB at 2251. (MC)

6507: VTP13 Indian Nvy Vishakhapatnam 2230 RTTY 50/600 VTP 13/14 RBSL VNR RYs SG's tape // 8298. (ML)

6507: VTP14 Indian Nvy Vishakhapatnam 2320 RTTY 50/600 4FG msg. (ML)

6507: VTP13, IN Visagapatnam RTTY// 50/R/800 Marker, v/weak "VTP 13/14 rbsl vnr vnr RYs." 2106Z fleet forecast for area Charlie (Bay of Bengal); poor copy, rptd thru 2117Z. (DW)

6692: ARTCC Petropavlovsk 0605 USB YL/RR wkg a/c. (JUM)

6695: U.S. Navy 0500 Link-11 US Navy 7th Fleet network. (JUM)

7508: ZSJ: SAN Silvermine Comcen 0945 RTTY 75/170 WX incl Meteo France fm La Reunion for Kerguelen, Amsterdam, and Crozet Isles. (RH2)

7527: Customs Service Center and PANTHER wkg J24 at 0103. J24 was ordered to

search for a Go-Fast drug runner in the Bahamas. (MC)

7633: RAZOR 66, J-STARS aircraft, p/p via USAF MARS to Robins AFB, GA at 0028. Passes ETA and ops report. Switched over from 13927 kHz. (MC)

7657: PANTHER (DEA, Nassau) wkg U.S. Customs a/c 42B tracking target vessel in the Bahamas at 0114. (MC)

7790: Mexican Federal Police with various check-ins. Mentioned Ensednada and patrol 217 on route to the scene of an accident. Lots of activity on this frequency. All in all in Spanish at 1730Z. (HV)

8031: UNID, FF NAQOURA? ARQ/E// 186.7/I/400 8rc. Betas thru 2223Z .(DW)

8040: GYA, RN NORTHWOOD FAX// 120/570/N/800 48 hr sfc prog. (DW)

8040: GYA, RN NORTHWOOD FAX// 120/576/N/800 End of chart. Fuzzy, m/path. (DW)

8070: UNID, UNID, CW Continuous repetition in slow CW of "287/00" then ends 1635Z with "=TTT." (DW)

8103: 4XZ, IN HAIFA, CW tfc in offline encrypt. (DW)

8103: 4XZ, IN HAIFA CW Marker "vvv de 4XZ ==." (DW)

8105: UNID, FF PARIS? ARQ/E//184.6/ I/400 8rc. Betas. Little.no sync. (DW)

8186.7: UNID, MFA CAIRO, SITOR/A// between 100/E/170 S/cals XBVM/Bonn. Const tone btwn bursts. 1755 change to fec, indicates qsx 3300I I -> 11034.7 kHz. Revert ARQ 1757Z. Brief QSO established, contact thru 1801Z. (DW)

8191.7: 9MR: Malay Navrad 1710 RTTY 50/850 "Fm HQ COVP2 to KPA." (RH2)

8298.1: VTP14, IN VISAGAPATNAM RTTY//50/N/850 Marker (under QRM) "VTP 13/14 rbsl vnr vnr RYs." (DW)

8397: UNID, SHIP UNID SITOR/A// 100/E/170 tfc in 3SC. Report in tabular format. (DW)

8457: 4XML, UNID, CW Marker "BFR7 de 4XML." (DW)

8491.2: UNID, UNID FAX//120/576/ R/800 (9493.1 LSB). Slewed. Weak, vague outlines. Murmansk, previously 8443?—not heard at this time. (DW)

8491.7: UNID, UNID FAX//120/576/R/ 800 (lsb of 8493.6). Slewed. Weak, vague outlines. Freq shifting over 300 Hz during chart. Murmansk? (DW)

8492.3: UNID, MURMANSK MET? FAX// 90/576/R/800 (8494.2/lsb). Carrier still unstable (thru 300 Hz). Change of drum spd to 90 rpm. Occ QRM, F1b at black tone. (DW)

8500: VTH5, IN MUMBAI RTTY//50/ R/750 Marker "VTH 1/5/7 rbsl bnr RYs." 1948Z tfc in offline encrypt (five-fig grps). (Poor copy). (DW)

8502: NMG, USCG *New Orleans* FAX// 120/ 576/N/800 Sfc analysis. Vague outlines. (DW)

8625.9: GYU, RN GIBRALTAR RTTY// 75/R/200 CARB "06a 08a GYU" (Chan 1 in VFT on 8625.3/USB). (DW)

8627: GYU, RN GIBRALTAR RTTY// 75/N/850 CARB "08a 12a GYU." (DW)

8764: CAMSLANT with Atlantic Tropical Storm and Hurricane warnings. Human operator not Perfect Paul computer at 1749. (MC)

8764: CAMSLANT wkg N7M (UNID USCG cutter) telling them to retransmit their SITOR broadcast msg at 2304. Conversation in duplex mode with cutter transmitting on 8983 kHz. (MC)

8971: BLUESTAR (TSC Roosevelt Roads) wkg GUCCI 08 for course and speed report at 2350. (MC)

8971: CARDFILE 71G (P-3C, VP-30) wkg FIDDLE (TSC Jacksonville) for status of 71H at 2106. (MC)

8971: TRAILER PARK wkg LU 001 (P-3C, VP-64) at 1317. (MC)

8971: LK 03 (P-3C) wkg BLUESTAR with position rpt at 2258. Reports mission complete and successful. (MC)

8980: CG 6026 in p/p with Elizabeth City Ops. They are told they can continue the search and are instructed to "keep making us proud" at 1532. (MC)

8983: Cutter *Petrel* (WPB 87350) wkg CAMSLANT at 2239. *Petrel* reports they are at Cristobal, Panama, entering the Canal and expect to reach the other side at 0030 local. They request CAMSPAC be notified. (MC)

8983: CG 1503 (C-130) wkg CAMSLANT. CG 1503 11 POB airborne from Miami en route to Guantanamo Bay at 2009. (MC)

8992: Simulcast 11175, 11244, 13200 kHz McClellan GHFS with EAM at 2228. (MC)

9007: CANFORCE 2990 wkg TRENTON MILITARY for p/p at 0109. (MC)

9052: UNID, UNID RTTY//50/R/500 tfc in 5-fig grps. Each 50 marked =50=, =100=,. Ends with time "1943." Further sigs in CW and "qrx "qrx 85945 85945." (DW)

10057: Air Canada 064 working San Francisco. Gave flight level 370. Was advised to contact Vancouver on 133.4 at 136 west at 1712 Z. (HV)

10057: American 560 Working San Francisco AIRINC . Req radio check on 10057. Was advised that 10057 is primary and 13288 secondary. 1630Z. (HV)

10100.8: DDK/DDH Hamburg Meteo 1720 RTTY 50/440 RY/ID 646.0 kHz. (RH2)

10555.2: VMW: Wiluna Met 1655 FAX 120/576 Nice chart! Numbers clear! (RH2)

10589: EYE GOGGLE wkg Offutt GHFS for p/p at 2227. Came over from 8992 kHz. (MC)

10945: E8P, UNID, MIL.STD 188-141A ALE on USB. Clng P5X. (DW)

10945: B4L, UNID, MIL.STD 188-141A ALE on USB. Clng 10W followed by weak/brief encrypted RT. Then Mil.Std 188-141A 39tone modem. (DW)

11030: VMC, BOM CHARLEVILLE FAX//120/576/N/800 Asian gradient level wind anal. Poor copy. 0645Z. (DW)

11034.7: UNID, EGYPTIAN EMB BONN? SITOR/A//100/E/170 Estab-lished QSO with Cairo. Brief msg in AA (ATU) but poor copy thru 1801Z. (DW)

11076: PANTHER wkg U.S. Customs a/c 42B on anti-drug mission at 0103. (MC)

11090: KVM70: Honolulu Met copied at 0635 FAX 120/576 Good satpix, better on 16135.0 kHz! (RH2)

11125: HZN: Jeddah Met (OEJD) 1645 RTTY 100/850 Metar & Sigmet. (RH2)

11148: 8WD17 MFA New Delhi 1100 RTTY 50/170 clg Thimphu 8WA11 DE 8WD17 RYs QRK 1 QRU. (ML)

11156.7: 8WA11 Indian Emb Thimphu BHU 1110 RTTY 50/170 clg New Delhi RYs 8WD17 DE 8WA11 QRK 3 & svc msg, prev copied on 11155. (ML)

11175: REACH 339T p/p via Diego Garcia GHFS to Andrews CP at 0022. (MC)

11175: LN 45A (P-3C, VP-45) p/p via Offutt GHFS to PELICAN Duty Ops. Report ETA and ask if XO is available to greet the Commodore at 2027. (MC)

11175: BLUE 51 (KC-10, Travis AFB) p/p via Puerto Rico to Travis Meteo requesting mission # at 2158. (MC)

11175: SAME 63 p/p via Andrews GHFS to Guantanamo Bay. Reporting en route from Key West with ETA 1430Z and request to do approaches for 30 minutes at 1312. (MC)

11175: REACH 651Y (self ID as C-5 tail#84060) p/p via Puerto Rico GHFS to Rota CP. Report have 7500 lbs hazardous cargo, no explosives. Next station Sigonella in USB at 0100Z. (MC)

11181: REACH 626Y in p/p via Andrews GHFS to HILDA Meteo requesting WX for Diego Garcia at 0016. (MC)

11181: REACH 24J5 p/p via Lajes GHFS to Charleston AFB at 2348. REACH 24J5 conducted earlier p/p on 13927 kHz and reported position near Honduras. (MC)

11220: TUFF 45 (B-52H) p/p via Andrews GHFS to Barksdale AFB Meteo for WX. Switched over to this freq. from 11175 in USB at 0117. (MC)

11220: CHILL 03 (B-52H) p/p via Puerto Rico GHFS to Minot AFB CP. Want to know if they have a tanker and state they will coordinate bombing run from their end at 0002. (MC)

11226: EXPO 89 (KC-135, 141 ARW) p/p via Puerto Rico GHFS to Fairchild AFB passing ETA 0300Z in USB at 2332. Switched over from 11175 kHz. (MC)

11232: RESCUE 317 p/p via Trenton Military to RCC (Rescue Coord Center). RCC reports they are unable to get another helo but are sending the Jaws of Life at 2304. (MC)

11232: KING 22 (USAF HC-130) p/p via TRENTON MILITARY to Moody AFB Meteo for WX in USB at 0203. (MC)

11427.5: TNS, ALGERIAN EMB TUNIS MIL.STD 188-141A ALE on USB. Clng MAE/Algiers. (DW)

11428: D0O, UNID MIL.STD 188-141A ALE on USB. Clng X8V. Also 0730Z. (DW)

11428: E8P, UNID, MIL.STD 188-141A ALE on USB. Sounding. (DW)

11428: P5X, UNID, MIL.STD 188-141A ALE on USB. Clng E8P. (DW)

11459.5: UNID: FAPSI 1637 RTTY 75/500 5LG on Link 60047. (RH2)

11460: REACH 7028 p/p via Andrews GHFS to Rota AMCC. Report they forgot their paperwork and req Rota FAX it to their

squadron. Switched over to this freq. from 11175 at 2349. (MC)

11570: TNS, ALGERIAN EMB TUNIS MIL.STD 188-141A ALE on USB. Clng MAE/Algiers. Also 1212Z. (DW)

11638: DDK8 HAMBURG MET RTTY//51.2//N/450 8bit. Poor copy but probably met tfc. (DW)

12161.7: UNID, ALGERIAN CUSTOMS GHAZAOUET? PACT//200/-/200 Pactor-I. Tfc in FF, ASCII. Signature appears poss Arabic name. (Title Le Directeur de la Valeur et de la Fiscalite par interim.) Tfc to/from Ghazaouet(?)—poor copy. Offair 1316Z. (DW)

12489: UFPD: NIS Akademik Oparin 0850 ARQ tfc to Vladivostok. (ML)

12503.5: UCVK UPS Krushenshtern 0750 ARQ msg to Kaliningrad. (ML)

12510: UCOU BMRT Amarel 0933 ARQ w/KYPS SELCAL, 66031 UCOU log on & crew msg to Vladivostok. (ML)

12520.5: UAPN BMRT Bukhta Preobrazheniye 1008 ARQ s/off to UEA Preobrazheniye. (ML)

12570: UIHG SRTS Serdej 1004 ARQ tfc to Vladivostok. (ML)

12570: UIQK M/V Sivind-1 1025 ARQ 66417 UIQK log on, then to IRS mode for tfc from Vladivostok on 12799.5. (ML)

12574: UCTA BMRT Vladimir Gavrilov 0850 RTTY 50/170 clg Murmansk UDK-2 DE UCTA to tfc. (ML)

12622.5: XSQ Guangzhou R 0920 FEC tfc list. (ML)

12714: UCE, ARKHANGELSK RADIO? Chan free marker. Embedded "KYs" but no CW ID. (DW)

12763.5: DAO12 KIEL MAIL PACT// Chan free marker. CW ID every 3 mins "cq de DAO12." (DW)

12771: 7TF BOURFARIK RADIO CW Marker "cq de 7TF qsx 6/8/12/16 MHz." (DW)

12789.9: NMG USCG *New Orleans* FAX//120/576/N/800 72 hr sfc forecast. 0735 chart labeled EXPERIMENTAL and "See Producr Notice Bulletin for further details". Noisy. (DW)

12824.9: GYU RN GIBRALTAR RTTY// 75/R/200 CARB "06a 08a GYU" from approx 0900Z. (Chan 1 in VFT on 12824.3/USB) Wkng warship "F" (GF/MF/?F) on chan 12a. (DW)

12826: GYU RN GIBRALTAR RTTY// 75/N/850 CARB "08a 12a GYU." (DW)

12840.5: PBC DN GOEREE ISLAND RTTY//75/N/850 CARB. (DW)

12857: 6WW FN DAKAR RTTY//75/ N/850 Marker "FAA de 6WW zui testing RYs SGs." (DW)

12857: 6WW FN DAKAR RTTY//75/ N/850 Wkng French w/ship w/random csgn "FG." After "as" gives QSL. 1657 s/off and reverts to Marker. (Ship not hrd on expected 12369). (DW)

12870: UFZ, Vladivostok Radio 0632 CW NavWarnings. Then 0637–0641, BAUDOT 50/170 3SC Nav Warnings. (JUM)

12903: VTH7 Indian Nvy Mumbai 1117 RTTY 50/850 (nominal) local WX f/cst EE for Kochi (aka Cochin). (ML)

12903: VTH IN MUMBAI RTTY//50/ R/1000 tfc in 4-fig grps. Second msg VWGZ serial BNR 163/06, with further 4-fig grps. Msgs end w/word "ECHO." 1712 revert marker "VTH1/5/7 RBSL BNR RYs." 1713 WX (Goa area). (DW)

12919.3: MGJ RN FASLANE VFT// 4-chan fleet broadcast vft on USB. Chan 1 idle on space. (DW)

12921.1: MGJ RN FASLANE RTTY// 75/N/340 Chan 3 in vft. CARB. (DW)

12932.2: RETJ SS Navrad 0600 RTTY 100/850 RETJ/JECECOMAND AIG 16954 Lotsa SS callsigns and some SS en clair before online crypto (tks PT!). (RH2)

12932.2: UNID: SS Navrad 1745 RTTY 75/850 Online crypto (tks PT!) (RH2)

12939: SPE61 SZCZECIN RADIO CW Marker "de SPE61 qsx 8367.7 12551.7. (DW)

12969: XSV: Tianjin Radio 0555 CW w/ call tape: CQ de XSV pse up 443. (JUM)

12984: 4XZ IN HAIFA CW Marker "VVV de 4XZ ==." (DW)

13021.7: SPB: Gdynia R 1755 CW Marker. (RH2)

13257: TRENTON MILITARY wkg CANFORCE 3540 at 2232. Switched over from 11232 kHz. (MC)

13339: Aeromexico 256 working Mexico Radio. Request for WX for Hermosillo with SELCAL HMFR. SS at 1745 Z. (HV)

13339: Aeromexico 184 working Mexico Radio. Request for WX for Tijuana. Mentioned arrival at Tijuana at 1850Z. SS at 1740Z. (HV)

13339: Aeromexico 170 working Mexico Radio with WX for Tijuana and Mexicali. All SS 1510Z. (HV)

13339: Aeromexico 411 working Mexico Radio with WX for Cancun SS 1527Z. (HV)

13339: Aeromexico 271 en route to Miami working Radio Mexico SS. Req WX and mentioned fuel on board. SS 1550Z. (HV)

13437: CTV PN LISBON RTTY//75/N/ 850 Call marker "RPFI de RPFN znr uuuu test qbf figs ry sg's int zbk k nnnn." 1538Z idle mark, 1539 offair. (DW)

13440: REACH 721Y p/p via Puerto Rico GHFS to HILDA EAST at 2339. Switched over from 11175 kHz. (MC)

13444.2: RFQP FF Jibouti 2317 ARQ-E3 100/400 CdV to RFVI Le Port, cct DJI. (ML)

13510: CFH CF HALIFAX FAX//120/ 576/N/800 Sig WX chart. (DW)

13510: CFH CF HALIFAX RTTY//75/ N/800 "Waiting for traffic" and freqs 4271, 6496.4, 10536, 13510, 122.5 kHz. Then met tfc. (DW)

13597: JMH4 TOKYO MET FAX//120/ 576/N/800 Sat pix, 0730 wave prog. Weak, grainy. (DW)

13846.7: RFVI FF Le Port 1127 ARQ-E3 100/400 return CdV to RFQP Jibouti, cct RUN. (ML)

13846.7: RFQP: FN Jibouti 1501 ARQ-E3 100/400 CdeV on RUN cid. (RH2)

13886.3: UNID Moscow Met 1640 FAX 120/576 Good clean chart. (RH2)

13927: SHARK 16 wkg USAF MARS with multiple morale p/p to Little Rock area. Gives position as 400 miles south of Grand Cayman and ETA 0000 local at 2348. (MC)

13927: REACH 809F p/p to HILDA Meteo for 0200Z WX for Frankfurt Germany.

14125.5: PRC Air Defense 0440 4FSK 100/500 pulses. (JUM)

14925.7: RFHJ FF Papeete 0622 ARQ-E3 100/400 5LG msg to RFHI Noumea, cct HJI. (ML)

14926.7: RFTJ FF Dakar heard at 0737 ARQ-E3 192/400 CdV to RFTJD Libreville, cct TJD. (ML)

14926.7: RFHJ FF Papeete 1734 ARQ-E3 192/400 Betas. (RH2)

15043: MCC McClellan AFB 1620 ALE/USB SND. (RH2)

16165.2: RFFA MOD Paris 1730 ARQ-M2 200/400 Betas. (RH2)

16200: UNID CIS Navrad 1719 36-50 18/240 Idling then up to 50 bd. (RH2)

16223.7: ldsm MFA Cairo 1700 ARQ. (RH2)

16280.2: RFFA MOD Paris 1744 ARQ-M2 200/400 Betas. (RH2)

16305.7: RFTPA FF N'Djamena 1738 ARQ-E3 200/400 5LG to RFGW/MFA Paris V. slow transfer! (RH2)

16331.7: UNID "D" Beacon 1645 CW Continuous. (RH2)

16713: UDYL STR Dmitrij Sheitchenko 0756 ARQ w/KYMX SELCAL, UDYL log on & svc msg to Vladivostok. (ML)

16789.5: UNID, SHIP UNID SITOR/ B//100/ E/170 Prayer(Christian) ending "Merry X'mas and a Happy New Year ulit....." (DW)

16789.5: SHIP, UNID RTTY//50/N/170 tfc in 3SC. (DW)

16804: ENYP, KAPITAN BUTRIMOW RTTY//50/R/170 RTMKS. Tfc in 3SC. (DW)

16854: XSQ Guangzhou R 0720 FEC nil NAV wng & tfc list. (ML)

16922: VTH9 Indian Nvy Mumbai 1147 RTTY 50/850 (nominal) local WX f/cst EE for Mumbai. (ML)

16922.4: VTH9, IN MUMBAI RTTY// 50/N/920 WX (poor copy) then marker "VTH 5/7/9 rbsl bnr RYs." (DW)

16979.9: PWZ, BN RIO DE JANEIRO FAX//120/576/N/800 Vague outlines. 0810Z sfc pressure chart, weak in noise floor. (DW)

16985.7: CTP NATO Lisbon 1726 RTTY 75/850 "NAWS de CTP QSX." (RH2)

17460: UNID CIS NAVRAD 1648 36-50 50/240. (RH2)

17462.7: UNID FF Mil? 1633 ARQ-E3 200/400 Betas—not in my database! (RH2)

18183: UNID, MFA ALGIERS COQ/ 8//26.7/I/187 tfc in FF to Emb Ndjamena. (DW)

18183.4: 7RQ20: MAE Algiers 1700 Coq8 26.67 Msg\FF to Ambalg Niamey. (RH2)

18220: JMH5, TOKYO MET FAX// 120/576/N/800 Sfc anal. Echo. (DW)

18223.6: UNID, MFA CAIRO SITOR/ A//100/E/170 irs mode then SELCALs KKVU/Accra. QSO reestablished then off air 0800Z (DW)

18261: GYA, RN NORTHWOOD FAX//

120/576/N/800 Sea sfc temp prog. Mid-East service. (DW)

18316.7: UNID, EGYPTIAN EMB ISLAMABAD SITOR/A//100/E/170 In irs then tfc to Cairo in AA(ATU80), opchat and s/off 1249Z. (DW)

18320: STA22, TUNISIAN MOI/MIL NET? MIL.STD 188-141A ALE on USB. Clng STA152. (DW)

18326.7: UNID, MFA CAIRO SITOR/A//100/E/170 SELCALs TVVX/Algiers. Brief opchat in AA (ATU80) further SELCALs. 0903 estab QSO, brief opchat, s/off. (DW)

18333.7: UNID FAPSI 1651 Crowd 36 40bd. (RH2)

18444.5: RFFXL, FF NAQOURA ARQ/E//184.6/E/400 8rc. Tfc in offline encrypt. Cct [XZL]. (DW)

18520: BRA, MFA BRATISLAVA MIL.STD 188-141A ALE on USB. Clng ALG/Algiers then 10-chan Racal MSM1250 modem. (DW)

18520: ALG, SLOVAKIAN EMB ALGIERS MIL.STD 188-141A ALE on USB. Responding to BRA/Bratislava. (DW)

18560: BMF, TAIPEI MET FAX//120/576/N/800 Wave prognosis. Grainy. (DW)

18571.5: AET, TUNISIAN DIPLO ?LOC SITOR/B//100/E/170 Clng OLP "bjr u qsa ark ? repondrez." (DW)

18686: S00, MFA STOCKHOLM MIL.STD 188-141A ALE on USB. Clng S53/Amman then Mil.Std 188-110A modem, 75 bps long intlv. Signal deteriorating. (DW)

18686: S53, SWEDISH EMB AMMAN MIL.STD 188-141A ALE on USB. Responds to S00/Stockholm. (DW)

18729: UNID, UNID CW Repeated "374 374 347 1" then "4091 95 4091 95" then tfc in offline encrypt (5-fig grps) [26 wpm]. Ends with "TTT" twice. (DW)

18940: BDF2, SHANGHAI MET FAX//120/576/N/800 China Sea forecast areas chart. Echo. (DW)

18940: C, CISN MOSCOW CW Single letter [C] HF beacon. (DW)

18966.7: RFHJ FF Papeete 1026 ARQ-E3 96/400 return of CdV OO DE ANTILLES to RFLI Fort de France, cct HJL. (ML)

19036.5: UNID Ambalg Bamako 1650 Coq8 26.67 Msg\FF to MAE Algiers. (RH2)

19145.7: RFTJ FF Dakar copied at 0638 ARQ-E3 200/400 return CdV to RFQP Jibouti, cct DKJ. (ML)

19216.7: RFLI FF Fort de France ARQ-E3 96/400 CdV OO DE ANTILLES to RFHJ Papeete, cct LIH. (ML)

19648: N2G French Emb San'a YEM 0637 FEC-A 192/400 clg Paris P6Z DE N2G to offline crypto, poor copy. (ML)

20236.7: UNID, MFA CAIRO SITOR/A//100/E/170 tfc in AA (ATU80). Const tone bwtn bursts. Occ loss of qso, SELCALs KKXZ. Tfc in offline encrypt (5 char grps of ltrs and figs) to Pretoria. (DW)

22353.5: V3AH3, Ship *Rodina* 3SC//50/R/170 BST. Clng "RYs UIW de V3AH3" then tfc in 3SC via Kaliningrad. (DW)

22354.5: V3FF, Ship GWGWTIS? RTTY//50/R/170 RTMS. Tfc in 3SC. (DW)

22354.5: J8B2154, Ship *King Ficer* RTTY//50/R/170 Clng "UIW de J8B2154. Tfc in 3SC. BATM. (DW)

22373: UNID, Ship *Marcal Sudec* RTTY//50/R/170 RKTS. Tfc in 3SC. (DW)

22536.7: FUF FN Ft de France 1514 RTTY 75/850 Testing RY/ID/SG 10 count. (RH2)

22536.7: UIW Kaliningrad R 1518 RTTY50/170 Personal TGs to RTMS Fortis Kolesnikova. (RH2)

22542: JJC: Tokyo R 1138 FAX 60/576 JJ Nx\papeR—clear! (RH2)

22857.7: RFVI FF Le Port 0645 ARQ-E3 100/400 5LG msgs to RFHI Noumea, cct VII. (ML)

22912.7: RFHI FF Noumea copied at 0707 ARQ-E3 100/400 return CdV to RFVI Le Port, cct HII. (ML)

23523: JMJ6: Tokyo Met 1200 FAX 120/576 Clear Stremline Analysis. (RH2)

23822: FAPSI 0940 RTTY 50/500 5LG'S after RY string, link 00050. (ML)

This month's contributors are Day Watson (DW), Hector Vazquez (HV), Japanese Ute Monitor (JUM), Mark Cleary (MC), Murray Lehmam (ML), Robert Hall (RH2).

Thanks again to each of you for your contributions. And to those of you out there who have not contributed before, or those who got out of the habit of sending them in, please remember that new logs are always welcome.

Get in Touch!

The revamp continues so it's going to be a while before I can start posting a solid schedule again. As I've outlined, my plan is to get as many of you involved in this revamp as possible, and I have a few new people lined up.

Don't forget that you can write to me at "Utility Radio Review," PMB 121, 1623 Military Rd., Niagara Falls NY 14304-1745.

So until next month, may all of your utility monitoring sessions be enjoyable and productive. ■

Tuning In *(from page 4)*

teur Electronic Supply, and many, many other radio folks there—and *all* with "show specials." You'll always find a bargain! It really pays to be there!

We recently asked you if you'd pay a small admission fee to a hamfest if you could save a considerable amount of money on a subscription renewal, CQ books, and videos, and even radio equipment from various dealers. (What's a "small" admission fee? That varies from $5 to $15, depending on the size of the show and other factors. But that admission fee is easily recouped with just the savings on a single purchase.) About 56 percent of you said you would attend a hamfest; 8 percent of you said you would not. Another 44 percent of you are interested in hamfests that *Pop'Comm* might attend located within 75 miles of your location. Well, you've got the list—so be sure to plan now to attend any of these special events!

I don't know about you, but I've got every *Pop'Comm* all the way back to the very first issue in 1982. For me, there's something nostalgic about looking back five, 10, or 20 years and holding a part of radio history in your hands (you just can't do *that* on the Internet!). Most of you do the same; about 51 percent of you said you keep your issue of *Pop'Comm* indefinitely, while at the other end of the spectrum, about 9 percent of you read through it and keep it as a reference only for a few days. About 17 percent of you said you tear out an article or two and keep it for reference; another 12 percent said you give it to a friend.

We've got a lot of superb topics in this month's *Pop'Comm* and some of the columns were a bit longer than usual, so we'll bring you more survey results next month. But before we turn the page, I'd like to welcome back my friend and colleague, Eric Force, who will be doing a new monthly column, **"The *Pop'Comm* Puzzle Corner"** where he'll test our radio knowledge with an outstanding crossword puzzle, cipher, and trivia question. Eric and I had been toying with the idea of a puzzle for a while and, after speaking with several of you at Dayton and Virginia Beach, we decided to make it happen. We hope you enjoy the new "*Pop'Comm* Puzzle Corner"!

This month, our winners drawn from your survey card submissions are **Nancy Lindsay of Roanoke, Virginia,** and **Roland St. Louis, Jr., of Geneva, New York**. They'll each receive a free one-year *Pop'Comm* gift subscription. Have you sent in your survey card? See you again next month! ■

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loose connection

radio communications humor

by Bill Price, N3AVY <chrodoc@earthlink.net>

Bill Invents The Fuse—But Not In A Vacuum

Someone once said that to be great, a writer must suffer. So I sit with rats crawling over me as I write, but I am still not great. Perhaps the muse of success can recognize pet rats at a glance. Rattie and Gladys say hello. I have asked them not to step on the keyboard tonight because our typesetter has enough to do with out sorting through strings of whatever character Rattie happens to stand on. She's not a fast typist—likes to pause on one key for a few seconds—but long enough to get the "auto repeat" working. My e-mail friends have become accustomed to her. Gladys is still young, and not yet heavy enough to press a key all the way down.

My friend and cohort at work, Steve Bradley (not his real name, OK, Dave?) has reminded me of the invention of the fuse, and the story parallels my own (and maybe some of our readers') early adventures into the mysterious and high-paying world of electronics.

Days of tube circuits were simpler, in some ways. Granted, a person could get nasty burns from the tops of tubes. And having 117 volts all over a metal chassis (or a *real* breadboard with plenty of metal binding strips) was a bit more dangerous than the kinder, gentler 5- and 12-volt circuits that make our transistors and integrated circuits happy today.

If a person put 25 volts into a tube that called for 6, well, that person had a moment to realize the error of his ways and remove it, because heavier filaments and other elements took a moment to heat up, like the little heating elements in your toaster. In fact, they were a *lot* like the heating elements in your toaster.

Another problem was when an early experimenter made a wiring error. Normally, any component draws only the amount of current it's designed to use. Current is measured in our friend, the amp, which is named after a French guy, "Something Ampere." It's OK that I don't know his first name, because being French, most of it was silent anyway. When a person makes a wiring error, many things *could* happen, but because of an early experimenter named Murphy, experimenters are punished more for their mistakes than, say, artists or poets.

A wiring error can be a simple un-connected wire, so that when you turn on your project nothing happens and you merely trace the error with your fingertip, find the problem, and remember that you should have unplugged your experiment *before* touching that wire with your finger. Other wiring errors are more time consuming and costly, and can result in simple problems. These can include burning up an inexpensive device which must be ordered from far, far away and will take two weeks to replace, or some other inexpensive device which can only be purchased from a store waaaaaaaay on the other side of town, which is about to close for the owner's annual vacation. The tiny "poof" of smoke associated with such mishaps may have caused you to wish that life had a rewind button. It does not.

Today, with the Internet available to us, if a person finds an idea which helps his fellow man, that idea is often shared with others in the same field within hours of its discovery. But considering the technology involved, it is unlikely that the Internet would have been invented before the fuse. I'll check with Al Gore and get back to you in some future column on that point.

Before the Internet, and before Amateur Radio with its repeaters and packet radio, there was not the instant communication and transfer of important information as there is now. But I'm sure that many things were invented simultaneously across the land, when many people of like minds were making the same really annoying discoveries—and mistakes—at the same time.

These were not earthshaking inventions which made their inventors rush to the Patent Office because, frankly, they were just too simple for people to get excited about. And, of course, the various versions of these simultaneous inventions differed enough that there likely were 500 versions of the first fuse—that simple device which can, if some simple rules are followed, help us avoid the wanton destruction of so many costly devices and components.

I know that in my youth, before I learned of current and voltage, I learned that aluminum foil will actually burn if placed on something very hot. I hesitate to mention what that very hot thing was because some young reader might be as stupid as I was and burn the house down, but that thing involves *cooking*.

And I surmised that since steel pots did not catch fire when used in cooking that the steel wire in radios and such things (I had no idea that wire was made of copper then) would NOT burn and aluminum WOULD burn. Of course, I could not find aluminum wire (and I see that as a good thing) so I made my aluminum wire, which I called my "safety wire" of twisted aluminum foil. It was very hard to solder, by the way (this observation from a kid who found all metals equally hard to solder, particularly using bar solder and a huge iron made for small sheet metal projects).

For those of you who have already attained your EE degrees, I know you're way ahead of me and realize that the "safety wire" in *all* of my projects quickly burned whenever power was applied (so long as good contact was made). It wasn't until much later in my life that I had the nerve to actually *ask* someone for a little help and was introduced to our friend, the fuse.

I know now that my first ham friend kept my parents informed of the things I was attempting to build because my dad would usually appear in my "workshop" the day after I'd sought out my Elmer for advice. He knew all the things I needed to know, but for some reason, I never believed him because his answers made things so difficult when I wanted them to be so simple. I never put two and two together when he brought home some fuses and fuse-holders shortly after I'd spoken to my Elmer about my disasters.

I probably never said thanks. Thanks, Dad. ■

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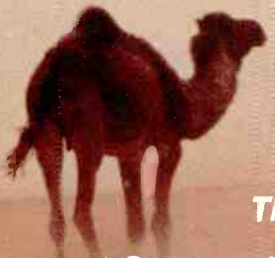

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