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FEBRUARY 1998

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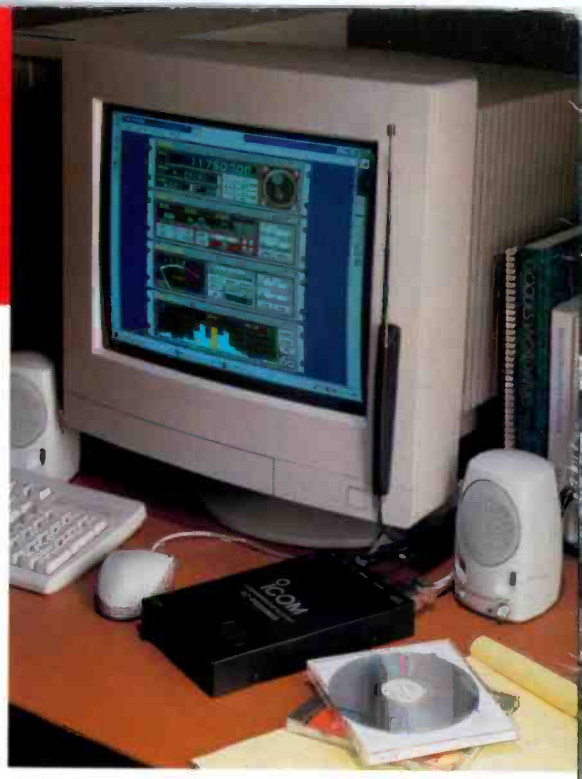

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POPULAR COMMUNICATIONS

FEBRUARY 1998 VOLUME 16, NUMBER 6

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By Chris Smolinski

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By J.T. Ward

Balloons Around the World on High Frequency 14

Right now is the time to hear high-flying balloons! Gordon tells you how to tune into them on both aeronautical VHF and high-frequency single sideband.

By Gordon West, WB6NOA

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By Alice Brannigan

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ON THE COVER: *Dan Turner at the control of radio station WJDM on its newly assigned frequency of 1660 kHz in the X-Band, broadcasting from Liberty Science Center, Jersey City, NJ. For more X-Band news and other up-to-the-minute BCB loggings, check out the "Broadcast DXing" column on page 58. (Photo by Larry Mulvehill.)*

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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596

Keeping 'Em on Their Toes?!

Through the collective efforts of thousands of hobbyists, the ARRL, Uniden, RadioShack and many volunteer groups, H.R. 2369 has indeed been re-written to nearly everyone's satisfaction; the cellular industry and hobbyists as well. Be sure to check out J.T. Ward's up-to-the-minute update on 2369 and how it will impact radio monitoring on page 12.

At first look, we believe the changes made to this anti-monitoring legislation are certainly for the better, however there still remain some things yet to be worked out, but it's a far cry from what *could* have been sent to the full Committee.

There has been a lot of discussion about continuing to hammer our legislators and the bureaucracy about this issue, but my recommendation is that we curtail our letter writing campaign and give the system time to work this delicate issue. In the meantime, let's shed more light on the privacy topic.

While I'm not one for caving in to bureaucratic pressure and nonsense legislation when the ill-conceived ECPA should be sufficient legislation, I also feel that continuing to beat their door down when you see them walking toward you with the key, could be counterproductive. However, there are still many valid points that must be made, remembering that they work for us, not the other way around!

In speaking with Tauzin's office we still, as you might imagine, disagree on one fundamental issue that isn't going to disappear—the fact that Capitol Hill has taken it upon themselves to be the protector of wireless privacy because the cellular industry can't or won't do their job of encrypting cellular communications. The Great Protectors on Capitol Hill working in Tauzin's office very emphatically told me that regardless of the direction 2369 takes, " . . . cellular phone users *do* have a right, a guarantee of privacy . . . " I ask Washington's help figuring out who's calling the shots. Here's my problem with the issue: Like we've said before, when folks use their cell phones having all kinds of business and personal conversations within earshot of me in restaurants, on public transportation, walking down the street, in the mall, and everywhere else, I'm getting half the conversation without a scanner. Even with a scanner you can't get the other side of the conversation because as a result of the 1986 ECPA and amendments it's illegal to import, sell or manufacture a radio capable of receiving those sacred cellular frequencies. It seems to me that the burden of privacy, as we've said all along is on the sender—in this case not just the cell phone user in using discretion when using his or her *radio*, but on Rep. Tauzin and the bureaucracy, specifically the Justice Department for enforcement of the already-in-place Communications Act of 1934 which forbids the divulgence of third party communications. Why can't Tauzin and the other legislators focus properly on this issue? Why can't they see that the laws on the books are not being enforced? Why burden the federal system with additional legislation when it already exists?

> ***"In speaking with Tauzin's office we still, as you might imagine, disagree on one fundamental issue . . ."***

My own Senator, Robert Torricelli of New Jersey replied to my letter stating, "As you know, a Florida couple was prosecuted for their illegal taping of Speaker Gingrich's conversation on a cellular phone. While their case has been settled, legislation addressing this issue has been introduced in the House of Representatives. I am troubled by this legislation, because I believe that it may affect citizens, like yourself, who use their emergency band channels at home for non-threatening purposes. However, by no means do I condone illegal recordings, but I believe it is necessary that legislation specifically address these type of offenders and not innocent citizens."

(Continued on page 80)

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Harold Ort, N2RLL, SSB-596, Editor
(Internet e-mail: PopularCom@aol.com)
Tom Kneitel, K2AES/SSB-13, Senior Editor
(Internet e-mail: K2AES@juno.com)
Nancy Barry, SSB-931, Associate Editor
(Internet e-mail: NancyPCmag@aol.com)
Richard S. Moseson, W2VU, Online Coordinator
(Internet e-mail: W2VU@amsat.org)

CONTRIBUTING EDITORS

Richard "RD" Baker, Utility Communications
Ed Barnat, TCA-44, CB SSB
Peter J. Bertini, K1ZJH, Restoration/Electronics
Joe Carr, K4IPV, Antennas
Bruce Conti, AM/FM Broadcasts
Gerry L. Dexter, Shortwave Broadcast
Jock Elliott, SSB-734, Citizens Band
Bob Evans, ACARS
Ed Griffin, Computer-Aided Radio
Chuck Gysi, N2DUP, Scanning
Kirk Kleinschmidt, NTØZ, Amateur Radio
Pat Murphy, Pirate Radio
Don Patrick, CB Restoration
Bill Price, N3AVY, Humor/Communications
Ken Reiss, Technical/Scanning
Edward Teach, Pirate and Alternative Radio
J.T. Ward, Spotlights and Scanning
Gordon West, WB6NOA, Radio Resources
Bonnie Zygmunt, Computer-Aided Radio

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Donald R. Allen, W9CW, Advertising Mgr.
Emily Kreutz, Sales Assistant
Sal Del Grosso, Accounting Manager
Ann Marie DeMeo, Accounting Department
Catherine Ross, Circulation Manager
Melissa Kehrwieder, Operations Manager
Jean Sawchuk, Data Processing
Denise Pyne, Customer Service

PRODUCTION STAFF

Elizabeth Ryan, Art Director
Barbara McGowan, Associate Art Director
Edmond Pesonen, Electronic Comp. Mgr.
Dorothy Kehrwieder, Production Manager
Emily Kreutz, Assistant Production Manager
Pat Le Blanc, Phototypographer
Hal Keith, Technical Illustrator
Larry Mulvehill, WB2ZPI, Photographer

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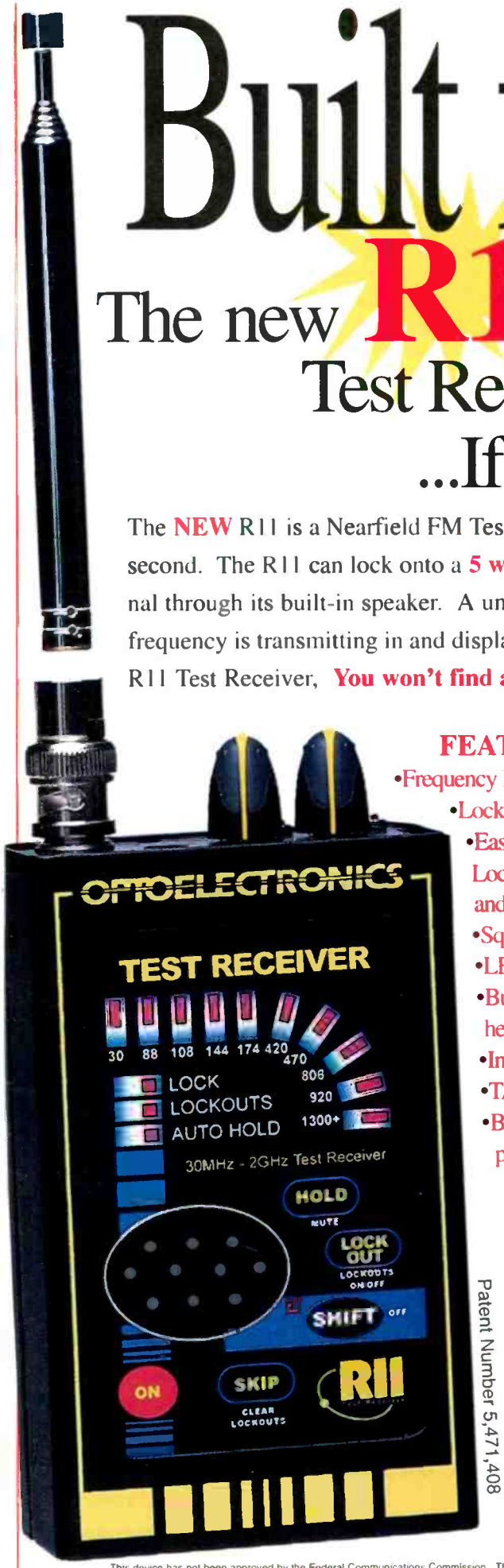

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Pop'Comm P.O.

LETTERS TO THE EDITOR

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Sending Snobs a Friendly Note

Dear Editor:

I could not agree more with that excellent editorial! Of course the new hams down here upgrade to extra in a few months. Then they immediately start that prejudice crap with other hams only a few months behind them! Then you have the same guys with a "KF" prefix getting a vanity one-by-two call. Man, are they Big Shots then.

We have a "Vigilante" Club down here. When we hear them being rude, snobby, or hateful to newcomers, we drop them a note or see them at the next hamfest! Harold, keep up the good work. I enjoy the magazine.

And regarding Senate bill s.608, it is completely absurd! How many hams are going to sit well with a county deputy and a local ham coming into their homes to look at their equipment? Well you say, it's only to apprehend CBers using linear amplifiers, but let's wake up! Even the FCC doesn't know how political small town or community hams can be. I can see it now; several hams in any area may not be liked because of a basic difference in philosophy on how they operate. Then the scrutiny begins, but the local deputies are now working for these few prima donna hams. You get the picture? Before you know it, they are way off track from the main goal. In this area, and I know in many areas, you have three or four hams who obviously wrote the book on amateur radio. You know good and well they would be using this new power to enforce their views on the hobby. I don't see it staying on focus with the CB high power situation.

This is opening up a real problem with far reaching consequences . . . the idea is well meaning, but it goes too far. It's unnecessary trouble that the ham community does not need. What next, the Scrooge coming in to check to see if Santa was here?

Bill Prather
KC4KMG, N.C.

What We Have is a Failure to Communicate

Dear Editor:

As a long time listener of shortwave and two-meter radio, and a recent convert to CB, I have become aware of the chasm which separates the ham from the CBer. Both sides seem to have developed certain attitudes toward the other which is, in my opinion, harmful to the radio hobby. The CBer looks upon the ham as someone who is stodgy, the ham looks upon the CBer as someone who is undisciplined and crude.

This gulf comes from the fact that both sides overlook the obvious. Radio is about communicating. As one of the characters stated in Cool Hand Luke, "What we have here is a failure to communicate."

Recently I attended a hamfest. I came across a power source and asked the owner if it would also power a CB rig. I had no more gotten the word "CB" out of my mouth when I saw a horrifying transformation; the guy turned red and then sneered, "I'd never sell anything to a CBer." I quickly retreated to another aisle.

This open hostility is uncalled for and if you want my opinion, anyone who shares his disposition should immediately seek professional help.

True, the CBer is not without fault. He may run a little more power than necessary and may use a handle rather than a callsign, and at times, might get rude. However, it has been my experience that this disappears when one finally discovers the true reason for the hobby: To be able to communicate with others.

Vernon W. Justice

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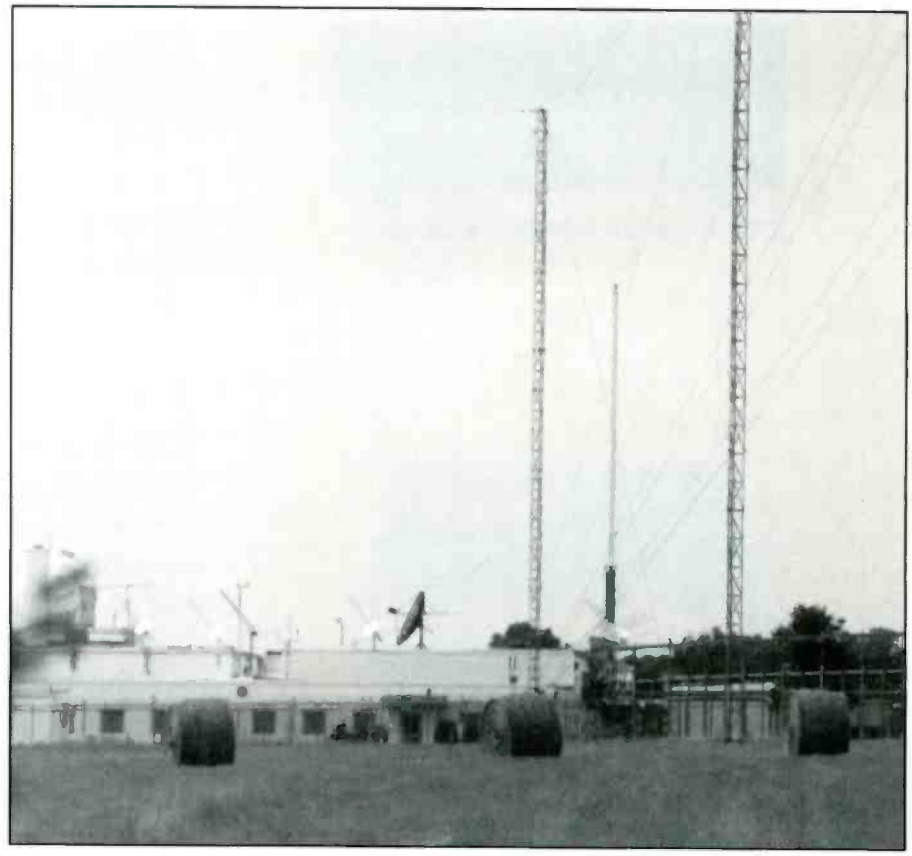
DRAKE

Spy Numbers Stations—Have YOU Heard Them?

Where You Can Hear International Intrigue . . .

By Chris Smolinski

For several decades, shortwave listeners have been hearing mysterious transmissions, usually consisting of a female voice reading off a series of numbers. These stations have been dubbed "Spy Number Stations," since a number of sources have placed their origin in the various intelligence agencies of several nations. Neither the end of the Cold War nor advances in communications technology have brought about a dramatic decrease in these stations. In fact, new stations and formats continue to pop up from time to time. In this article, we'll take a look at several of the Spy Number Stations that may be easily heard by the North American listener. Fortunately, most Spy Number Stations maintain regular schedules, much like international broadcasters.



Buildings at the Remington, VA site. Numerous satellite antennas are obvious on the roof. Several of the HF towers are also visible.

Station Basics

Numbers Stations are believed to use the "one time pad" method to encrypt messages. This method makes use of a list of randomly generated numbers used to encode and decode the message. Each list is only used once, hence the name. Since each set of numbers is only used once, and they are randomly generated, it is impossible to decode messages by analyzing them. The one time pad system is perhaps the most secure method available to encrypt messages.

The vast majority of Numbers Stations use a female voice, although stations using a male voice may occasionally be heard. Careful examination of the audio has revealed that the digits of most Numbers Stations are computer synthesized, much like the recording one hears when an incorrect telephone number has been dialed. A "live" broadcast is rarely heard.

The most common language heard in North America is Spanish, with English also quite common. German, Chinese and Czech are also found, although reception of these stations is much more difficult in North America. Interestingly, French is almost never heard.

The majority of Spy Number Station broadcasts heard in North America transmit a message consisting of a series of five digit numbers being read, these are referred to as "5 Digit" Number Stations. Also heard are stations which use phonetics, from the phonetic alphabet.

What are the best frequencies for hunting Spy Numbers Stations? Most can be found in the utility bands, between the international broadcasting bands. Transmissions typically start on the hour. Many stations use AM modulation, making them stick out in the utility bands which usually have SSB transmissions. However, USB is becoming more common. Suppressed sideband is also quite common, where the carrier and only one sideband (typically the upper) is transmitted.

Due to the poor propagation conditions over the last few years, most Numbers

Another look at Remington site.

Stations, like their legitimate broadcasting counterparts, have been forced to use lower frequencies in the 2 to 16 MHz range. As solar conditions continue to improve, watch for Numbers Stations to move up to higher frequencies. In years past, they have been heard using frequencies as high as 32 MHz.

Many Numbers Stations will transmit an open carrier before the broadcast begins. This makes it somewhat easier to find stations.

Search the bands that Numbers Stations are known to frequent several minutes before the hour, looking for any suspicious open carriers. Make a note of them, and check back at the hour to see if any are now active with a numbers broadcast.

5 Digit Spanish YL (Cuban Atencion Stations)

This is the most common format heard in North America. These broadcasts are believed to originate from Cuba. Indeed, one such transmission was positively identified by the FCC in the 1970s as coming from Cuba. A good deal of circumstantial evidence also exists for this, including the occasional blunders such as mixing Radio Havana audio in with the numbers broadcast! The technical quality of these stations is often inferior, including distorted audio, hum and glitches with the message.

"The one time pad system is perhaps the most secure method available to encrypt messages."

The transmission begins with a female voice repeating "Atencion" followed by the five digit address of the recipient. The message then follows, and the broadcast ends with the word "finale" said one, two, or three times. It is not understood at this time why the number of finales varies, or if it is significant. Starting this year, some broadcasts were monitored containing three messages, each to a different recipient. Two different voices are noted, one sounds younger and higher pitched, the other is lower pitched.

3/2 Digit Spanish YL (The Counting Station)

This is a variation of the five digit format, where each five figure group is broken into a three and a two figure group, with a definite pause between the two. This station is also referred to as *The Counting Station*, due to the counting that is heard at the beginning of the broadcast. Circumstantial evidence, along with some direction finding efforts, lead many to believe that this station is run by the CIA. The technical quality of The Counting Station is usually quite excellent. This station has been infrequently heard during the last few months, and may be about to be replaced by another format.

5 Digit Spanish Language Frequencies (kHz)

3727	6768	7482	9063
4028	6795	7726	9094
4478	6826	8012	9153
5135	6855	8086	9238
6255	6983	8186	

The Counting Station Frequencies (kHz)

4645	6970	8320	11123
4670	7473	9070	11491
6090	7600	10529	19095
6780	8085	10597	

OLX Frequencies (kHz)

5301	9320	14977	18303
8142	11416		

Lincolnshire Poacher Frequencies (kHz)

6959	9251	12603	15682
7755	10426	13375	16084
8464	11545	14487	16315

MOSSAD Frequencies (kHz)

2743	4560	5091	9130
3150	4665	5437	11565
3417	4880	6840	12950
4165			

Phonetic Alphabet

Alpha	Kilo	Sierra
Bravo	Lima	Tango
Charlie	Mike	Uniform
Delta	November	Victor
Echo	Oscar	Whiskey
Foxtrot	Papa	X-Ray
Golf	Quebec	Yankee
Juliet	Romeo	Zulu

3/2 Digit English YL (The Counting Station)

This is the English language version of The Counting Station. It follows the same format as the Spanish version. Again, technical quality is usually excellent.

At the beginning of the transmission, the recipient ID is sent as a three digit number, followed by the count "1234567890," giving the station its nickname. This repeats for about 10 min-

"As solar conditions continue to improve, watch for Numbers Stations to move up to higher frequencies."

utes. A series of 10 tones is then heard, followed by the message length (such as "count 130" meaning that 130 groups of five digit numbers will be sent), and then the message itself is sent. The message is then repeated. Each transmission is usually quite long, typically lasting for around 50 minutes.

The number of broadcasts of this station increased dramatically this past summer. Activity has returned to prior levels. However, monitors in Europe have just recently reported a sudden increase in activity there. Many Numbers Stations enthusiasts in the past have noted apparent relationships between increases in station activity and major world events.

This station is also known for transmitting two or three different broadcasts simultaneously on different frequencies. Some careful monitoring of these transmissions has shown that each word and digit is synchronized between frequencies, indicating a highly precise, direct, computer synthesis, rather than taped audio messages.

Several Counting Station broadcasts have been identified as transmitting from a facility known as The Warrenton Training Center, in rural Virginia a short distance southwest of Washington DC. They are also believed to transmit from locations in Arizona, Florida and New York, as well as overseas from several U.S. military bases, most probably including Germany, Japan, and the United Kingdom.

The Lincolnshire Poacher

This is one of several versions of 5 Digit English language numbers stations commonly heard in North America. This station gets it's name from the tune played at the beginning of each broadcast, which is an old English folk song. The station is believed to be operated by MI6, the British Intelligence Organization, and transmitted from facilities in Cyprus toward the Middle East. Reception is often quite good in North America, although jamming is frequently heard. The station transmits throughout most of the day on one or more of several frequencies, listed in this article. The Lincolnshire Poacher has a sister station called "Cherry Ripe," which appears to transmit from the Far East. The station may occasionally be heard in North America during the early morning hours.

The Russian Man

Another 5 Digit English language numbers station is referred to as The Russian Man. Interestingly, the voice for the English language version of this station has been described by some as unisex, sounding either male or female. While The Russian Man does transmit using a fixed schedule, it uses new frequencies each week, making it slightly harder to find. Often, a transmission one day will repeat the next day on the same frequency. This station also transmits in German, Spanish and, of course, Russian.

One of the key identifiers of Numbers Stations run by Russian organizations is the use of five zeros to mark the end of the transmission. The English language version of The Russian Man station is often heard with extremely strong signals in North America.

OLX

One of the few Numbers Stations to openly transmit a real call sign, this station transmits from Prague, Czech Republic. It's broadcasts use both voice and Morse Code. The message "VVV DE OLX" is transmitted in CW for a few minutes prior to the hour. At the hour, the actual transmissions of numbers begins with the three digit recipient number repeated several times, then the actual message itself. This portion is sent sometimes using voice in the Czech language, sometimes in Morse code. This station appeared to stopped transmitting during the recent flooding in central Europe, and has not been heard from since. It may reappear again, or be another one of the many Numbers Stations to vanish from the airwaves.

MOSSAD

Not all spy stations use numbers to send their messages. This station, believed to be operated by MOSSAD, the Israeli Intelligence Organization, transmits a message using blocks of five phonetics. Each transmission begins with a three letter identifier, along with a number 2 if a message will follow. A large number of frequencies are used, and transmissions usually begin either on the hour, H+15, H+30, or H+45 minutes. Observations from some listeners indicate that this organization may transmit from embassies or consulates in various countries. Indeed, I have heard transmissions in the 2 and 3 MHz bands during the daytime, when propagation directly from Israel is very unlikely.

The Bored Man

Many Numbers Stations appear to be well run organizations, with very precise schedules and broadcast formats. Then there are outfits like this one, so named because of the apparent lack of enthusiasm in the announcer's voice, this is one of the rare stations to make live transmissions. It also uses a male voice. This station is often heard on Sunday mornings, between 1400 and 1600 UTC on 6868 kHz.

Transmissions will usually begin with the announcer counting from one to ten in Spanish, repeating "atencion" several times, and then saying "R 2 90," which in Spanish sounds like "ere dos noventa." This can continue on and off for about half an hour or more. An actual message would follow this, although one is rarely heard. The announcer's associates can often be heard in the background, they've even been known to try and make the announcer laugh during his transmissions—hardly the efforts of a professional espionage organization.

Conclusions

These are by no means the only numbers stations that may be heard in North America, but they are the most easily heard. For details on other stations, I would suggest following the Communications Confidential column monthly in *Popular Communications*. I have a Web page devoted to spy numbers stations, containing schedules for the various stations. The URL is <http://www.access.digex.net/~cps/numbers.html>. I also run a mailing list for numbers stations loggings, information on joining is available on my Web page. If you would like to share your loggings or thoughts about Numbers Stations, my address is <cps@access.digex.net>. ■

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Congress Blinks, Scanner Bill Amended

There's Good News and Bad News . . .

By J.T. Ward

Responding to a crush of e-mail, faxes and letters, Rep. Billy Tauzin, author of the now infamous anti-scanning bill H.R. 2369, has kept his promise and changed the wording making the proposed legislation far less damaging to the radio monitoring hobby. However, several questions remain, and a new provision quietly slipped into the bill may spell trouble for the future of scanning.

First, the positive changes.

Previously, the bill banned the manufacture, importation or sale of scanners capable of receiving frequencies assigned to the Commercial Mobile Radio Service. These frequencies are scattered across the VHF/UHF spectrum, and include frequencies used by some government and public safety agencies, as well as many business band frequencies.

In the new version Tauzin has substituted the words "domestic cellular radio telecommunications service and personal communications service" for the much-broader "commercial mobile radio service," language that was in the original version of the bill. This change narrows the focus of the bill considerably. Since cellular frequencies are *already* banned in new scanners, and since PCS services use digital modes of transmission not monitorable on existing scanners, most people will never notice the missing frequencies.

The amended bill also includes all the exemptions found in Title 18, Chapter 119, that allow monitoring of any governmental, law enforcement, civil defense, private land mobile, or public safety communications system, including police and fire, readily accessible to the general public; of amateur, citizens band, or general mobile radio services; or of any marine or aeronautical communications system. This change exempts from H.R. 2369's restrictions the vast majority of communications in which most scanner users are interested.

". . . several questions remain, and a new provision quietly slipped into the bill may spell trouble for the future of scanning."

By incorporating these changes into the bill Tauzin has demonstrated his willingness to work with members of the hobby radio community.

As welcome as these changes are, however, H.R. 2369 may have unintended effects on the public's ability to monitor certain shortwave utility communications transmitted on frequencies below 30 MHz.

Section 3 of H.R. 2369 changes the wording of Section 705 of the Communications Act of 1934 from the current "no person not being authorized by the sender shall intercept any radio communication and divulge," to read "no person not being authorized by the sender shall intentionally intercept any radio communication or divulge . . ." The key words here are "and divulge," and "or divulge." By changing "and" to "*or*" the bill makes the act of listening to most radio communications illegal.

While the Chapter 119 exemptions protect 99 percent of what scanner listeners monitor above 30 MHz from this provision, they may not be broad enough to cover all categories of shortwave utility communications. Allowing H.R. 2369 to prohibit interception of these shortwave utility communications could cause virtually all current shortwave radios on the market to become illegal.

The reason is found in 47 U.S.C., Section 605 (Section 705 of the Communications Act, subsection (e), paragraph 4), where it reads:

"(4) Any person who manufactures, assembles, modifies, imports, exports, sells, or distributes any electronic, mechanical, or other device or equipment, knowing or having reason to know that the device or equipment is primarily of assistance in the unauthorized decryption of satellite cable programming, or is intended for [any other activity prohibited by subsection (a)] any receipt, divulgence, publication, or utilization of any communication in violation of subsection (a) of this section, shall be fined not more than $500,000 for each violation, or imprisoned for not more than 5 years for each violation, or both."

Since changing "and" to "or" in subsection (a) of Section 705 makes monitoring nearly all radio communications illegal, and since the exemptions in Chapter 119 as incorporated into H.R. 2369 may not cover some of shortwave utility communications, receivers intended to monitor these communications could be construed to be illegal to manufacture, assemble, modify, import, export, sell or distribute. This would encompass nearly all existing shortwave radios, as well as amateur band (ham radio) transceivers with general coverage receive capability.

The good news is that Tauzin's staff is

". . . H.R. 2369 may have unintended effects on the public's ability to monitor certain shortwave utility communications transmitted on frequencies below 30 MHz."

willing to investigate this potential problem and make changes if necessary. "As we've said all along, if there are problems with the bill we'll fix them," said Tauzin's aide, Ken Johnson.

Unfortunately, this good news about H.R. 2369 must be tempered with some bad. The amended bill also includes a new provision that bans scanners "equipped with decoders that (i) convert digital domestic cellular radio telecommunications service, personal communications service, or protected specialized mobile radio service transmissions to analog voice audio, or (ii) convert protected paging service transmissions to alphanumeric text; or being equipped with devices that otherwise decode encrypted radio transmissions for the purposes of unauthorized interception."

The bill then goes on to define protected specialized mobile radio service transmissions as "secured by an electronic method that is not published or disclosed except to authorized users."

"The good news is that Tauzin's staff is willing to investigate this potential problem and make changes if necessary."

On its face, this provision would ban scanners capable of monitoring digital public safety radio systems.

Industry insiders who spoke only on background said this wording is actually better than what was originally proposed—a complete ban on digital-capable scanners. Under the wording now included in the bill, scanners compatible with the APCO 25 standard would be legal, as well as scanners compatible with non-standard digital systems that might require a system key code to be programmed into the scanner before it would decode the digital transmissions. Such scanners could be marketed to volunteer fire fighters, auxiliary police officers or other similar "authorized users" who would have access to the correct system key code. Exactly how this will play out in the future remains to be seen, and likely won't be known for several years, until the demand for digital-capable scanners is adequate to support the research, development and production costs for such a product. ■

Balloons Around the World on High Frequency

Right Now Is the Time to Hear High-Flying Balloons . . .

By Gordon West, WB6NOA

January and February are the best months for prevailing high-altitude winds to carry a balloon team all the way around the world. While there have been more than 20 attempts to circumnavigate the world in a balloon, all have ended in failure—luckily, without any major injuries.

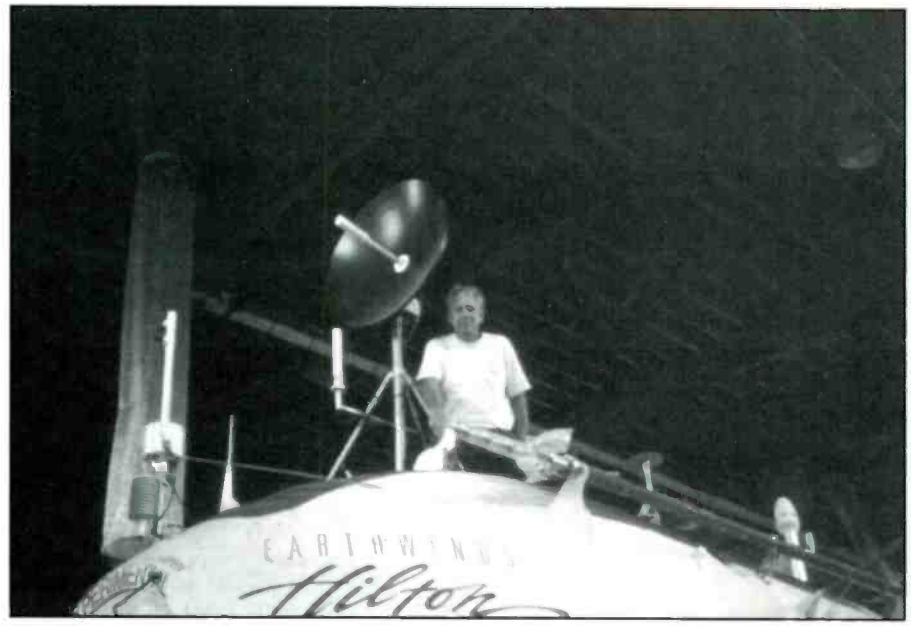
This January and February there may be as many as 10 individual balloon teams attempting to drift around the world and be first to hold the new record. More than likely, you may be able to tune into them on both aeronautical VHF as well as high-frequency single sideband.

This will be *my* second attempt in the balloon effort. No, I'm not going to drift around the world in a balloon! I'll be the one on the ground providing communications support.

Our first attempt was with EARTHWINDS, launched out of the Reno, Nevada area a couple of years ago. Earthwinds was a unique balloon in that its ballast was a lower envelope filled with air. Unfortunately, once the balloon lifted off and began to achieve a high altitude "orbit," water condensation on the bottom envelope froze the relief valve, and the attempt was scrubbed because the balloonists had no way of adjusting their air ballast. Earthwinds carried HF SSB, VHF ham 2-meter, aeronautical VHF, and satellite communications.

This year the balloon attempt that we are working on is called WORLD FLIGHT, and the pilot is Dick Rutan, well-known for his journey around the world, non-stop, in his Voyager experimental aircraft. Co-pilot on the balloon attempt will be Richard Abruzzo, well-known for several balloon records, and hopeful that he and Dick Rutan will be able to set a new one drifting around the world in 12 to 20 days.

The flight altitude will be approximately 33,000 feet, and there may be one or more descents to 10,000 feet for navigation and/or equipment repairs. The balloon will launch out of Albuquerque, New Mexico, during a favorable "weather window" in either January or February.



The author atop "Earthwinds" balloon capsule, setting up the satellite communications dish antenna.

The balloon is intended to follow the 45th to 50th north parallels, eastbound. The balloon will exit the United States over Boston, travel over the Atlantic to England, drift over Central Asia's Kuril Islands, pass north of the Hawaiian Islands, and may enter the U.S. near Seattle. Estimated ground speed is 75 mph, or 1,800 miles per day in the prevailing winds within the jet stream.

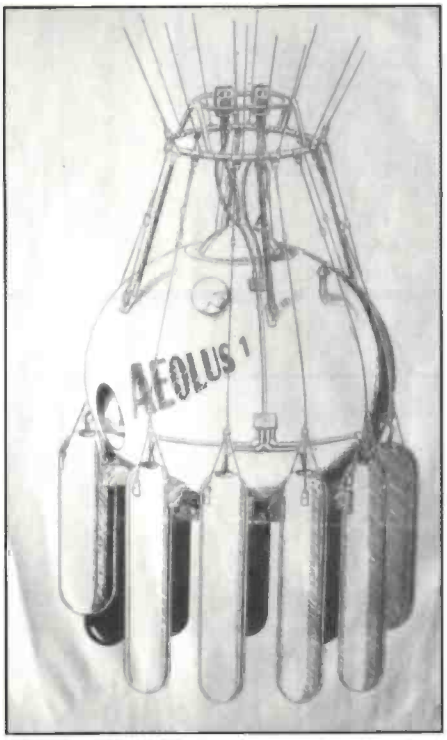
Tuning In

Tuning into the balloon may be possible on the many flight test frequencies on which it will be authorized to transmit upper sideband at the 100-watt level. The frequencies are 3443, 5451, 6550, 8822, 10,045, 11288, 11306, 13312, 17964 and 21931 kHz. It is presumed that many of the other balloonists attempting to float around the world may also use these same frequencies to intercommunicate with their support base station.

Short-range aeronautical balloon-to-aircraft and balloon-to-ground stations may take place on the following frequencies among all participants: 121.500 MHz; Emergency; 123.175, 123.200, 123.225, 123.375, 123.400 and 123.450 MHz.

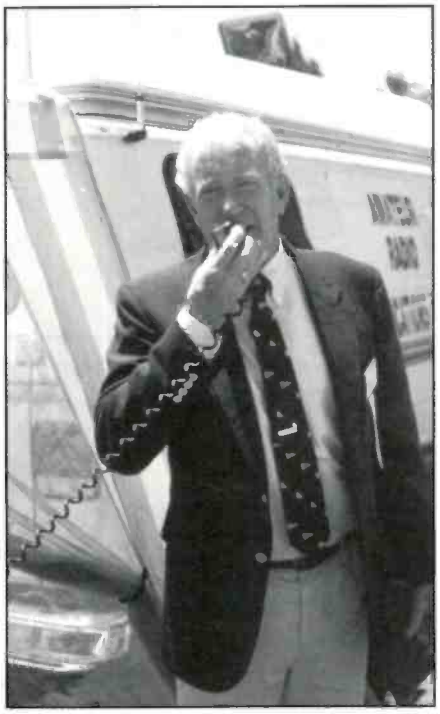
Dick Rutan, KB6LQS, flying aboard World Flight, is also a licensed amateur radio operator and plans to work on the 2-meter band at 1-watt output (to conserve precious battery power) on 146.520 MHz, simplex.

Radio equipment inside the round life-support pressurized capsule will include a Trimble INMARSAT-C satellite termi-



Dick Rutan drawing of the balloon.

nal, commercial type-accepted aeronautical radios meeting Part 87 requirements, an ICOM IC-706 amateur transceiver for high-frequency ham reception and 2-meter balloon-to-ground transmissions.



Gordon conducting radio tests to the balloon capsule on the ground in the Mojave Desert. (Photo by Julian, N3JF)

"This year the balloon attempt that we are working on is called WORLD FLIGHT, and the pilot is Dick Rutan . . ."

an SGC fully automatic high-frequency antenna coupler, numerous GPS portable navigation receivers from Garmin, Jeppesen mapping, and a host of other electronics to keep the balloon aloft from a dozen-plus sponsors all hoping the balloon will make it and proudly display their name at the Smithsonian Institute!

Scanning the high-frequency bands on upper sideband may also capture balloon comms between the Vandenburg Network Control Center (VNCC) and to the World Flight pilots.

The balloon chase plane will no doubt carry Barron Hilton who continues to stay focused on establishing the world's record and has continuously and unselfishly supported both the original Earthwinds project as well as the present World Flight project which carries the sub-name "Global Hilton Project."

Chief ground communications officer is amateur operator Richard (Dick) Blosser, WA6RJE, a pilot himself with thousands of hours of flight time. His interest is seeing this balloon team establish the world's ballooning record. Blosser encourages all shortwave listeners to tune into some of the high-frequency radio calls, but asks that no station attempt to try to communicate with the balloon on these special frequencies, but rather listen to 146.520 MHz as the balloon may be in line-of-sight range as it begins its journey across the United States, and as it re-approaches the United States from a successful drift all the way around the world. ■

"It is presumed that many of the other balloonists attempting to float around the world may also use these same frequencies to intercommunicate with their support base station."

The Rise and Fall of a Legend

New York's WEAF Was a Great Station, But it Went Dark . . .

By Alice Brannigan

In the early broadcasting era, the Western Electric Company sought to open a station in New York City. In May of 1922, The Dept. of Commerce issued them a license to operate with 500 watts on 360 meters (833 kHz) using the sequentially-issued call letters WDAM. The new licensees didn't like the WDAM callsign, so they requested a change, suggesting WECO as one possible substitute. On May 25th, the government decided to assign the station the letters WEAF.

The station was constructed during the summer of 1922. Located atop the 11-story Western Electric Bldg., 463 West St., the antenna was a 150-ft. long four-wire "T"-type. The studio was at 24 Walker St., and broadcasting began on August 16, 1922. Soon enough, WEAF made radio history by broadcasting the first paid commercial. On August 28, a real estate firm paid $100 for 10 minutes of air time to extol the virtues of apartments they had available. Additional "toll broadcasts" as they were then called, were solicited and aired from other firms, with sponsored programs to follow as a softer alternative to direct commercials.

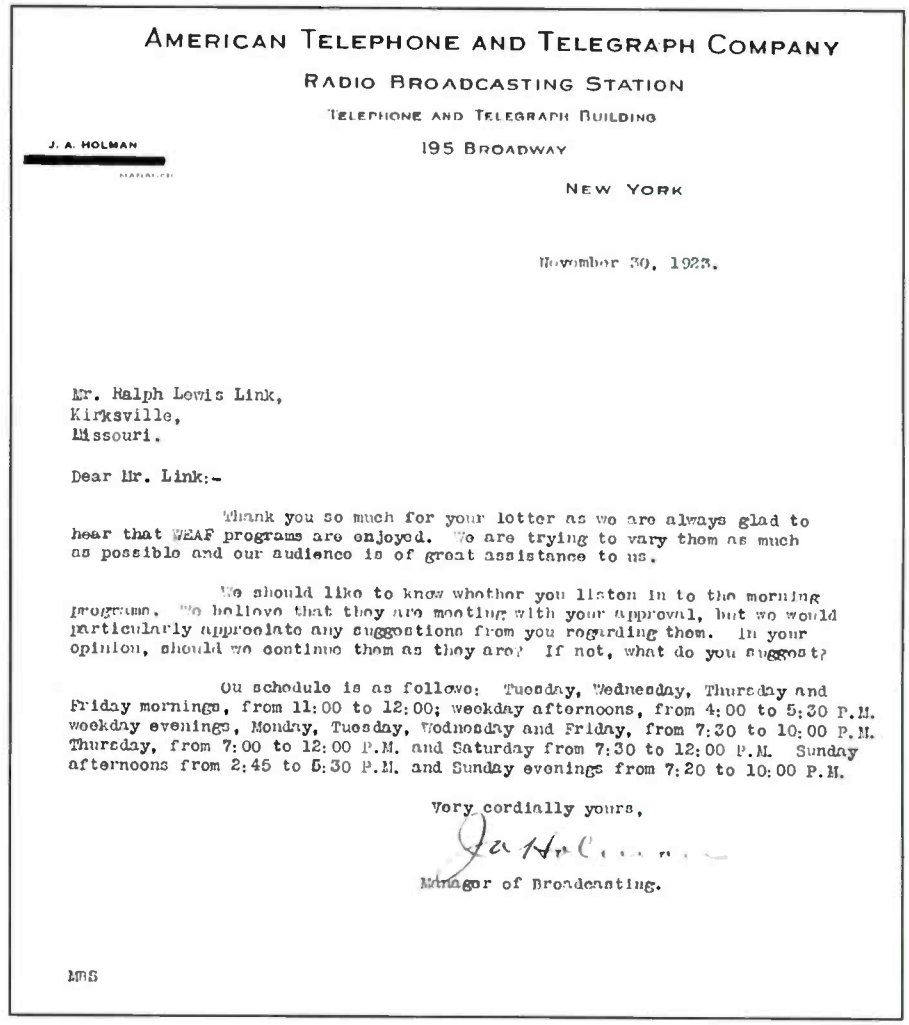
WEAF led broadcasting with live concerts, variety and musical shows. It presented stars such as Will Rogers and The Silver Masked Tenor. The station made Graham McNamee into the most famous sportscaster of the era.

By October, WEAF had been told to shift to 750 kHz. By early April of 1923, the growing station had been transferred to AT&T (parent company of Western Electric) and its facilities moved to larger quarters in the AT&T Building, 195 Broadway. The steel framework of this building was found to have a discordant harmonic relationship with the station's operating frequency, badly distorting WEAF's signal pattern. In May of 1923, the transmitter was relocated to the 24-story building at 24 Walker St., where its antenna was suspended between two self-supported steel towers.

WEAF pioneered the first radio networking in early-1923, when it linked up with small Mass. station WMAF. By June, WEAF had formed a larger network of major stations in Pittsburgh (KDKA), Chicago (KYW), Schenectady (WGY).

In mid-May, 1923, WEAF was told to shift to 610 kHz and share time with WBAY (soon to become WECO), also owned by AT&T and located at 24 Walker St. By late 1923, WEAF was using the call letters 2XB to test its new 5 kW transmitter, which went into full service (with 1 kW) in April, 1924 as "The Voice of The Millions."

As of November of 1924, WECO had been consolidated into WEAF and the power was stepped up to 1.5 kW, then soon to 2 kW, 3 kW, and (by September, 1925) 5 kW. In September of 1926, the National Broadcasting Company was formed by RCA, General Electric, and Westinghouse Electric. That's when the facilities of WEAF were transferred to NBC for $1-million.



AMERICAN TELEPHONE AND TELEGRAPH COMPANY
RADIO BROADCASTING STATION
TELEPHONE AND TELEGRAPH BUILDING
195 BROADWAY
NEW YORK

J. A. HOLMAN
MANAGER

November 30, 1923.

Mr. Ralph Lewis Link,
Kirksville,
Missouri.

Dear Mr. Link:-

Thank you so much for your letter as we are always glad to hear that WEAF programs are enjoyed. We are trying to vary them as much as possible and our audience is of great assistance to us.

We should like to know whether you listen in to the morning programs. We believe that they are meeting with your approval, but we would particularly appreciate any suggestions from you regarding them. In your opinion, should we continue them as they are? If not, what do you suggest?

Our schedule is as follows: Tuesday, Wednesday, Thursday and Friday mornings, from 11:00 to 12:00; weekday afternoons, from 4:00 to 5:30 P.M. weekday evenings, Monday, Tuesday, Wednesday and Friday, from 7:30 to 10:00 P.M. Thursday, from 7:00 to 12:00 P.M. and Saturday from 7:30 to 12:00 P.M. Sunday afternoons from 2:45 to 5:30 P.M. and Sunday evenings from 7:20 to 10:00 P.M.

Very cordially yours,

Manager of Broadcasting.

MMS

QSL letter from WEAF dated November, 1923, not long after it had come under the control of AT&T. (Courtesy Bill J. Farley, Alamogordo, NM)

When WEAF's transmitter was located in Bellmore, it was required to monitor 500 kHz at all times for marine distress calls.

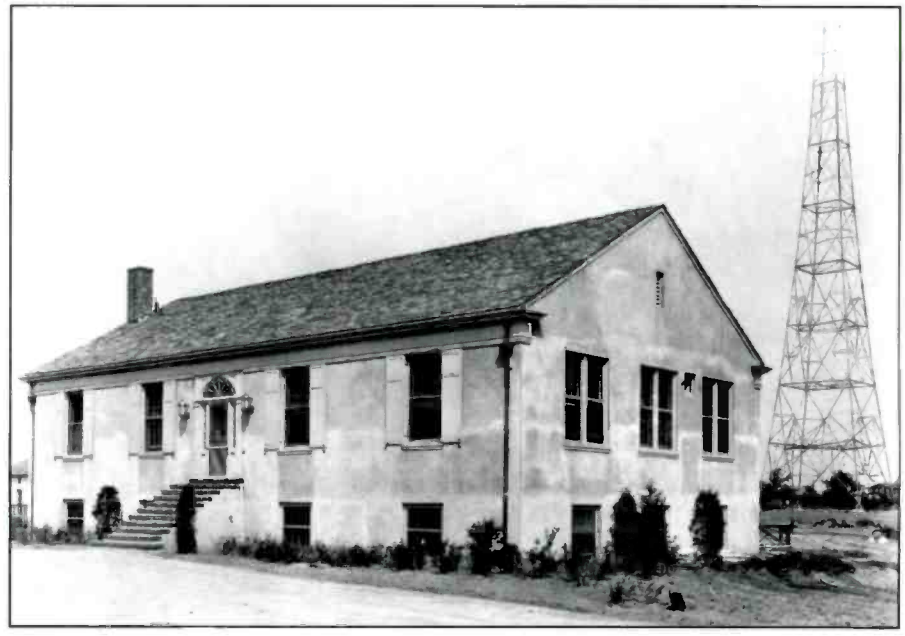
WEAF's transmitting site on Maple Ave., Bellmore, about 1927. (National Archives photo, courtesy Broadcast Pro-File, Castaic, CA)

WEAF's Importance Increases

WEAF's transmitter was relocated to Aeolian Hall on 42nd St., near Fifth Ave. in November, 1926. This had been the site of RCA's WJZ from May of '23 to December of '25. WEAF immediately became the key station of NBC's 24-station network. In January of 1927, NBC began operation of dual networks, with WEAF as the flagship of its dominant Red Network, and co-owned WJZ feeding its Blue Network (years later to become ABC). The famous NBC chimes (G-E-C) were introduced in 1927.

During the summer of 1927, a tract of land 28 miles east of New York City was purchased for locating a new 50 kW WEAF transmitter. This was on Maple Ave., in Bellmore on the south shore of Long Island. A new two-story transmitter house was built along with two 300-ft. tall self-supported steel towers supporting a single wire "T"-type antenna. About the same time, beautiful new art deco studios were opened at 711 Fifth Ave.

In the big national frequency shuffle of late 1928, WEAF was shifted to 660 kHz. That's when the station opened its Times Square live audience studio on the top floor of the New Amsterdam Theatre, built in 1903. This long-closed ornate theatre has recently been taken over by Disney and faithfully restored for lavish stage productions. By May, 1930, RCA acquired full ownership of NBC from its partners, GE and Westinghouse.



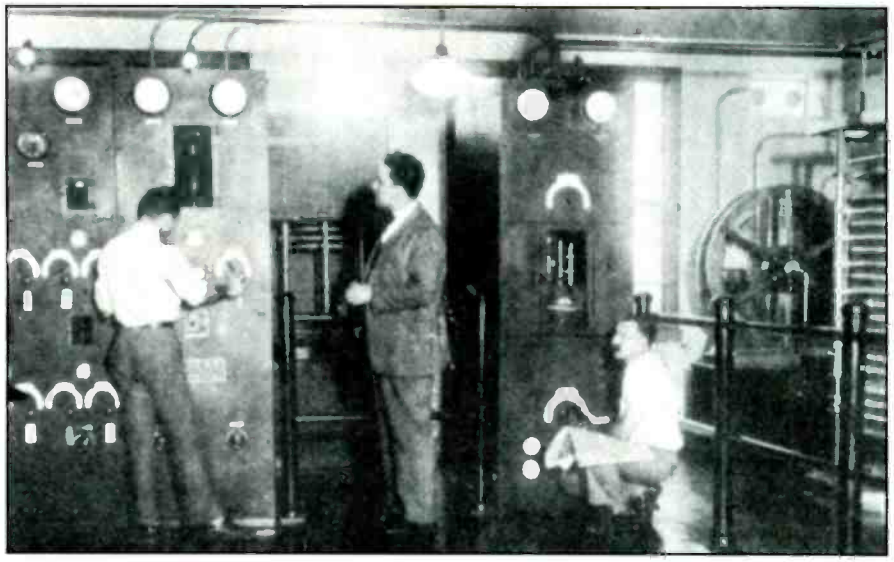
Close-up view of the Bellmore site's transmitter building. (National Archives photo, courtesy Broadcast Pro-File, Castaic, CA)

The Move to Radio City

Late 1933 saw the completion of New York's Radio City, with WEAF moving its studios into the new RCA Building at 30 Rockefeller Center. In 1938, WEAF began shortwave broadcasts on 17780 kHz over W3XAL, its 35 kW relay transmitter located at the WJZ transmitting site in Bound Brook, NJ.

By this time WEAF had become well known across North America, and its powerful clear mediumwave channel signal was being reported by listeners all over the world. It was a stunning commercial success.

As of August, 1941, WEAF began transmitting from an all-new 50 kW



In late 1928, many American broadcasters were forced to shift frequencies. Here's the auspicious occasion of the 50 kW WEAF transmitter actually being retuned from 610 to 660 kHz.

NATIONAL BROADCASTING COMPANY, INC.

711 FIFTH AVENUE

NEW YORK

FFile V

April 6 1931

Mr Fred J Ephlin Jr
1234½ Cahuenga Blvd
Hollywood Calif

Dear Mr Ephlin:

We regret the delay in acknowledging your letter of Feb 13th, due to the overwhelming amount of mail received at this office during the past season.

In reply to your request, we take pleasure in verifying herewith, your reception of our test program, as broadcast from Station WEAF, on Feb 12th, at 12:15 Midnight, Pacific Standard Time.

Cordially yours,

G W PAYNE

A 1931 QSL letter from WEAF apologizes for the popular station's delay in replying because they had been overwhelmed with reception reports during the DX season.

transmitting facility at Port Washington, NY. A two-tower directional array was put in use on the shores of Long Island Sound. These towers were 320-ft. tall. As of November, 1946, the famous WEAF call letters were retired as the station became able to change to the more descriptive WNBC when that callsign was graciously relinquished by its previous holder (now WPOP, ex-WONS) in Connecticut. However, in 1954 the call letters were changed again, this time to WRCA. In April of 1960, the owners reverted to the call letters WNBC!

New transmitting facilities were ahead for WNBC as the 1960s arrived. The station was granted permission to use a single non-directional tower located on High Island, the Bronx. This was a shared common 528 ft. tower also used by station WCBS (880 kHz). On a Sunday afternoon in August, 1967, the tower was struck and demolished by a privately-owned aircraft, killing the aircraft's two passengers and knocking both stations temporarily off the air. WCBS quickly put up a temporary 200 ft. tower at the site, while WNBC switched to an auxiliary 10 kW transmitter and tower located at Lodi, NJ owned by ABC and formerly used by WABC. In late September, WNBC returned to the air from its newly rebuilt tower at High Island.

Radio's Changing Fortunes Affect WNBC

In March of 1964, in an effort to keep up with the changing face of AM radio, WNBC switched to an all-talk format. The station offered call-in programs, news, and the NBC Radio Network programs. In 1977, a Contemporary Music format was tried, but by '79, the format had evolved to a Top 40 style presentation. In 1986, the station's license was purchased by GE as part of its acquisition of RCA. WNBC was still airing what might best be described as a personality-driven "hits" format around the clock.

In early 1988, a decision was made by GE, NBC's parent company, to vacate the broadcasting business. WNBC's dial spot and facilities were sold to another local station, WFAN on 1050 kHz. WNBC had several big name air personalities at the time, but for at least 20 years it had not been a major contender in the ratings battles. Some of the personalities whose names have been connected with WNBC included Howard Stern, Don Imus, Dr. Ruth, Murray The K, Dr. Joyce Brothers,

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WNBC

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MEMBER NATIONAL ASSOCIATION OF BROADCASTERS
HIGH FIDELITY 250 WATTS • 1360 KILOCYCLES

March 10, 1936

Mr. K. L. Gouker
P. O. Box #46
Neenah, Wisconsin

Dear Sir:

We have here your letter in which you report on our DX program, held February 15th.

We are very pleased to be able to verify your report.

We appreciate your interest in us and should like to hear from you on the reception of any other presentations which you might happen to hear from our studios.

Very truly yours,
RADIO STATION W N B C

Rogers B. Holt

RBHolt:DP

Chief Engineer

WEAF traded its famous call letters for the more descriptive WNBC, but only after this 5 kW Mutual Broadcasting System Conn. station agreed to give them up. The former WNBC then became WONS, and is presently WPOP, Hartford.

Lee Leonard, Wolfman Jack, and Cousin Brucie (Morrow).

WFAN did not intend to keep WNBC going, the new owners intended removing WNBC from the air so WFAN could shift from the Mexican Clear Channel of 1050 kHz to Clear Channel 660 kHz. WFAN had been looking for solution to the dilemma of having to share a frequency with 150 kW Mexican blaster XER.

WNBC's long and distinguished career came to a sad end at 5:30 p.m. EDT on October 7, when the station's signal left the air forever. WNBC's demise was hardly an isolated event on New York radio dials. It triggered a complex series of shock waves across New York City's AM and FM bands.

Within seconds after WNBC's signal vanished, its enviable 660 kHz dial position was occupied by all-sports format

"Some of the personalities whose names have been connected with WNBC included Howard Stern, Don Imus, Dr. Ruth, Murray The K, Dr. Joyce Brothers, Lee Leonard, Wolfman Jack, and Cousin Brucie (Morrow)."

WFAN (ex-WHN, ex-WMGM). When WFAN vacated 1050 kHz, WEVD was granted permission to move there from 97.9 FM (WEVD had used 1330 kHz until 1981, before going to FM). Until WEVD activated on 1050 kHz, the frequency was occupied for a few months by so-called "interim station" WUKQ, which was owned and specially set up by WEVD. WUKQ's programming consisted solely of a repeating tape announcing its station identification. When WEVD vacated 97.7 FM, new Spanish language WSKQ-FM opened up there.

WNBC's former FM outlet was part of the sale. For many years, it had been WEAF-FM on 97.3 FM, but eventually moved to 97.1 and evolved into all-news WNWS, then country music WNYW. After the sale, WNYW swapped dial positions with dance music outlet WQHT (ex-WTFM, ex-WAPP) on 103.5 MHz.

A few of the old WNBC sales staff were retained by WFAN, as was air personality Don Imus and his staff. However, more than 45 other WNBC people lost their jobs when WNBC went dark. Worst of all, the world lost a broadcasting legend, a piece of living heritage. Heritage doesn't easily survive when faced with the realities of hardball economics.

This report was compiled from various sources and includes (with permission) numerous excerpts from the extensive reference report about WEAF produced by Broadcast Pro-File. B-PF is a professional service that can (for a nominal fee) provide highly detailed histories of all U.S. AM and FM broadcasters, past and present. For a catalog of their services, send $1 to Broadcast Pro-File, 28243 Royal Road, Castaic, CA 91384-3028.

We seek your input in the form of old time radio and wireless photos, picture postcards, QSL cards and letters, station listings, news clippings, memories, and anecdotes. Our e-mail address is <Radioville@juno.com>, and you can send regular mail to us in care of the magazine. See you on the road to Radioville! ■

BY GORDON WEST, WB6NOA

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Motorcycles and the Family Radio Service

Operating motorcycle mobile is a terrific way to stay alert to traffic hazards and traffic jams ahead, plus a fun way to stay in communication with other radio operators in your city. In fact, tiny, 100-watt, high-frequency, SSB, worldwide ham sets like the ICOM IC-706 Mark II with its detachable head is a perfect long-range communications system that can also double as a monitor on 27 MHz CB.

When ICOM first came out with their IC-706 high-frequency, 100-watt, ham SSB with 2-meter, 10-watt capabilities, they under-anticipated the groans and moans of scanner enthusiasts looking for good VHF performance from its "wideband VHF receiver" covering 60 megs through 199 MHz. On the first production of ICOM IC-706, you could barely hear the weather channel more than five miles away. Talk about deaf!

Some hams figured out a way to cut the little yellow wire to bypass the bandpass filters. While this increased VHF sensitivity, it caused aeronautical, FM broadcast band, and wideband TV audio to go whacko. There had to be a better solution, so ICOM America has now announced the IC-706 Mark II.

The new Mark II has terrific sensitivity throughout all of the bands from 500 kHz through 199 MHz. Aircraft sensitivity is good, high-band VHF sensitivity great, and the wideband FM music band and wideband television audio sounds like it should. Plus, the Mark II now gives us 20 watts on 2-meter transmit, too.

While the IC-706 Mark II looks almost identical to the original IC-706, there are some big differences on the PLL board. When you take it down to clip out that little tiny ant-sized diode, you will quickly discover that the entire PLL board has been completely changed. The new diode that needs to get whacked for MARS, CAP, and Coast Guard Auxiliary out-of-band transmit is actually two separate chip components, and these components are dramatically smaller than the earlier three-legged diode, so getting them plucked from the Mark II circuit board is no easy task.

Here's a fully-equipped Motorcycling Amateur Radio Club bike. (Photo Courtesy Electronic Times.)

While the modification books from ARTSCI (818-843-4080) may show you which ones to cut, you can't really get a feel for the job ahead until you compare the size of the diode to the size of a period in their well-illustrated manual. A company called Trionyx, Inc., Brownsburg, Indiana (317-852-5544), can get the job done easily because John has the tools and techniques for working on these micro-circuits. He does a great job.

On the new ICOM IC-706 Mark II, programming 2-meter repeaters with a offset split plus encode CTCSS takes a little twist. On the old sets, you dial up which tone you want to encode, and then memorize everything as a complete "package." This won't work with the new set—the CTCSS has split personalities, and you can memorize one tone for receive, and one tone for transmit. You must dial up and select the VFO for transmit and then choose the transmit CTCSS tone. Then switch back to the other VFO for receive, do your quick split, and then memorize everything as a complete package. If you don't, you'll find that factory default 82.5 Hz PL always comes up on transmit, no matter what you try to originally enter. It took me a while to figure out what I was doing wrong, but the crew at the ICOM service desk was quick to research the problem, and give me a call back with the right answer. Credit goes to ICOM America for having a telephone team that eagerly pursues all types of technical questions.

Back to motorcycles. Since the front of the ICOM IC-706 can be remote-mounted up where you can see it, you can put the chassis of the equipment in the back, and this is a shorter run to the battery plus it keeps your transceiver box nice and safe. However, if somebody nabs your front ICOM head, word has it that purchasing a separate head all by itself could be a major job.

If you operate your motorcycle with handheld equipment, I have found a complete source of helmet headsets that work with just about type of handheld transceiver—ham, CB, or GMRS. These helmet headsets have remote push-to-talk switches, and even have capabilities of intercom. You don't need to homebrew your own motorcycle headset system with this complete line of headsets for almost any type of helmet and any type of radio. A complete listing of ham and CB radio communication accessories is available from RF Limited, Issaquah, Washington (206-558-9592). I counted over 50 different varieties of headsets that would work for motorcycle mobile.

Family Radio Service

What is YOUR best DX on the relatively new Family Radio Service band? Have you had a chance to play with any of the small 1/2-watt UHF splinter-frequency transceivers? Get a pair going—

You may not know our name . . .

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While the name RELM Communications (formerly Regency Electronics) may not make you think of scanners, it soon will. We're re-entering the scanner market with top-quality, professional scanners. With that goal in mind, we're excited to introduce the MS 200 mobile scanner. The MS 200 covers 12 bands including aircraft and 800 MHz. Other features include:

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CIRCLE 15 ON READER SERVICE CARD

A top-notch motorcycle communications set-up has a detachable head and much-improved scanning capabilities on VHF.

it's surprising how far these no-license handheld communicators will go on the 465 MHz band.

"I was out on a jet ski, and I talked from 72 miles out to the folks on shore down in Key West," comments Dean Travis, a radio enthusiast who says he doesn't need a ham ticket to have fun on UHF. "I found the greatest range on an over-water-path, especially when the wind is not blowing, and the sun is just rising or setting." I agree. This is called tropospheric ducting, and it works best when there is a slight temperature inversion just above the ocean or lake water.

"Beat this—more than 100 miles from the top of Mount Vaca to a boat way up the Sacramento River," comments Bill Alber, an avid ham and radio enthusiast, call sign WA6CAX. "We were up at a repeater site, talking to some fellow hams up the Sacramento River, when we both discovered we were each carrying a little FRS transceiver. We agreed to meet on FRS Channel 14, and sure enough, we made it line-of-sight more than 100 miles," adds Alber.

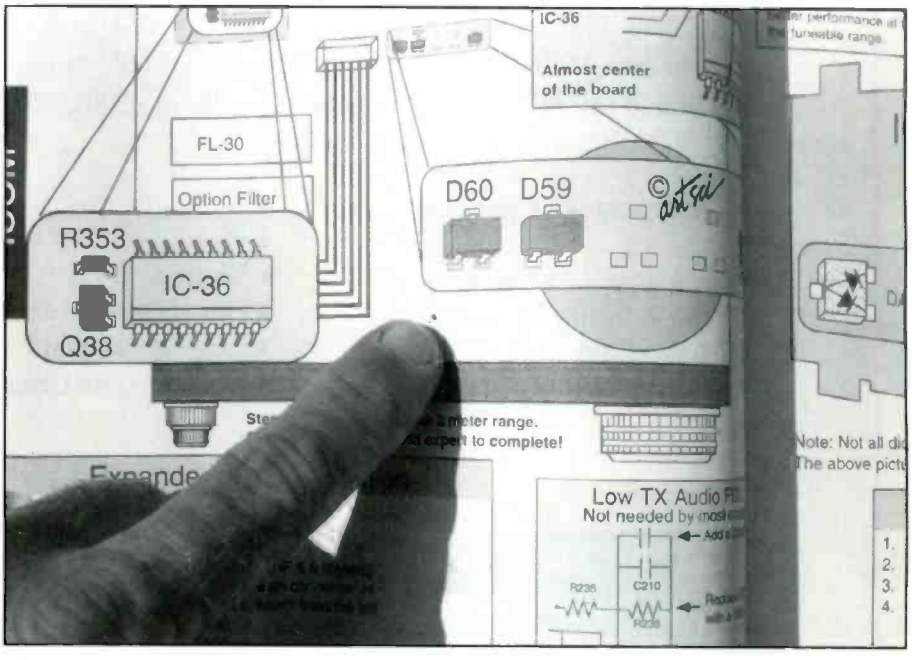
Kenwood and Alinco ham radio manufacturers were cautious to get into FRS for fear old-time hams might label this service as CB radio. Yaesu is now in FRS, and ICOM America has just announced the IC-4008 14-channel Family Radio Service transceiver that sells for under $129. The ICOM set goes to extra measures to make it water-resistant, hoping to cash in on FRS radio sales this coming summer aboard personal water craft.

Most personal water craft (i.e., jet skis) don't carry any two-way radio equipment onboard for ship-to-shore use. Although PWC's need to be state-registered and comply with certain Coast Guard regulations, nothing says that any radio equipment needs to be found onboard in case of problems out there on the water. Manufacturers like ICOM America and Uniden (Fort Worth, Texas) manufacture complete submersible handheld transceivers, but watercraft users would opt to leave them on shore thinking that they would never need any radio equipment at all out there on the lake or river.

But out on the ocean, a marine VHF portable set stowed away with a set of alkaline batteries could be a lifesaver. Last October, some poor chap drifted around for almost 20 hours on a dead watercraft until the U.S. Coast Guard was finally able to spot him at night. Couldn't find him during the day—he was a mere speck out there on the hundreds of square miles of water. But at night, U.S. Coast Guard helicopters are equipped with thermal imaging equipment, and this allows a quick find of anything out there on the large expanse of water that has a temperature difference of more than three degrees above the local water temperature. The local water temperature was 68, and the jet ski operator was around 98, so on the scope he looked like the biggest marshmallow you have ever seen on any screen! Thank goodness for technology.

Shore Station Marine License

Last month we featured Metro REACT charter CO85 beginning their operation as a licensed marine VHF and long-range, single-sideband shore station to assist mariners out at sea who may need REACT assistance. The license which allows for transmitting on shore to boats at sea on marine channels is called a PRIVATE COAST STATION, located in



This dot is the size of the two diodes that are removed for Coast Guard Auxiliary communications.

Motorcycling Amateur Radio Club

By Gordon West, WB6NOA

Ray Davis, KD6FHN, founder and president of MARC adjusts an antenna on his motorcycle.

"You don't have to be a ham to join our 300-member worldwide motorcycle amateur club," comments Ray Davis, KD6FHN, the club founder and president. "Almost all our members use CB radio, too, when we work public service events," adds Davis. "CB radio is just as important as ham radio on our bikes," adds Davis.

The **M**otorcycling **A**mateur **R**adio **C**lub is a public service organization providing motorcycle-mobile communications during charity events. MARC has participated in the National Multiple Sclerosis Society's 150 K bicycle ride and the Muscular Dystrophy Association's LOVE RIDE, which was the largest single-day motorcycle fund-raiser in the world bringing in $1.7 million.

MARC has nearly 300 members in the United States, Canada, and England, and each member has his or her own special way of mounting two-way radio equipment and scanner radios on their motorcycles. Many find the Ashidvox Model MT-667D headset microphone as the best for motorcycle CB and ham radio communications. There is very little wind or background noise picked up by the microphone element. "We mount the microphone on a boom on an open-face helmet, or install it in the chin-bar of the full-face helmet," adds Davis.

For helmet speakers, they scavenge J & M or Hondaline speakers from old helmets that someone has discarded. The speaker is then added in behind the original equipment speakers that are for the AM/FM radio.

A Southern California company called Electronic Times in Fountain Valley, California (714-375-0388), works closely with MARC members both locally as well as mail order throughout the country and world in preparing special brackets, special headsets, and special adapters for any type of CB radio, scanner radio, or ham radio. Visit their web page at <http://www.electronictimes.com>.

"MARC has two high-frequency ham nets, one on 20 meters at 14.340 upper sideband at 4 p.m. California time, and the other on 40 meters, 7290 kHz lower sideband at 4:30 p.m. California time. *Popular Communications* readers who are ham operators are invited to stop into the net at anytime with questions about putting radios on motorcycles.

Some of the popular radios and equipment that go aboard motorcycles are Cobra CB radios, Kenwood and ICOM radios, Bearcat and RadioShack scanners, plus Comet dual-band antennas. "We like the line of Comet antennas because they can stand up to the punishment they're going to get aboard our bikes," finalizes Davis.

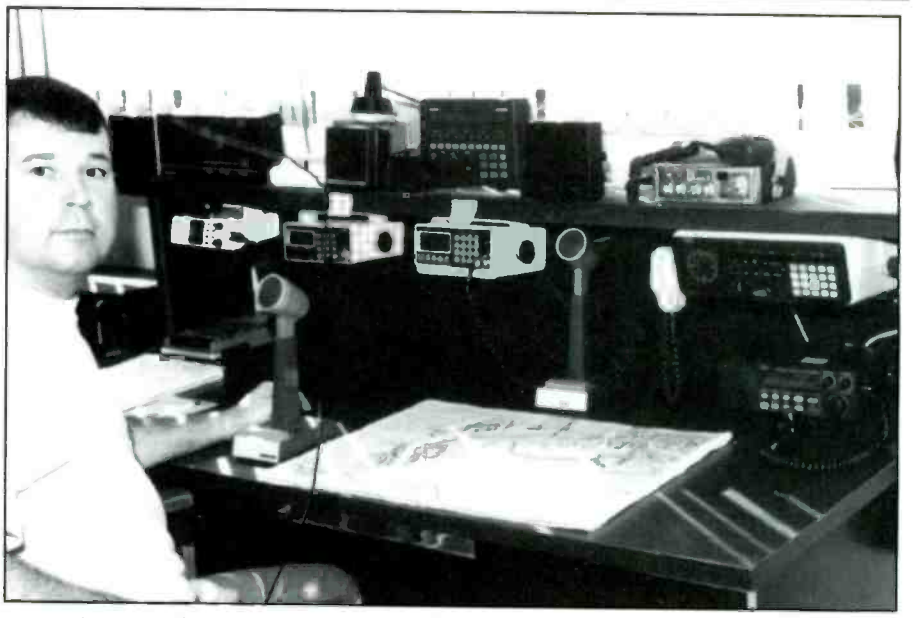
". . . I was proud to be leading a motorcycle charity event with no other than Jay Leno right behind me!"

For more information and assistance in mounting your ham radio equipment to your motorcycle, contact Ray Davis, club president, at 714-551-1036, or e-mail <raykd6fhn@earthlink.net>. You can also visit the MARC web page at <http://www.calgary.shaw.wave.ca/dpushie/marc/>.

"And most recently, I was proud to be leading a motorcycle charity event with no other than Jay Leno right behind me!" added Ray Davis. If you're into motorcycles and radio, this group may be just for you.

A look at the well-equipped motorcycle.

Compact Family Radio Service (FRS) transceivers can communicate over 50 miles under the right conditions.



A marine shore station license is available for qualified REACT organizations.

FCC Rules Part 80.501, Subpart K. REACT organizations could be eligible for this license under FCC Rule 80.501(a)(10) . . . "A non-profit organization providing non-commercial communications to vessels . . ."

Some examples of how REACT private coast stations would help mariners might be advising small boat operators where to find a local fuel dock within a local harbor, or transmitting over marine single-sideband to vessels thousands of miles away and assisting them in obtaining the necessary parts in case of an engine breakdown or sailboat rigging failure. Of course, monitoring for any distress calls on VHF Channel 16, 156.800 MHz, and SSB 2182 kHz would be an added function of the REACT team operating a private coast station.

Application for a private coast station is on FCC Form 503. The latest edition of this form may be obtained by calling the Federal Communications Commission at 888-CALLFCC in Gettysburg, Pennsylvania. Ask them for any additional fee payment forms necessary to complete an application for a private coast station. Also ask for the latest fee schedule, too. Fees are constantly changing, but the most recent coast station license came through recently at around $100.

If you are licensing a REACT marine shore station in the Pacific Northwest, or Southern California, you will also need to apply for VHF frequency coordination. In all other parts of the country, your frequency coordination for VHF channels is simply monitoring the VHF marine band, and selecting an appropriate channel that does not appear to be in use.

On single sideband, no coordination is necessary. Applying for single-sideband channels could give you the potential of thousands of miles of shore-to-ship communications range.

With the United States Coast Guard stressed to the max in providing emergency coverage and information over the marine band airwaves, REACT units could very well help in handling some of these radio calls. ■

Boaters rely on their VHF radios for 20-miles-at-sea coverage to the U.S. Coast Guard.

The Radio Connection

A LOOK BEHIND THE DIALS

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

Philco Capacitors, Elmers, and Matt's TV

This month we'll be getting into the nitty gritty of rebuilding Philco block capacitors. But first, I have a story about an "Elmer." If you are a radio amateur, you probably already know that an "Elmer" is a fellow who goes out of his way to help out a newcomer to the hobby. I am sure any ham can tell you stories about his "Elmer." There are far fewer youngsters interested in ham radio, shortwave listening or scanning these days. I guess there is just too much competition from computers, the Internet, and other high-tech toys to occupy a youngster's time and interests. But, regardless of the hobby, it is always nice to have someone knowledgeable you can turn to for help with questions and problems that arise.

I spend a lot of time on the Internet, researching material and gathering ideas for future columns. It was there I learned of a tale about an "Elmer," but one with an interesting twist! The "Elmer" is Dan Schoo, and this story is also about Matt, the youngster from Maine he was able to help via the Internet. But, let's hear Matt's side of the story first: "One day I discovered an old Philco television in my basement. I unscrewed the back and said to myself 'I am going to fix this!' I posted a message on the Internet asking if someone could help by testing the tubes. Roger Gould replied. We found 11 tubes out of 21 were bad.

"The set still refused to work. I posted another message on the Internet and this time Daniel Schoo replied. Dan is so great! He helped me through everything, and even supplying some needed parts. He is a wonderful guy! Even though we got a lot done, I did some crazy things due to inexperience. For instance, I didn't know about hot chassis sets (Ouch! That didn't feel too good!) I also ended with some tubes in the wrong sockets, and I also burned up some resistors. But even though I did stuff like that, Dan went step-by-step showing me what to do.

"We have gone so far! I mean when we first started, the set would just blow fuses! Now we've got sound and raster. But also in helping me, he has taught me many things about electronics, like electrolytic capacitors, how power works in a set, and all about picture tubes. I want to thank Dan so much."

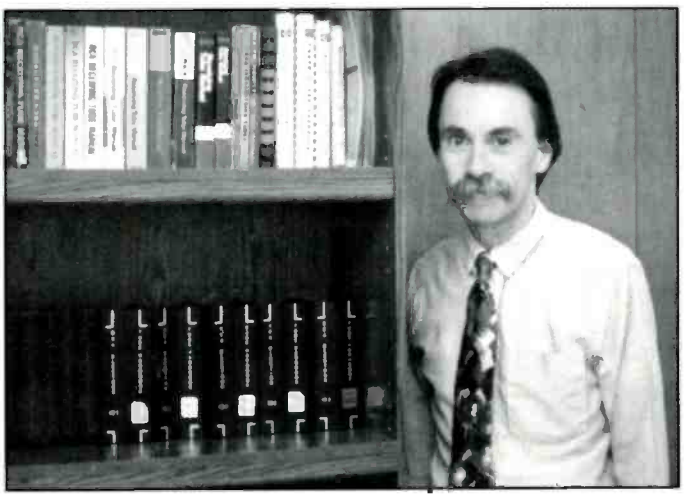
Dan replies: "I met Matt in the R.A.R+P usegroup (more on this later — Ed.) when he posted a question about fixing a 1954 Philco TV set that would do nothing but blow fuses. He had little experience in electronics and no test equipment. I decided to try and see if we could get the set to work again. As it turned out, the set had many problems, including shorted electrolytic filter capacitors, leaky paper capacitors, and some burnt up components.

> ***"I also kept in mind that inexperience can be dangerous when mixed with electricity."***

"Over the span of several months Matt would tell me what the set was doing and ask questions on where to look for the problems. He also asked questions on basic electronics, and the function of various components. I did my best to answer every question, suggesting things to try, and how to troubleshoot. I had to carefully consider my answers because I needed to be accurate, and to answer in a way that Matt could understand. I also kept in mind that inexperience can be dangerous when mixed with electricity. I made sure Matt followed the proper procedures and understood the hazards of working around high voltages.

"We made a few mistakes during the months we corresponded. Matt was finally rewarded with a picture on the set. There are few small problems left to be fixed. Matt stayed with the project and

Here's Matt, engrossed in his Philco model 22BU4001 television restoration.

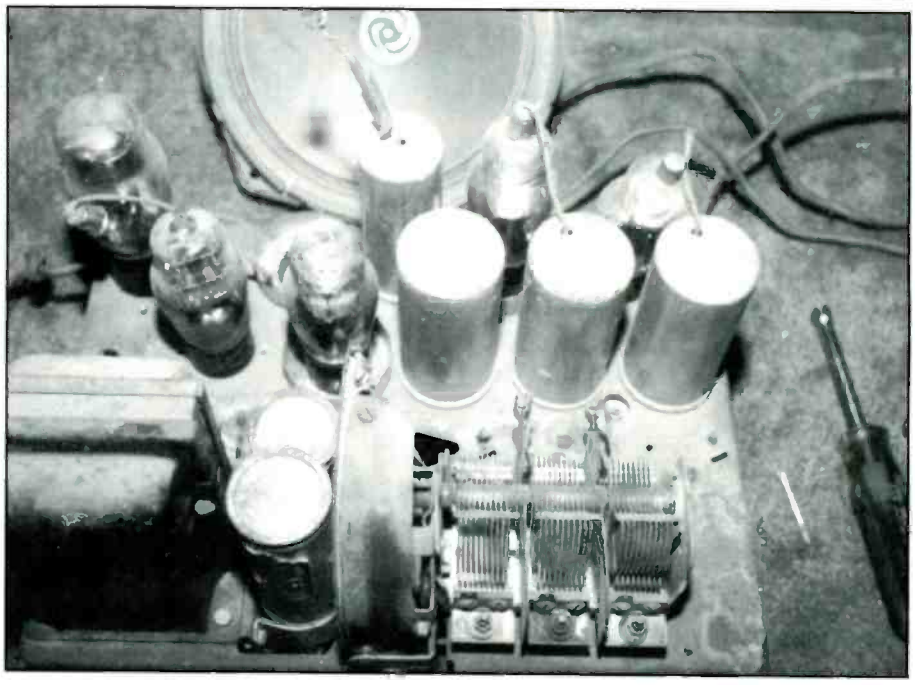


Elmer and mentor Dan Schoo. Dan is shown with a portion of his extensive RCA tube reference library.

didn't give up when things went wrong." (We've decided Matt has "earned" a one year subscription to *Popular Communications* —Ed.)

Dan goes on to say: "My interest in collecting antique radios began in 1963 when I was given several old radios by relatives. My favorite was a 1933 Zenith table set. It had problems, but I had the good sense to leave it alone until many years later when I had the experience in electronics to restore it properly. Even at that young age I knew that I wanted to follow a career in electronics. I received my Bachelors in Electronic Engineering in 1973. I am a founding member of the R.A.R+P (Rec.Antiques.Radio+Phono) usenet newsgroup. I enjoy answering questions and helping inexperienced people to get the same thrill I get when bringing an old set back to life again."

Thanks Dan. That is what this hobby should be more about—folks helping other folks.



This is a chassis from a Philco model 89 cathedral. It will serve as our demonstration radio for the next several columns. Note the torn speaker, chassis rust and broken tubes.

About RAR+P

If you have Internet access, the Rec.Antiques.Radio+Phono usegroup is an invaluable resource for finding technical and historical information. Newcomers are welcome.

All newsgroups have Charters, defining the scope and purpose of the group. This is a "discussion" group and is primarily intended for vintage phonos and vintage radio discussion.

Note that discussions regarding vintage amateur radio gear, shortwave listening and CB radio are carried on other newsgroups. I suggest you read the newsgroup for several days to get a feel for how it works. America Online members can subscribe by using keyword "newsgroups," and following the procedures outlined. Hope to see you there!

Rebuilding Philco Bakelite Condenser Blocks

When we left off last December we were talking about the Philco bakelite block condensers. Let's briefly review what was covered. Remember that in the early '30s radio technicians used the term "condenser," the term capacitor didn't come into wide use until the 1940s. We need a guinea pig for this project, so I have picked out a small chassis Philco from my collection that is awaiting restoration—a Philco model 89 cathedral. The cabinet was repaired and refinished last summer. The Philco 89 is a nice looking set, and is a very common radio. I have seen these sets sell for as high as $200 when expertly refinished and electrically restored. "As-is, and in presentable condition, they generally go for about 125 dollars. I paid 40 dollars for this one at a radio auction; the low price reflected the fact it had damaged veneer and needed to be refinished. Strange, most folks shy away from any set that needs woodworking! This is something we will cover in great detail in the future. If you can master some simple veneer work and wood refinishing skills, you can save yourself a lot by buying sets that need these repairs. We will cover the electrical restoration and alignment of this set in detail over the next few months.

A Brief History of Philco Block Condensers

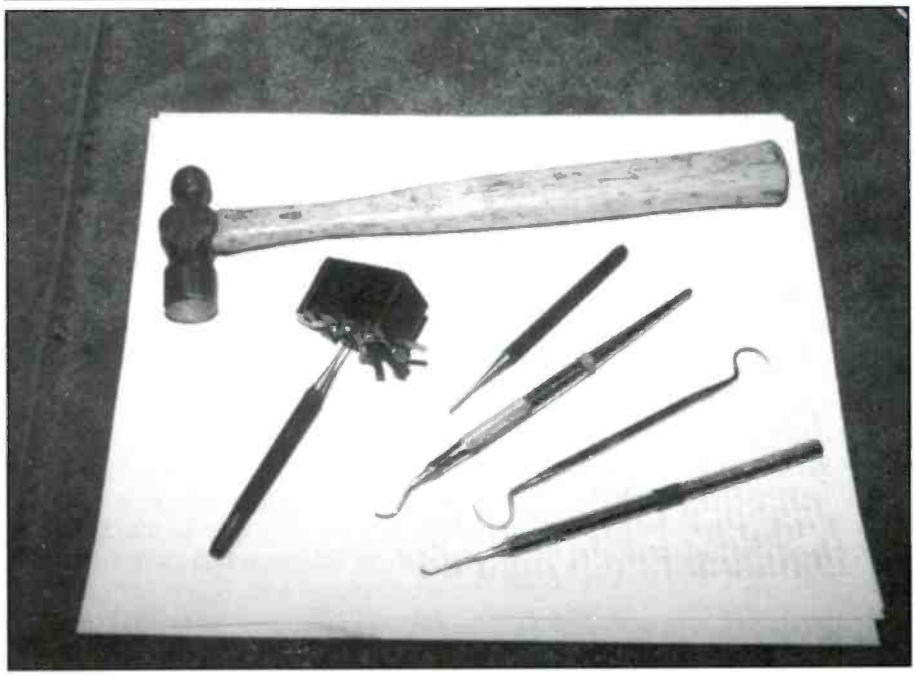
Let's recap what we talked about last December. (No pun intended!) Philco started using bakelite block condensers in the early 1930s. By 1939 they were used only for AC line bypassing; and by the end of the 1940s they had pretty much disappeared from Philco sets. Between 1930 and 1938, about 300 different "blocks" were used by Philco. The bakelite blocks usually held one or two condensers, and in some models, a resistor was included with a condenser package. No Philco blocks were made with only resistive elements alone.

The years from 1930 to 1938 encompasses a time span when Philco produced their finest radios—most of the Philcos in my collection reflect this era. Considering the vast number of Philcos made in the 1930s, it is hard to imagine that a collector wouldn't have a few prime examples in his possession.

Philco's numbering scheme for the blocks gives no clue to the actual part values contained in the block. In some instances, the Rider volumes give some info regarding the internal parts values. And in some instances, the Philco block number may give some indication of the number of capacitors contained in the block. A "must have" is Ray Blintiff's *The Radio Collector's Guide to Philco Bakelite Block Capacitors.* The booklet contains the wiring diagrams and parts values for all of the known Philco block condensers. This booklet sells for a mere $9.95, and is an indispensable aid for Philco restoration work.

Replace or Rebuild?

Beginners are often intimidated by the presence of these little black beasts—I know my face dropped the first time I looked under a Philco chassis and saw that it was loaded with them! Most early repairmen dealt with block condenser failures by simply cutting the offending lead on the block, and installing a "dangling" wax paper capacitor replacement. It was probably far cheaper and easier



Tools of the trade for successfully rebuilding the Philco block capacitors: 1/16 inch drift punches, a 4 oz. hammer, and dental tools. Your dentist can supply you with worn instruments on your next visit.

than ordering and waiting for the proper replacement to arrive from Philco.

When I started restoring Philcos, I simply removed and discarded the old blocks, and installed new terminal strips and components in their place. It looked neat, worked extremely well, and saved time. Remember, it is generally felt that the underside of a chassis is the restorer's domain; maintaining the vintage appearance under the chassis—what is not normally displayed—is not important.

Unfortunately, removing and discarding the old blocks is tantamount to removing part of the radio's history. Heck, why not simply replace all the radio circuitry with solid-state components under the chassis? You can leave the tubes and even have them light up for effect! Don't laugh, its been done.

Last year a friend of mine showed me a "Little General" cathedral radio; it was something he was selling for a friend. It was one of the more uncommon early versions, and the cabinet was in pristine condition. The radio even played, but something didn't seem right. Someone had made a plywood back for the set hiding the chassis. Normally, you wouldn't want to do this to a tube radio, it restricts air flow and can cause overheating. I had to peek inside! Sure enough, someone had removed the power transformer and the tubes to make room for a 1960 vintage solid-state AC-powered AM radio!

The original tuning condenser was wired to the new radio, as was the volume control! What should have been a $300 classic was reduced to $50 worth of junk. I offered $50.00 for the set, figuring it would cost me at least $150.00 for tubes and a new power transformer, and countless hours of restoration work to get it back to what it should be. Someday I will have to tell the story about the Philco 90 cathedral another friend spotted; its owner had stripped out the radio chassis and converted a $500 radio into a $25 sewing cabinet.

The "Little General" may be an extreme example of a restoration gone awry, but on the other hand, I now won't buy a Philco unless the block condensers are untouched. Most restorers take the time and rebuild the old block condensers.

Getting Started

I'm going to tell you how I do Philco Block Condenser rebuilds. There are several techniques that can be used, but I am outlining the one that worked out the best for me over time. Other restorers have there own pet methods. The "condensers" and resistors (if present) are sealed into the bakelite shells with tar. The condenser and resistor leads are brought out through the rivet holes used for mounting the solder terminals. Usually, the rivet holes are "open," but in some Philco model years they were soldered over. If the rivet hole is plugged with solder, you will need to

take a heavy iron or gun, some solder wick, and clean out the solder. At this time you may also wish to remove the component lead remnants attached to the solder terminal.

The first step is covering your workbench with newspapers. Keep a small vacuum on hand. Rebuilding these blocks involves removing components encapsulated in tar. The tar is often friable, and you will end up with tar fragments all over your floor and workbench if you're not careful! Funny thing about this tar, if softens under pressure and it will permanently stain carpets or linoleum throughout your home.

The worst technique I have seen suggested is to remove the block entirely from the chassis, and to slowly pick away at the tar until the parts can be forced from the bakelite shell. This usually results in two things happening. You have messy tar chips all over the place, and you usually end up breaking the sides off of a number of the blocks when prying the parts free. If you do break a side of the bakelite block off, it maybe reglued using silicone adhesive.

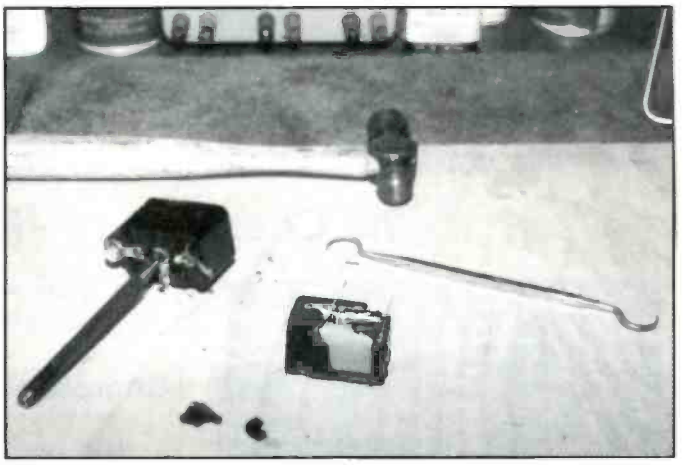
Leave the Blocks in Place

Some restorers advocate removing the blocks entirely from the chassis for rebuilding. This is unnecessary. Leave the blocks in place! Notice that the block bottoms are raised about 1/4" above the chassis. Use a sharp ended tool such as a miniature awl, solder pick or dentists' tool, and carefully break the fine component lead wires passing through the rivet holes. The next tool you will need is a 1/16" drift punch. Insert the punch into the rivet hole nearest the mounting screw. Gently tap the punch using a 4-oz hammer. Certain tar mixes didn't adhere well to the bakelite, and the components in these blocks are easily removed. If the components don't appear to be free, don't attempt to force them out! If they are free, you should be able to nudge them down until they hit the chassis by pushing the punch into each of the three rivet holes in turn. If you were successful, you can now remove the mounting screw, and carefully remove the potted parts and discard.

The Hairdryer Approach

Most likely, you've found your blocks are stubborn, and the tar is not releasing under slight pressure. Now it's time to bring out the heavy artillery—your wife's hairdryer. This is best done when she has

My son Tom shows how he is testing the capacitor for release with the drift punch while applying heat from a hairdryer. This is easy to do while the capacitor is installed on the chassis.



Success! The capacitor easily slides out of the bakelite shell once warmed.

gone shopping for the day. I don't advise beginners to use commercial hot air guns intended for heatshrink work—their output is hot enough to scorch wires and components, and can cause the tar encapsulation to melt and ooze all too easily. You might wish to try one once you have some experience under your belt.

What we are going to do is g-e-n-t-l-y warm all of the bakelite blocks under the chassis. The object is not to get the blocks so hot that tar melts and oozes all over the place! Experiment with one or two blocks to start with, gently heating them with the hot air flow from the hairdryer. Slowly work the airflow around the sides and tops of the blocks. Check each block frequently, using the 1/16" punch to determine the exact moment when the adhesion between the tar and the bakelite breaks free. With practice, you will be able to do about half of the blocks in a large chassis at a clip. Once the blocks reach the proper temperature, you have at least several minutes to loosen the encapsulated parts and push them flush to the chassis floor, remove the mounting screws, and finally fully remove and discard the encapsulated innards. Ninety percent of the time the leads are long enough to allow free movement when the mounting screw is removed. You may find a few where a wire lead or two has to be cut to permit turning the block enough to allow removing the old materials and for access to install the new parts. Be sure to remember or write down where those wires you clipped were attached!

Regardless of the method used, you may end up with a few tar chips in the chassis and on your work area! Vacuum or swept them up and dispose of them. I suspect some readers are going to ask about using dry ice to "break" the tar to bakelite adhesion. I have never heard of this being done, but I suspect it has some merit. It works well in freeing tiles from floors. If anyone tries it and has success, let us know.

We will continue with Philco bakelite block restoration in the March edition of the "Radio Connection." There will be a table of the capacitor and resistor values used for the entire run of Philco block "condensers." This will give you some idea of what value capacitors you will need to have on hand to handle any Philco bakelite block restoration. More importantly, I will show you exactly what capacitors and resistors to use—the replacements must fit into these bakelite blocks—and where to get them. Hope to see you again next month! ■

Product Spotlight

BY J. T. WARD

POP'COMM REVIEWS PRODUCTS OF INTEREST

The Cherokee AH-100 AM/SSB Transceiver

The new Cherokee AH-100 AM/SSB CB walkie-talkie.

OK, all you avid CBers, here's Cherokee's latest entry into the market; a high-quality walkie-talkie with SSB! Are we excited? You bet your NiCds!

Having used all kinds of citizens band transceivers; base, mobile and handheld during the past 30 years (but who's counting?) I've always thought it would be a great idea if someone would come out with a SSB walkie-talkie. After all, sideband is touted to be a more efficient mode of transmission than AM with greater range and, let's say, a different crowd. Years ago the feat would have probably resulted in an HT larger than a couple of shoeboxes; certainly not shirt-pocket size. But today, when smaller is better and squeezing more neat features into that small package is seemingly often looked at as a challenge, you knew it wouldn't be long before someone cranked out a sideband CB walkie-talkie.

Cherokee to the Rescue

Anybody can make a CB transceiver, but can they do a quality job? Can they make a product that does as advertised and stands up to the everyday rigors of CB use? Not always, but in the case of the new AH-100, Cherokee hit the mark!

Let's face it, a CB walkie-talkie has to be built tough; after all, they get dropped, bumped, scraped, tossed on the car seat, and otherwise generally mistreated. That's just the way it is—after all, it's a walkie-talkie; "Here . . . catch!" No, we didn't deliberately drop-test (like the ol' Army Post Office will-it-make-it-to-the-States test) our AH-100, but it looks and feels tough. You know how some radios just don't have that *feel*? So go ahead and clobber your pet alligator, because I'll bet this radio can pass the test!

The first thing that really hits you about this handheld is the audio. Forget the "say again" or "comeback" routine with the AH-100; the 500 mW audio from the tiny speaker is loud and clear. And on sideband, it really knocks your socks off!

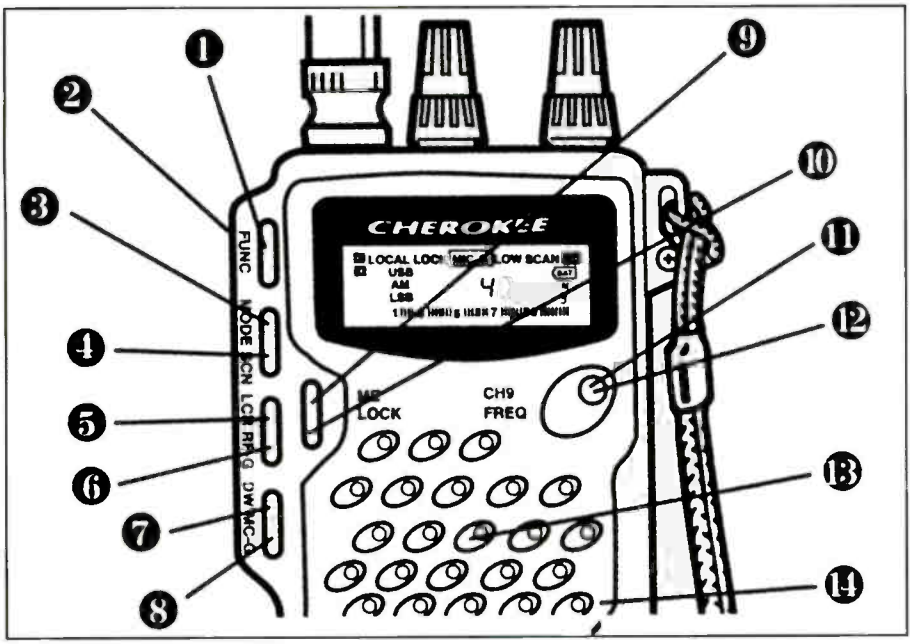
Over the River and Through the Woods

I always like to get in some "radio time" wherever we go. Growing up, my parents had fun with CB, and—well, I'm still growing up with radios, so now Carolyn and Jen tolerate it too. On a recent trip to upstate New York and Vermont, Mom had taken a few minutes away from cooking another great meal to test a couple of FRS transceivers, so it was only fair that I enlist my wife's help to test the AH-100s.

Out in the driveway I stood testing the radio on sideband; the AH-100 switches from lower-sideband (LSB) to upper-sideband (USB) at the push of a front-mounted button. Just as I was ready to begin what turned out to be quite a long walk, a loud voice broke the silence. A local CBer on channel 37 USB was calling me. The receive LCD bargraph meter was at max. After exchanging names and our QTH—he was about two miles away—he asked what type of rig I was using in the car. Folks used to "pull my leg" years ago; CBers are often notorious for slight exaggerations. I could have told him I was using a hot new mobile SSB attached to a trailing two mile wire, but decided to come clean. "You're kidding?" he replied, after I told him it was a new Cherokee walkie-talkie. Ironically he had seen Cherokee's product announcements and advertisements, but hadn't heard one the air. Needless to say, he was a hard-core CBer and very impressed, especially when I told him I was using the supplied small rubber duck antenna! He reported a "darned good signal from a walkie-talkie . . . and loud audio . . . and good modulation."

A while later as I walked the walk I did as a kid, her signal was loud—very loud—and that was in the AM mode. You can tell at a glance the mode in case you've forgotten; the AH-100 has a large LCD window that shows the channel or frequency and mode of transmission. (It also shows a whole lot more, which we'll show you in a moment). While the channel number (or frequency) is large, the mode displayed at the left of the window is actually quite small by comparison. It's a minor drawback, but if you need your reading glasses as I do to read the newspaper, you'll need them to see the mode. Or you can play that part by ear; the AM mode has a distinctive "full" sound, while both the USB and LSB modes have a typical sideband sound.

So on my walk I go. And go, and go and go. With all radios you know there will come a point where the other party just can't be heard any longer. Problem is, with the AH-100, even in the AM mode I kept wondering just when that would happen. No kidding, I stopped a couple of times and had to get my bearing (OK, so my sense of direction isn't that good!) but here's one radio that has a punchy signal! I stopped about a mile away (remember, we're using the supplied



The layout of the AH-100: 1. Function button, 2. High-low power switch, 3. Mode button, 4. Scan 5. Last channel recall, 6. RF Gain, 7. Dual Watch, 8. Mic gain, 9. Memory Presets, 10. Lock, 11. Channel 9/19, 12. Frequency readout, 13. Speaker, and 14. Mic.

rubber duck antennas) and we switched to USB. "See the small pushbutton on the front left side of the radio labeled "mode?" I asked. "Push it once." Now, anyone who has ever given simple instructions over the radio to another non-CBer, knows this could result in the person ending up five channels away in LSB, but like magic, there she was. Great! That certainly attests to the ease of operation of the AH-100. To be safe, I could have asked her to lock the keypad by pressing another button, but left that to another day.

Talk about loud audio—even more so on sideband, it seemed. I actually had to crank the volume down. The volume and squelch are top-mounted. While the squelch is pretty sensitive, I found it easily adjusted and once set, it was reliable. Problem is the clarifier (fine tuning for sideband) ring at the base of the squelch control. Rotating the fine tuning to get the sideband signal adjusted "just right" can lead to inadvertent adjustment of the squelch control. It just takes some getting used to, especially if you've got large fingers or are in a hurry to make an adjustment. There's also no line or tick-mark so you can tell where center position is located. I made my own with a fine-tip permanent red marker on both the knob and top of the radio. I did the same for the volume; it helps you see where you've set the control.

The actual clarity of the sideband signal on the AH-100 is superb. After adjusting the small control knob once, it was set; no drifting or playing with the control was necessary. So I kept walking and talk-

ing. Every now and then I'd tell Carolyn where I was (heck, I probably could have stopped somewhere for a slice and a Coke!) until it got to the point—easily a couple of miles away, that the signal finally (thankfully!) started to grow weaker. We switched to AM and her signal was even weaker. So sideband proves once again it's a good thing, and the Cherokee AH-100 proves to be an instant winner in either mode, especially with the punchy signal and (did we say?) super audio!

Other Great Features

What would a CB walkie-talkie be without lots of features—all of them useful in the real operating world? The AH-100 is loaded. On the left front of the radio is a vertical series of four pushbuttons. Another button is located next to these four which locks the keypad in conjunction with another keypress, and provides access to your five favorite memory channels. The top button is the "Function" button. It's neatly labeled in blue. Pressing it once and subsequently pressing any of the other five buttons on the radio also labeled in blue, will allow you to perform that function. For example, if you want to change from the channel to frequency display, press the "Function" key once, then the "Freq" button. But wait a minute, there's more! This radio even has a mic gain and RF gain control. I didn't use either the RF or mic gain controls, but they're simple enough to enable; the RF gain allows you to attenuate very strong signals close to your location. The word "local" will appear in the LCD window when this feature is operative.

Locking the keypad disables all functions except the volume, squelch, fine tuning and light controls. What a light! It illuminates the LCD window from *both* sides for easy viewing in the darkest environment for about six seconds, then turns off automatically.

Then there's the scan feature that when activated stops on an active channel and only resumes scanning after about five seconds of silence. Want to monitor two channels simultaneously? Use the dual-watch function. Simply access the first channel you want to monitor, then press the "DW" button once. "DW" appears in the LCD window. Then select another channel. A few seconds after you access that channel the dual watch feature begins. Every six seconds the radio samples the "watch channel." If a signal is received the radio changes to that channel immediately. Press the "DW" button to turn off the feature.

High or Low Power?

The AH-100 give you the option of either high or low transmit power. High power is the full legal CB limit, while low power is about one watt. If you're operating in close proximity to another CBer and want to conserve battery power, use the low power setting. Of course there are also other times you might not want to be heard at greater distances; this is a great feature on the AH-100 that's enabled by pushing the "Function" button once, followed by the PTT button. Repeating the process returns the unit to full power.

Channel 9 and 19 Access

For emergency channel 9 users, you can immediately access channel 9 with the simple press of the "CH9" button on the right front of the radio. It's a great feature, but you should know that, for example, if you're on channel 36 USB and push the channel 9 button, you'll be on channel 9 in the USB mode. You've got to cycle back to channel 36, change modes back to AM, then hit the channel 9 button. It's a bit awkward, but for most of us getting to channel 9 is what's important. It might be easier if you use the side-mounted channel up/down buttons and simply go to channel 9, and change the mode in the process.

Accessing highway channel 19 is accomplished by simply pressing the "up" channel selector button; the flashing channel changes from "09" to "19." Deactivation is simple—press the "CH9" button again. Again, remember, the manual doesn't say so, but whatever mode you're in (AM, USB or LSB) is the mode you'll be in when you activate the instant channel 9 or 19 control.

A Full Line of Accessories!

Cherokee offers a full line of accessories for their products and the AH-100 is no exception. A great add-on I'd recommend is their EX-01 speaker mic that attaches to the top of the rig. It's a great optional accessory.

Going Mobile Is Easy

If you've already got a mobile CB antenna on your vehicle, the AH-100 comes with a slick slide-on adapter that has an SO-239 antenna connector and cigarette lighter plug for "instant mobile." Simply slide off the NiCd battery pack and slide on the adapter, make the necessary connections and you're ready for the highway! It couldn't be easier, especially when you've got access to all 40 channels in AM or sideband.

The compact 6 1/2" tall AH-100 comes complete with a rechargeable, removable NiCd battery pack (the company made a recent change and the AH-100 now includes the NiCd pack at no extra charge, and they have even updated the operating manual to reflect the change) and 110 Vac charger/adapter and a sturdy *metal* belt clip that's firmly screwed into the back of the radio. It looks like a ham HT, feels like a professional radio, and packs a punch, but it's no surprise, because that's what I've come to expect from Cherokee. The suggested retail price for each unit is $399.95, although typical "street prices" will vary down to about $300. The Cherokee company, Wireless Marketing Corporation is located at 1212 Remington Road, Schaumburg, IL 60173. Phone 800-259-0959 or e-mail at <wrlmkt @sprynet.com>. Their web site is at <http://www.wirelessmarketing.com>.■

The ACARS Downlink

BY BOB EVANS

YOUR LINK TO DIGITAL AIRCRAFT COMMUNICATIONS

The Basics of ACARS

Several of our readers have requested a brief summation of basic ACARS information that we have presented during the past year, so here we go.

ACARS Background

During peak air traffic periods, over 1,200 commercial flights may be found just in the skies over North America. Air Traffic Control Centers operated by the FAA in the United States and the MTC in Canada are entrusted with the gargantuan task of air traffic command and control management. No less onerous an undertaking is the myriad of voice contacts between flight deck crews and ground controllers/flight operations managers that keep the airborne fleet flying safely and efficiently.

Much of the voice contact traffic in the past was devoted to describing routine aircraft maneuvers such as push back from the gate, take-off, landing and gate arrival at the destination. Added to this were messages on aircraft performance, fuel consumption, and position reports.

Voice contacts generally require that the message receiver repeat the message content in its entirety so that the sender can confirm successful transmission. As flight engineers were eliminated from the flight decks of many aircraft, the reporting part of their job now fell to the pilots and copilots. Indeed, the need existed to find a method to handle these routine air/ground communications and reduce the manpower involved.

The ACARS solution was developed and implemented for the aviation industry by ARINC (Aeronautical Radio Inc.) in the mid 1970s. The system was designed to cut down on flight crew workload by utilizing computers on board aircraft and at ground facilities to exchange routine reports and messages. However, it took nearly two decades for computer technology and equipment cost effectiveness to catch up with the reality.

While not every airline carrier is ACARS-equipped, nor is every aircraft in a carrier's fleet outfitted with the system, for those carriers that do have it, the number of aircraft utilizing the system is growing significantly. ACARS is now a standard package on all new Airbus and Boeing deliveries.

What is ACARS?

ACARS is the acronym for Aircraft Communications Addressing and Reporting System. This system is an air/ground network which enables aircraft to function as mobile computer terminals linked to a ground-based command and control management system. Information collected from sensors onboard ACARS-equipped aircraft is automatically transferred by VHF radio link to ACARS ground facilities. It is then relayed via the ground stations to a central computer processor where the data is converted into inter-airline operational messages through the ARINC ESS Electronic Switching System.

The Aircraft Communications Addressing and Reporting System (ACARS) is a VHF air-to-ground data link that routes messages between a specific aircraft and a ground processing facility. Implemented in 1978, ACARS is used by major U.S. and international airlines, regional airlines, corporate aircraft, and government agencies to assist in the efficient operational control of aircraft by both flight operations and air traffic services facilities. Today, over 4,500 aircraft transmit and receive more than 8.85 million messages per month via ARINC ACARS. Although originally designed as a VHF system, ACARS now also utilizes both satellite and HF modes as well.

ACARS Components

Three major elements comprise the ACARS Network.

❶ The Airborne Subsystem (onboard the aircraft), which consists of the Management and Control units.
❷ The ARINC Ground System, consisting of the ACARS VHF

Remote Networks, the ACARS Front-end Processor System (AFEPS) and the ARINC Electronic Switching System (ESS). ❸ The Air Carrier C2 (Command and Control) and Management Subsystems which include ground-based flight operations, maintenance centers, dispatch offices, etc., of the various airline carriers who are ACARS-equipped.

Event Recording

OFF and ON events are typically recorded through sensors in the aircraft's landing gear. IN and OUT events are usually triggered by the closing or opening of passenger doors, or the release or application of aircraft brakes. Separate Event Sensors are used which automatically record the event condition and the GMT time. Event times can then be called up on demand by the pilot as well as being automatically transmitted to the ground station without the need of aircrew intervention.

An OUT event normally refers to the time the aircraft is "Off the Gate," or when the aircraft is pushed backed by the tug. The term "time off the block" has also been used to describe this procedure—as this is generally the time when the wheel blocks are removed. Technically, for many airlines, it is recorded when two conditions are met: When all the passenger doors are closed and the aircraft's brakes are released.

The OFF or "Wheels-Off" event is linked to performance of the landing gear. ARINC standards specify that an OFF event is to be initiated when the landing gear switch first annunciates extension of the strut.

An ON or "Wheels-On" event is started when the landing gear first annunciates compression of the strut following the OFF event. It is declared as true after 10 seconds of continuous strut compression.

An IN or "At-the-Gate" event is generally declared when the aircraft has stopped at the gate and the passenger door(s) are opened. After gate arrival, a complete flight profile showing operating times, times leaving flight levels, fuel burns, etc., is generally printed automatically.

Operating Modes

The Airborne part of ACARS operates in conjunction with a ground-based digital data processor in either Polled or Demand Mode. In Polled Mode, the ground processor controls the transmission of all messages from the Airborne Subsystem to the ground. This mode is used in environments in which unacceptable contention levels cannot be otherwise avoided.

In Demand Mode, the Airborne Subsystem itself, initiates transmissions. This mode is used in environments in which the volume of communications is sufficiently low for contention so as to pose no problems.

ACARS Signal Characteristics

The ACARS signal is comprised of a 2400 Baud message databit stream to differentially AM modulate the transmitter carrier using 1200 and 2400 Hz tones. A 1200 Hz tone indicates a bit change from the proceeding bit, while a 2400 Hz tone indicates no bit change.

AM modulation, used for airband VHF voice communications, is also used for ACARS transmissions. Unlike FM, AM signals are not subject to Doppler Effect, nor does a stronger signal mute weaker ones.

ACARS message frames consists of a minimum of 50 to a maximum of 272 characters or bytes. Characters use a 7 bit ASCII code with an additional eighth bit parity. Message transmission duration typically lasts between 0.17 and 0.91 seconds. Because of this short time factor, the squelch control on your scanner/receiver should be in the off or "squelch open" position.

Radio Frequency Usage and Environment

ACARS was initially intended to be used in a line-of-sight VHF radio environment. Since its inception, both HF (shortwave) and satellite transmission have been used experimentally.

Depending on VHF propagation conditions, line-of-sight for high altitude aircraft can be as much as 200 to 350 miles in distance. ACARS transmissions can be found on the following channels in the AM VHF aircraft band:

✈ 131.550 MHz—Initial implementation and primary channel for ACARS in the United States and Canada
✈ 130.025 MHz—Secondary ACARS channel for busy areas of the United States
✈ 129.125 MHz—Tertiary ACARS channel for busy areas of the United States
✈ 131.475 MHz—Proprietary company channel for Air Canada
✈ 131.725 MHz—Primary channel for ACARS in Europe
✈ 131.525 MHz—Secondary channel for ACARS in Europe
✈ 131.450 MHz—Primary channel for ACARS in Japan

ACARS Message Formats

There are two general Message Formats in use: Category A and Category B. Both formats are utilized in air-to-ground and ground-to-air messages. Note that ACARS does not support air-to-air communications. Differences between the "Category A" format and that of "Category B" exist only in the Technical Acknowledgement and Block Identifier fields of the message.

As the Technical Acknowledgement field controls the ACK (Acknowledgement) and NAK (Negative Acknowledgement) communications protocol of the ACARS hardware, and cannot be viewed by the ACARS monitor, nothing more will be mentioned concerning this item.

The Uplink Block Identifier is used in both "Category A" and "Category B" formats. It is comprised of a single character that is provided in all uplinks (ground-to-air) from the ground station. The ground-based processor changes the bit patterns each time a general response or a new message block is uplinked to the specific aircraft. The Downlink Block Identifier is used for "Category B" format only. It also is a single character located in the Message Sequence field at the beginning of the text portion of the word and is provided in all downlinks. Its function is to enable the ground-based processor to detect duplicate messages or message blocks.

The Airborne Sub-system changes the bit pattern transmitted in this character position each time a general response or new message or new message block is downlinked to the ground. The Downlink Block Identifier consists of a single character in the range of "0" to "9." Since ACARS allows for up to five retries at downlinking an unsuccessful transmitted message, you will often copy the same message. The clue that it has been retransmitted lies in the fact that the Message Sequence Identifier (more on that later) and the Downlink Block Identifier continue to have the same values as the first time the message was originally downlinked.

Generally speaking, ACARS messages are comprised of the following elements in the following order. Some elements are mandatory, others may be optional. For the purposes of illustration, we will concentrate on downlink messages only.

Position	Element Name	Length	Requirement
1.	Address Field	7	Mandatory
2.	Message Label	2	Mandatory
3.	Downlink Block Identifier	1	Optional (Category B)
4.	Message Sequence Number	4	Mandatory
5.	Carrier/Flight Number	6	Mandatory

Consider the following "Q0" label ACARS message. This is probably the most frequent message you will encounter. It serves as a Link Test to ensure that the ground-based processor recognizes the Airborne Sub-system on the aircraft. No text is exchanged. A typical Link Test displayed on the M-400 would appear as follows:

..N123UA Q01
2032UA0045

Line 1 .N123UA Address Field
Q0 Message Label
1 Downlink Block Identifier
Line 2 2032 Message Sequence Number
UA0045 Carrier/Flight Number
Address Field

The Address field identifies the aircraft with which the ground station is communicating. For uplink (ground-to-air) messages it will be either the aircraft's official registration mark or the flight number of the service operating the aircraft. For downlinked (air-to-ground) messages it always must be the aircraft's official registration mark. By international agreement, the official registration marks are coded according to a country of origin one or two letter ICAO prefix. The single letter "N" is the prefix for all aircraft registered in the United States. Some other prefixes include "C" for Canada, "G" for Great Britain, "F" for France and "HB" for Switzerland.

American-registered aircraft may also contain a unique carrier suffix that forms an integral part of the official registration. For example N176UA is a Boeing 747-400 that is owned and operated by United Airlines while N176DN is a Boeing 767 owned an operated by Delta Airlines. For ACARS purposes, the Address field must be seven characters in length and is always right-justified.

If the aircraft's registration mark is less than seven characters, it must be left-filled with periods. Hence the following valid addresses:

N1825TU
..N123UA .C-FDCA
...N1901 .F-GHGF
....N409 .HB-IGC

An aircraft's official registration mark is generally painted somewhere on the aircraft. Do not confuse it with the "Tail Number" which normally is a carrier-assigned fleet number.

Message Label

ARINC has defined a series of two character message labels

that identify message type. In addition, many airlines have defined their own sets of labels for company operations purposes. The Message Label is always the second element in any ACARS message. It is separated from the Aircraft Registration Mark by a space.

Downlink Block Identifier

As previous mentioned, the DBI is present only for "Category B" format messages and is used primarily as a means of indicating the retransmission of a previously downlinked message. If the DBI suffix is present, it will always be directly appended to the Message Label. There will not be a space between the label and the DBI. Examples are shown below:

EXAMPLE	MESSAGE LABEL	DBI
Q00	Q0 Link Test	0
Q71	Q7 Delay Message	1
QH2	QH Out Report	2
5U3	5U Weather Request	3
5D4	5D ATIS Request	4
7A5	7A Engine Data	5
H19	H1 OAT Message	9

Message Sequence Number

For most downlink messages, the Message Sequence Number is a four digit value that represents the time in minutes and seconds past the hour that the message was transmitted. (Note that the hour is not given). There are a few exceptions to this general rule.

ARINC defines the start of the Message Sequence Number as the first character in the message "text" field. Thus, starting with the Message Sequence Number, up to 220 characters may be present. Note that the Aircraft Registration Mark, Message Label and Downlink Block Identifier (if present) are excluded from consideration as part of the text field. The Message Sequence Number will always be found at the beginning of the second line of an ACARS message. Consider the following Sequence Number example:

..N955DL QB0
4248DL1919YYZ1842

..N955DL Aircraft Registration Mark: Delta Airlines MD-88, Fleet #955
QB Message Label: QB—Downlinked Off Report
0 Downlink Block Identifier
4248 Message Sequence Number: 42 minutes, 48 seconds past the hour (1800)
DL1919 Carrier and Flight Number: Delta Airlines #1919
YYZ Station of Activity: Pearson International, Toronto, Ont.
1842 Off Time: 1842 UTC

The Message Sequence Number in this message was delivered from the GMT clock in the MU at the instant of first transmission of this message. To enable the ground processor to maintain proper message accountability in Demand Mode operations, this number must be maintained with this message until a positive technical acknowledgement is received from the ground and the whole message cleared from store. The sequence number assigned to a message by the MU must remain unchanged through the second and any subsequent attempts to obtain positive acknowledgement following the presentation of a "No Communications Alert" in Demand Mode.

Aircraft Flight Number

The six-character Flight Number field is comprised of a two-character airline identity code followed by a four-character alpha/numeric flight number. The two-character airline code conforms to the IATA two-character Airline Designator.

If the Flight Number is less than four characters long, it generally will be right-justified and left-filled with leading zeroes.

AC1030 BA0294 UA0038 AA0006

Flight Numbers for Northwest Airlines appear to be an exception to the ARINC standard. They will often leave a leading space (blank) before a three-digit flight number—for example: NW 201.

Scheduled carriers may also conduct charter flights. The letter "F" is normally appended to the two-letter airline code to indicate that the flight is a charter.

Coming In April

In the next column, coming up in April, we'll look at the second generation of ACARS decoders that are now available to the ACARS monitor. Surprisingly, many of them are now computer shareware, both for Mac and DOS/Windows based computer systems. ■

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

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

MFJ *MessageSaver*™

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

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MFJ's high performance *phaselock loop* 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 sloped front panel for easy reading.

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

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"World Radio TV Handbook" says MFJ-1024 is a "first rate easy-to-operte 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 to 30 MHz.

Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 54 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.

$129.95 MFJ-1024

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Compact Active Antenna

MFJ-1022 **$39.95**

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

Also improves scanner radio reception on VHF high and low bands.

Detachable 20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, $12.95. 3½x1¼x4 in.

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. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

High-Gain Preselector

MFJ-1045C **$69.95**

High-gain, high-Q receiver preselector 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. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18VDC or 110 VAC with MFJ-1312, $12.95.

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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.

Covers receiving antennas from 100 KHz to almost 1000 KHz. Includes antennas for long, medium and shortwave, utility, marine and VHF/UHF services.

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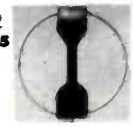

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Cellular look-a-like. Covers 25-1300 MHz. Highest gain on 406-512 and 108-174 MHz, 19 in. Magnet mount. MFJ-1824BB has BNC/UHF plug; MFJ-1824BM has Motorola plug.

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MFJ-108B **$19.95**

MFJ-105B **$19.95**

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

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

MFJ Antenna Switches

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CIRCLE 120 ON READER SERVICE CARD

Pop'Comm's World Band Tuning Tips

February 1998

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

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

Time	Freq.	Station	Notes
0000	4955	Radio Nacional, Colombia	SS
0000	6020	Radio Netherlands, via Bonaire	
0000	6055	Radio Exterior de Espana, Spain	
0000	9580	Radio Yugoslavia, Bosnia-Hercegovina	
0000	9745	HCJB, Ecuador	
0000	11750	BBC, via Ascension Island	
0000	11760	Radio Havana, Cuba	SS
0000	11780	Radio Nacional Amazonia, Brazil	PP
0000	11815	Radio Exterior de Espana, Spain, via C. Rica	SS
0030	5910	Radio Vilnius, Lithuania, via Germany	
0030	11815	Radio Brazil Central	PP
0050	6010	RAI, Italy	
0100	4201	Radio Nacional, Bolivia	SS
0100	4600	Perla del Acre, Bolivia	SS
0100	4755	Radio Educacao Rural, Brazil	PP
0100	4880	Radio Nacional Espejo, Ecuador	SS
0100	5012	Radiodifusora Cristal, Dominican Republic	SS
0100	5025	Radio Rebelde, Cuba	SS
0100	5910	Radio New Nigeria, via Germany	EE/local
0100	5910	West Coast Radio Ireland, via Germany	Thurs
0100	5930	Radio Slovakia, Slovakia	
0100	5960	Radio Japan, via Canada	
0100	9580	Radio Bulgaria	
0100	9585	Radio Globo, Brazil	PP
0115	15345	Radio Nacional, Argentina	SS
0130	6811	Ondas del Rio Mayo, Peru	SS
0130	7250	All India Radio	local
0130	11645	Voice of Greece	GG/EE
0135	9420	Voice of Greece	
0145	7160	Radio Tirana, Albania	
0200	4830	Radio Tachira, Venezuela	SS
0200	4835	Radio Tezulutlan, Guatemala	SS/local
0200	4840	Radio Valera, Venezuela	SS/irreg.
0200	5770	Radio Miskut, Nicaragua	SS
0200	6000	Radio Havana, Cuba	
0200	6155	Radio Romania Int'l	
0200	6480	Radio Altura, Peru	Ss
0200	7746	Radio Cristal, Peru	SS
0200	9737	Radio Nacional, Paraguay	SS
0200	13685	China Radio Int'l, via French Guiana	SS
0230	4832	Radio Reloj, Costa Rica	SS
0230	5035	Georgian Radio, Rep. of Georgia	local
0230	7450	Voice of Greece	Greek
0230	9545	Deutsche Welle, Germany	GG
0230	11910	Radio Budapest, Hungary	
0250	9605	Vatican Radio	
0300	4770	Centinela del Sur, Ecuador	SS
0300	4915	Radio Cora, Peru	SS
0300	4960	Voice of Armenia relay, Sao Tome	
0300	5955	Channel Africa, South Africa	
0300	6115	Voice of America relay, Botswana	
0300	7135	Radio France Int'l, via South Africa	FF
0300	7300	Voice of Turkey	
0300	9705	Radio Mexico Int'l	SS/EE
0330	4800	Radio Lesotho	local
0330	4919	Radio Quito, Ecuador	SS
0330	5030	Adventist World Radio, Costa Rica	SS
0330	7260	Voice of Vietnam, via Russia	
0330	9570	Radiodif. Portugal Int'l	
0345	6140	Radio Tirana, Albania	
0345	7215	Trans World Radio, South Africa	
0400	3300	Radio Cultural, Guatemala	EE/SS
0400	4775	Trans World Radio, Swaziland	GG
0400	4800	XERTA, Mexico	SS
0400	4850	Cameroon Radio TV	FF
0400	5077	Caracol , Colombia	SS
0400	6726	Radio Satelite, Peru	SS
0400	7110	Radio Ethiopia	local
0400	9725	Adventist World Radio, Costa Rica	SS
0430	4904.5	Radiodifusion Nationale Chadienne, Chad	FF
0500	3400	Star Radio, Liberia	EE/local
0500	4870	Radiodifusion Benin	FF
0500	5100	Radio Liberia	
0500	7255	Voice of Nigeria	
0500	9675	Channel Africa, South Africa	
0530	4815	Radio Burkina, Burkina-Fasso	FF
0600	3270	Namibian Broadcasting Corp.	local
0600	4783	RTV Malienne, Mali	FF

Time	Freq.	Station	Notes
0600	4915	Ghana Broadcasting Corp.	EE
0600	5047	Radio Lome, Togo	FF
0600	6015	Austria Radio Int'l, via Canada	
0600	7295	Radio Norway Int'l	
0600	9810U	Radio Kiribati	
0645	5883	Vatican Radio	AA
0700	3290	Voice of Guyana	
0700	5895	Croatian Radio	Croatian
0700	6115	Radio Union, Peru	SS
0700	7150	Radio Ukraine Int'l	Ukrainian
0700	7165	Croatian Radio	Croatian
0700	7245	Radio Mauritanie, Mauritania	Ff
0700	7345	Radio Prague, Czech Republic	
0700	9795	Radio New Zealand Int'l	
0730	6030	Radio Marti, USA	SS
0730	9575	Radio Medi-Un, Morocco	FF
0800	5020	Solomon Is. Broadcasting Corp.	
0800	9365	HCJB, Ecuador	
0800	9675	NBC, Papua New Guinea	
0800	9885	Swiss Radio Int'l, via French Guiana	II
0900	4885	Radio Clube do Para, Brazil	PP
0900	5870	Radio Australia	
0900	5980	Radio Guarja, Brazil	PP
0900	6035	Radio Vlaanderen Int'l, Belgium	
0900	6100	Radio New Zealand Int'l	
0900	6116	La Voz del Llano, Colombia	SS
0930	9515	KNLS, Alaska	
1000	3280	La Voz del Napo, Ecuador	SS
1000	4980	Ecos del Torbes, Venezuela	SS
1000	6010	Radio Mil, Mexico	SS
1000	6060	Radio Nacional, Argentina	SS
1000	6063	Colmundo Bogota, Colombia	SS
1000	6105	Radio Panamericana, Brazil	PP
1030	3935	Radio Reading Service, New Zealand	
1030	4549	Radiodifusora Tropico, Bolivia	SS
1030	11715	Radio Korea Int'l, via Canada	
1045	4572	Radio Gotas de Oro, Peru	SS
1100	3360	La Voz de Nahuala, Guatemala	local
1100	4750	Xizang PBS, Tibet, China	CC
1100	4800	Radio Cultural Coatan, Guatemala	SS/local
1100	6160	CKZU, Canada	
1100	6570	Defense Forces Broadcasting Stn, Myamar	Burmese
1100	7445	Voice of Asia, Taiwan	CC
1100	9540	Radio Nacional Venezuela	SS/EE
1100	9580	Radio Australia	
1100	9865	KTWR, Guam	
1100	9930	KWHR, Hawaii	
1100	15510	Voice of Russia	
1130	3205	Radio West Sepik, Papua New Guinea	Pidgin
1130	3315	Radio Manus, Papua New Guinea	Pidgin
1130	11650	Radio Sweden	
1130	11715	Radio Korea Int'l, via Canada	
1200	4725	Voice of Myanmar (Burma)	local
1200	4755	Radio Republik Indonesia, Ujung Padang	II
1200	7125	Polish Radio	
1200	7285	Radio Tashkent, Uzbekistan	
1200	9505	Radio Veritas Asia, Philippines	various
1200	9715	China Radio Int'l	
1200	11815	Radio Japan	
1200	11885	Radio Romania Int'l	
1200	12085	Voice of Mongolia	
1200	13805	Radio Norway Int'l	
1200	15125	Broadcasting Corp. of China, Taiwan	CC
1200	15215	BBC, via Antigua	
1200	15295	Radio Tashkent, Uzbekistan	
1200	15445	Radiobras, Brazil	
1230	9885	Radio Thailand	
1230	15400	YLE Radio Finland	
1300	7385	China Radio Int'l	
1300	9840	Voice of Vietnam	
1300	11855	Radio Canada Int'l	
1300	13580	Radio Prague, Czech Republic	
1300	13635	Swiss Radio Int'l	
1300	17610	Voice of Russia	
1330	13710	All India Radio	
1330	15395	UAE Radio, Dubai	
1335	15175	Voice of Greece	
1400	9530	Radio Thailand	
1400	12080	Kol Israel	
1400	15125	Radio Oman	
1430	11675	Radio Rossi, Russia	RR
1430	11850	Democratic Voice of Burma, via Norway	
1500	9810	Far East Broadcasting Assn., Seychelles	
1500	10059	Voice of Vietnam	VV
1500	11610	China People's Broadcasting Station	CC
1500	11660	Radio Australia	
1500	15425	Sri Lanka Broadcasting Corp.	
1500	15575	BBC, England	
1530	11780	Broad. Svc of Kingdom of Saudi Arabia	AA
1530	11785	Voice of the Islamic Republic of Iran	
1530	15075	All India Radio	Sinhala
1530	15435	Radio Jamahiriya, Libya	AA
1530	15650	Kol Israel	
1600	11660	Radio Jordan	
1600	15460	Radio France Int'l	
1630	13675	UAE Radio, Dubai	
1630	13730	Radio Austria Int'l	
1700	9200	Radio Omdurman, Sudan	AA
1700	11570	Radio Pakistan	local
1700	11715	Radio TV Algerienne, Algeria	EE/SS
1700	11800	Channel Africa, South Africa	
1800	11990	Radio Kuwait	
1800	13590	Radio Ukraine Int'l	Ukranian
1930	9022	Voice of Islamic Republic of Iran	
2005	13610	Radio Damascus, Syria	
2100	13715	Radio Havana, Cuba	
2200	7520	Radio Moldova Int'l, Moldavia	
2200	11787	Republic of Iraq Radio	AA
2230	3222	Radio Kara, Togo	FF
2230	6050	Federal Radio Corp., Nigeria	
2300	5960	Radio Canada Int'l	
2300	6040	Radio Clube Paranaense, Brazil	PP
2300	6933	China Radio Int'l	
2300	7125	Voice of Russia	
2300	7490	Radio Bulgaria	
2300	9515	Radio Romania Int'l	
2300	9755	Radio Canada Int'l	
2300	9900	Radio Cairo, Egypt	
2330	4805	Radiodifusoras Amazonas, Brazil	PP
2330	9925	Radio Vlaanderen Int'l, Belgium	
2330	11785	Radio Guaiba, Brazil	PP

Product Parade

BY NANCY BARRY AND R.L. SLATTERY

REVIEW OF NEW, INTERESTING AND USEFUL PRODUCTS

New York/New Jersey Metro Scanner Guide

The massive 724-page Sixth Edition of the *New York Metro/New Jersey Communications Guide* has arrived from Scanner Master. This thing weighs in at more than three pounds! It is jam-packed with scanner data on state, county, and municipal EMS, CD, local government agencies including law enforcement, fire, and highway departments; conservation, transit, hospitals, and schools.

Information is presented on PL tones, trunking systems, channel usage, channel designators, unit numbers, codes, and there are many maps. In addition, the directory also lists hospitals, news media, colleges, maritime channels, ham repeaters, and more.

Public safety listings are shown by location, then cross-indexed by frequency. This directory covers New York City, Nassau, Suffolk, Orange, Putnam, Sullivan, Ulster, Dutchess, Greene, Columbia, Albany, Rensselaer and Schenectady Counties in NY; NJ counties of Hudson, Bergen, Essex, Union, Passaic, Morris, Middlesex, Monmouth, Somerset, Sussex and Warren. It also covers Fairfield County, CT.

If you own a scanner in the area covered by this monster-sized comprehensive publication, you'll certainly want to have a copy close at hand. The price is $38.95, and can be ordered from Scanner Master, P.O. Box 428, Newton Highlands, MA 02161. Phone orders 1-800-722-6701; FAX orders 508-655-2350; e-mail orders <ScanMaster@aol.com>.

200 Watt Low Pass Filter

The MFJ-702 200 Watt Low Pass Filter can be plugged in between your transmitter and antenna or tuner and will reduce transmitter harmonics by 50 dB.

The MFJ-702 offers an SWR that is below 1.5 to 30 MHz into 50 ohms and is a perfect match for barefoot transceivers. It handles 200 watts with less than 0.5 dB insertion loss. Attenuation is 50 dB at 54 MHz. The unit measures 6 × 1 × 1 1/2 inches and comes with SO-239 connectors and mounting tabs.

For more information, contact your nearest MFJ dealer, or MFJ Enterprises, Inc., 300 Industrial Park Rd., Starkville, MS 39759; phone 800-647-1800; fax 601-323-6551.

New Cutting Edge Battery Enclosure

The PowerPort PowerSafe, by Cutting Edge Enterprises, has everything you

need for a 75 to 200 amp 12 volt power supply—except for that old car battery sitting in your garage. PowerSafe is a battery enclosure suitable for safely keeping a battery indoors. Included are a three-port cigarette outlet, automatic circuit breaker, a male cigarette plug with wire to energize your equipment and a completely automatic charger. Its tidy dimensions are 18" × 10.5" × 9.5" fit easily under your desk.

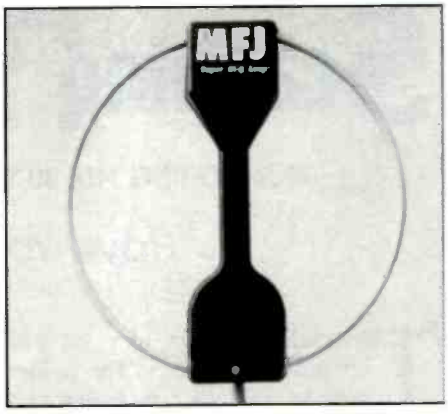
Why spend hundreds of dollars for a home radio power supply when it will go down in a power outage just when you need your station the most? PowerSafe keeps you running at home and can be easily transported to field day events or any other mobile use. It can hold up to a 125 amp hour battery. The fully automatic charger can be left plugged in to keep your battery in top shape without fear of overcharging. It also can be left plugged in during transmit without adding any hum or noise to your signal.

For extended operations in the field, Cutting Edge has a full line of accessories including solar cells, lights, DC extension cords, etc. For further information and pricing contact Roger Hall at Cutting Edge Enterprises, 1803 Mission St., Suite #546, Santa Cruz, CA 95060. Phone 800-206-0115 or e-mail the company at <cut-edgent@aol.com>.

Super Hi-Q Loop™ Antenna

MFJ Enterprises has introduced their Super Hi-Q Loop Antenna. The MFJ-1788 40 meter Super Hi-Q Loop features automatic band selection, SWR/wattmeter, round conductor, welded butterfly capacitor, and super remote control box. No extra control line is needed. Only coax feedline is required. The MFJ-1788 comes with all of the features of the 10–30 MHz continuous coverage antenna plus 40 meters. The antenna features a large 1.050 inch diameter round radiator with low RF loss resistance, all welded construction with thick wall aluminum tubing, and a tuning capacitor with each plate welded for low loss and polished to prevent high voltage arcing.

The new 40 meter loop comes with Super Remote Control included with power supply. Automatic Band Selection™ auto-tunes the MFJ-1788 to your desired band and lets you know with a beep. Dual fast and slow tune push buttons and built-in SWR/wattmeter with two ranges are also available. The MFJ-1788 is also portable and can be mounted both vertically and horizontally. A heavy duty 1/8 inch thick ABS plastic housing with ultraviolet inhibitors protect the tuning unit from the weather. The MFJ-1788 does not need a ground, radials, counterpoise or antenna tuner. It will cover 40 through 15 meters continuously with low SWR and handle 150 watts.



For more information, contact your nearest MFJ dealer, or MFJ Enterprises, Inc., 300 Industrial Park Rd., Starkville, MS 39759; phone 800-647-1800; fax 601-323-6551.

Scanning The Globe

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Have You Scanned the Winter Bands Yet?

The end of winter may be just around the corner in the colder regions of the continent, all depending on what a Pennsylvania rodent sees when he emerges from his cozy hideaway in the early part of February. But perhaps you haven't done any exciting cold winter monitoring yet.

Personally, when the weather outside gets frightful, I'm not much interested in traveling anywhere if I don't have to. And I'm not likely to move anywhere unless I've had the scanner on to hear where the slick spots are and have had an ear on the National Weather Service forecasts and reports on 162 MHz.

When the streets where I live start getting slick, I set the scanner on all the appropriate frequencies. That might vary, depending on where you live. When I lived in a rural area, I was able to get away with monitoring just the usual public safety channels for police reports of accidents and slick spots, as well as county, municipal and state road crews on their own highway maintenance frequencies. Between those groups of channels, I could get a pretty good grip on what the roads were like near my home without even venturing outside.

However, now that I live in a city, and the city that I live in operates all city services on a trunked 800-MHz system, I monitor ALL the action. That means that I hear the police, fire and ambulance units, the road crews, the city transit buses, and the student drivers of the university campus bus system. Of course, that also means hearing everyone else on the system from inspections to the animal shelter. That's listening in the Trunk-Tracker-less world. But, even by monitoring all the other users on the trunked system, I'm still getting a pretty good grip on the road conditions around the city. If someone is on a radio, there's a good chance they're in a vehicle and driving on the slick streets. And if they get stuck, see an accident, or need to call in slick spots on the citywide channel, it's all good information that could potentially help me get around while avoiding problem areas (or deciding to stay home and forgoing any adventure for the day).

"... if there are traffic helicopters doing reports for radio stations in your metropolitan area, make sure you catch them on their media frequencies for instant updates ..."

Not to be forgotten when tuning in during winter months are the frequencies used by tow trucks and auto service crews. They're the ones who get cars out of precarious locations on the roadway or pull them out of icy ditches. And if there are traffic helicopters doing reports for radio stations in your metropolitan area, make sure you catch them on their media frequencies for instant updates as they go out over the air.

The point is that winter monitoring has its benefits. If you are tuned in well, you'll know the score when it comes to messy weather.

The other aspect of winter monitoring is the recreational part. If you live near parks or ski slopes, there may be interesting monitoring. Most ski slopes can be found using VHF high band or UHF business frequencies. But the real exciting stuff on more expansive ski areas are the 155-MHz special emergency channels the National Ski Patrol shares with users such as ambulance and rescue units. If there's an accident on the ski slopes, you'll hear everything as ski patrol units respond to the injured persons. It's not too hard to find these frequencies in use, especially if you are near a ski slope.

Winter weather monitoring can be fun, especially when things heat up—or is that cool down?

Frequency Search

Meredith Cole sends e-mail from Sarasota, Florida, a place that doesn't worry too much about snow this time of year, saying: "It's good to finally have

Pop'Comm on the Web (don't forget to check us out at <http://www.popcomm.com>) and I always enjoy your column. I'm having trouble locating a couple of frequencies in the area and I was wondering whether you could possibly tell me how go about locating them? One is the local cable TV company's dispatch for mobile units (Time Warner of Manatee County, Florida). The other frequencies are medical helicopters-to-hospital base communications in this area—Bayflight helicopters at Bayfront Medical Center in St. Petersburg, Florida, and Medflight helicopters at Tampa General Hospital in Tampa, Florida.

"My scanners in search mode haven't produced anything, even at rush hour, when most flights take place. And the local radio stores aren't any help. Just point me in the right direction."

Well, while I can't look up frequencies for everyone who writes in, I can help point you in the right direction. If you are on the Internet, you might want to try searching the license database provided by PerCon Corp. at <http://www.percon-corp.com>. The folks there usually have an older version of their CD-ROM product online and unless the information you are looking for is relatively newly licensed, you may just find it at that Web site. It's worth checking (you may have fun just searching for other data).

Cable TV companies typically operate on VHF high band business frequencies in rural and smaller communities (151 or 154 MHz) and on UHF business frequencies (461–465 MHz) in larger communities. In larger cities, you're more likely to find units on UHF T-band (470–512 MHz) if that band is used in your area, or more likely on a conventional 800 MHz repeater or an 800 or 900-MHz trunked system with many other business users. If you search, you may find the cable company, but you're more likely to find them after a storm when everyone's cable has gone out and repair units are out trying to repair the outages. There just isn't much traffic on the air during the day except for units connecting and disconnecting customers.

For the medical helicopters, you're more likely to find them on the 155-MHz medical channels than anywhere else. That's not to say they won't be found on other frequencies. The 155-MHz channels work well for medical copters because most hospitals already have base stations in place on these frequencies for ambulances calling in patient reports. In many areas, almost all patient reports, including those from medical helicopters, are on 155.340 MHz, the national Hospital Emergency Alerting Radio (HEAR) channel. However, other frequencies can be used. The 463-MHz MED channels (462.950–463.175 MHz) may be used (in my area, the 463-MHz channel is used simplex for a hospital helicopter, whereas all other users on the MED channels are mobiles on 468 MHz and bases on 463 MHz. If an 800-MHz trunked public safety system is in use in your area, the medical helicopters may show up there, or even on frequencies in the aircraft band from 118–137 MHz. Also, you're likely to hear helicopters call ground units at their landing zone when

"If they're using a radio, there's a good chance you can hear them. That's my motto."

"Winter weather monitoring can be fun, especially when things heat up—or is that cool down?"

they arrive on the scene. In many areas, 155.475, the national public safety mutual aid channel, is used at landing zones.

So, give a listen. Scan at the opportune times for what you want to hear. And never give up. If they're using a radio, there's a good chance you can hear them. That's my motto.

Michigan Event

Paul Zook e-mails from Rochester, MI to say: "Each year in the early part of September, Rochester hosts the Arts and Apples festival in Rochester Municipal Park. This festival is registered as the eighth largest in the nation and attracts over 100 local and national artists. I have collected several of the frequencies utilized by various festival participants:

★ 148.125—Air National Guard Reserves—Provides the majority of the security, traffic control, cleanup, and assists performers and artists. These officers have a small camp on-site and provide security during the night.

★ 151.655—Artists—Traffic heard on this frequency includes runners who fetch artwork for artists that is stored outside of the artists' booths, call for inventory checks or for repairs to damaged artwork, or call to workers who modify artwork at the request of the patron.

★ 464.5125—Festival operations—This is the main frequency of the festival and provides communications for the personnel who provide support to the artists, aid patrons and vendors and provide security, including helping lost children and patroling for vendors selling goods without permission.

★ 450.2125—WWJ News Radio AM 950 live links from festival. This year, WWJ, had a remote broadcast from the festival and provided listeners with traffic updates for the metropolitan Detroit area.

★ 424.350—City of Rochester—Police Department.

★ 424.300—City of Rochester—Fire and EMS services.

★ 155.880—City of Rochester—Public works.

Paul continues, "As recent as two years ago, the main operations were on GMRS frequencies, however, I believe that the festival has purchased its own radios and will remain at these frequencies. I had some difficulty in monitoring the Air National Guard in that when I tuned my Bearcat 8500 to 148.125, I picked up a birdie that held open the squelch, thereby preventing any scanning and kept my tape recorder running on an open signal. I tuned down the frequency to 148.120 and was able to monitor, however the sound and signal quality was poor. In addition, several of the artists and numerous patrons were using the new Family Radio Service radios. I have a pair of the Midland family radios and have enjoyed using them in our local shopping mall, walking through downtown Rochester, and as car-to-car communication."

Thanks for the great list of frequencies, Paul, as well as the monitoring tips for the festival. It just goes to show that you need to pay attention to the new Family Radio Service frequencies at 462 and 467 MHz.

Blues On The Air

Mike Miller sends an e-mail saying: "Just dropped by to say I heard the Blue Angels on my RadioShack PRO-60 on 345.900 MHz with traffic about air speed. I have a RadioShack scanner antenna mounted above the TV antenna and on the same pole.

"We have a couple hundred feet elevation here, so that helps. I heard only a few very quick transmissions, but they were heard fine and I was thrilled to hear them. I bought the scanner for that specific purpose."

Write In

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips worth passing along to your fellow readers? How about sending in a photo of your listening post or antenna farm? Write to: Chuck Gysi, N2DUP, Scanning the Globe, Popular Communications, Box 11, Iowa City, Iowa 52244-0011, fax to 516-681-2926, or e-mail to <SCAN911@aol.com> or check in via our Web page at <http://www.popcomm.com>. Make sure you indicate in your e-mail that you are writing regarding this column. ■

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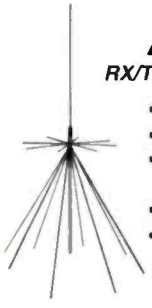

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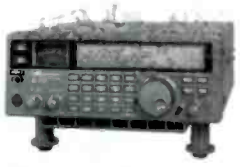

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ScanTech

BY KEN REISS*
<armadillo1@aol.com>

TRUNKING, TIPS, TECHNIQUES and MODS

Searching the Spectrum

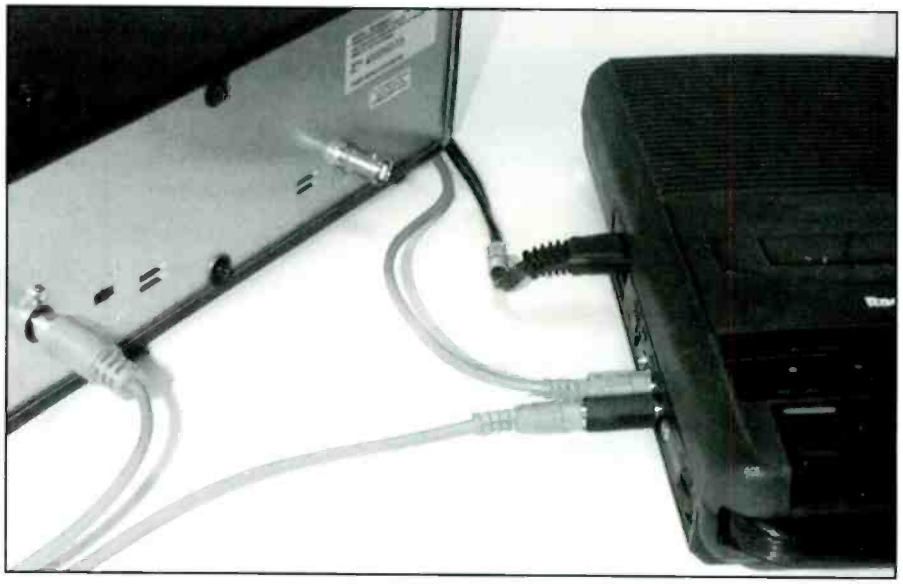
Most scanner listeners tend to be stuck in a rut. When was the last time you programmed any new frequencies into your radio? How many of those 1000 channels in your new scanner do you have full? Don't feel bad, it happens to all of us. I think I have 11 crammed into one of my 1000 channel radios. If you're into statistics, that averages 1.1 channels per bank.

Searching for new frequencies has always been a chore. Not only is it time consuming, but figuring out what's new versus what you already know about is always such fun. On top of that, there's the feeling (or reality) that you're missing something good on the frequencies that you normally listen to while you're wasting time searching.

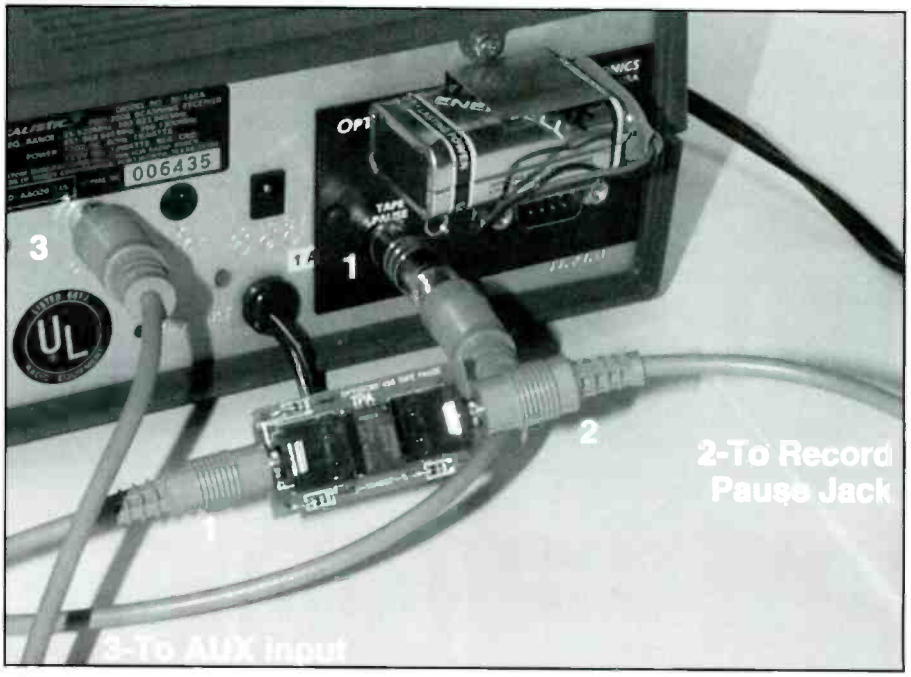
Adding to the aversion, the search function on most scanners is a bit inconvenient to use, and it is, to say the least, time consuming. Days, or weeks can go by with little or no return. But when you do find new frequencies, or identify a new user, it makes it all worthwhile. Some new tools have become available to us in recent years to help this process, and even to make your scanner do things that you never thought about.

The most significant improvement in the searching process has been the power of the computer combined with controllable scanners, and the software that drives them. With software, it is not only possible to search large amounts of spectrum, over time of course, but also to turn your non-productive scanning time into a useful and worthwhile part of your hobby activities.

Even without a computer control system, there are many things you can do to enhance your scanning and searching time, and to convert down time into useful activities. The advent of the voice-activated tape recorder has made a lot of monitoring activities possible that simply weren't viable before. By use of a voice activated recorder, and if you have the equipment, a computer control system, you can turn time away from the shack into productive activity.



The BC-9000 XLT is one of few radios with an auxiliary control port for the recorder. The AUX from the radio is connected (with appropriate cables and adapters from RadioShack) to the REM jack of the recorder. Note that the LINE OUT jack on the Bearcat series is on the front panel.



Whoever called this hobby wireless was nuts! The connection to the remote pause function of the OS-456 requires the special Tape Pause Adapter shown bottom center. The OS-456 connects to it, and then it connects to the REM jack on the recorder. The audio comes straight from the scanner to the recorder's AUX jack. You will destroy your OS-456 tape control circuit if you try this without the adapter!

"One of the biggest mistakes that we all make getting started is to search too large of an area."

It is also worth noting that this is not recommended for beginners. If you're just getting started with scanning, you're much better off with traditional frequency lists and other information. As you begin to learn the details of the various departments that you are monitoring, you'll also find new frequencies and services to plug into your scanner. Once you're familiar with these tools, you'll begin to understand the layout of the bands where you'll be searching. You can begin searching for unknowns with confidence and you'll be able to correctly identify the intercepted signal, whether it's really a new frequency for you, or just one you had forgotten about.

Searching For Unknowns

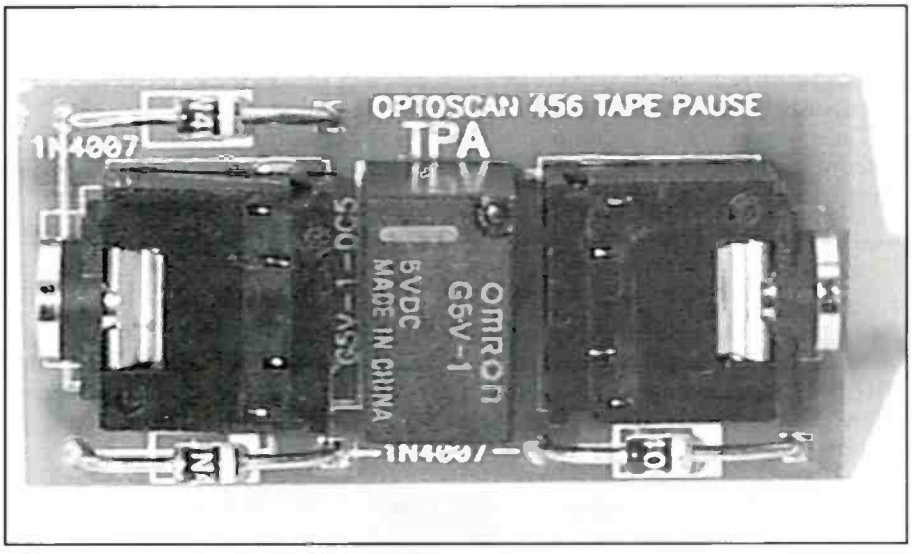
It is normally a simple matter to hook up the tape recorder to your scanner, but if you're not familiar with the procedure, check the sidebar. If you have an Opto-Scan OS-456 unit, pay particular attention to the notes on hooking it up to a recorder remote pause jack.

Adding a tape recorder to your shack will allow unattended searching. The amount of tape that is used will give you a feel for how much activity is found, even before you listen to it. By playing back the tape, you can at least get a good feeling for the activity in the range you searched, and decide if it's worth your time to pursue the active frequencies any further. If you're searching in a frequency area where you know some channels, you may be able to identify some of the traffic already, just based on how they sound. After that, you can pick specific frequencies that you think might be worth further investigation.

Perhaps you've heard through the rumor mill that a certain agency uses a specific channel. Here's a great use for the recorder while you're at work, out running errands or anywhere besides in your shack. Put the scanner on that frequency (or talkgroup, with the new trunk-trackers) and set the recorder. You can verify a lot of information in a week just by spending the day on one frequency at a time!

Some scanners (mostly the newer model Uniden base units) feature an "AUX" feature to assist in recording specific channels. This can be very beneficial if you think you've pegged a few frequencies that you want to follow. Just set up the recorder to tape only those specific channels and let it run. You'd be surprised at how quickly you can begin to match frequencies with that activity after you return to the shack from listening to the tape. I frequently carry tapes with me in the car to listen through while I'm driving from appointment to appointment, or sitting in rush hour. It's a lot more fun to listen to that stuff than most talk radio programs I've sampled lately.

If you are fortunate enough to have a computer controlled system, you can really make maximum use of your scanning setup while you're away. Almost any computer-controlled scanner can perform a search and keep track of the hits that occur on each channel. In addition, you can keep a log of the frequencies that the scanner found active, and the sequence/time and date of the activity. By playing back the tape and following along in the log, it's usually easy to figure out an active frequency. Then you can set it up for more detailed monitoring if you're interested. Also, there are a few recorders



The OS-456 Tape Pause Adapter. You will need this if you're using an OS-456 interface and controlling a tape recorder with the software. If using a VOX recorder, there is no connection to the OS-456 tape remote jack.

that feature a time and date stamp on the audiotape. That would make following the log very simple (assuming of course that the clock of the recorder and the computer were synchronized).

There are also a number of computer based recording programs appearing on the market. Several are shareware applications that simply use the sound card to record just like a voice activated recorder, and those make a great substitute for the recorder if you don't need to take the tape with you for portability. One recently introduced add-on for ScanStar for Windows, not only records the audio, but keeps a log of the frequency that was active at the time. This makes it very easy to tell what happened and when. The only slight problem is making sure you don't run out of hard disk space while recording, as this can take a lot of room.

Searching Techniques

One of the biggest mistakes that we all make getting started is to search too large of an area. It is very tempting to set up a search for the entire military air band, for instance, or the federal portions of the UHF band. You might get lucky and find a few things this way, but the odds are against you.

You have to remember that *you are trying to find transmissions that don't take place very often*, nor do they last long when they're on. Your scanner has to be in the right place (on the frequency) at the same time as the transmission is occurring. In short, you have a moving target being followed by a moving search engine. In a large block of frequencies, you're chances of winning the lottery are probably better.

So reducing the size of the blocks will improve your chances of hitting something in that block. How small do they have to be? Well, that depends on exactly what you're looking for, and how fast your scanner can search. With a fast scan-

Adding a Tape Recorder to Your System

Before we even get started, let me address the idea of taping in context. There has been some considerable flap over tape recorded scanner intercepts in recent months. What I am advocating here is taping as a tool for increasing your scanning time, not for use by any other persons, for sale, or even replay for anyone else but yourself. The Communications Act of 1934 is fairly plain on the issue of disclosure: Don't. If you're going to do any of these things, find another hobby. Ours has been damaged too much already by improper use of equipment.

Hooking up a tape recorder should be a relatively simple procedure, but it can be a bit confusing if you don't understand what all the connections do. Essentially, there are only two connections to the recorder that we have to be concerned with, and really only one that matters. We need the audio from the scanner to get to an input for the tape recorder so that what comes over the scanner is put on the tape. Many newer scanners have a "Line Out" jack just for this purpose. If your tape recorder has an "Aux" or "Auxiliary" input, that's where the connection should be made. *The audio level out of a "Line" jack is too high for the microphone input of most recorders.*

If your scanner has a "Line" output, but your recorder only has a "Mic" input, you can get something called a Dubbing Cord" (42-2152) from RadioShack. This cable reduces the signal from the higher levels of the line output to a lower level that the microphone input will accept without a problem.

That is all you would have to do. In fact, if you are using a voice activated recorder, that is it. You turn on the voice activation feature, and the recorder will stop and start for you when it detects the sound from the scanner.

If you don't have voice activation, your recorder will run continuously, and you'll run out of tape pretty quickly. That's where a scanner, or computer interface with a recorder remote control comes into play. One of the jacks on most recorders is labeled "Remote," and is for the remote control of the record motor. Finding the right cable can sometimes be a chore, but usually, it can be done, at least with adapters. Now, the computer or scanner has to know when to turn the recorder on and off, but that is usually controlled by the channel on a scanner, or by a setting in software.

Once you have both stop and start control (using either method) and audio, you're in business. Good hunting!

Optoscan Users Take Note!

On the Optoscan 456 for the PRO-2006 and 2005, there is a problem with the record remote control. Plugging a tape recorder straight into the remote control jack on the OS-456 unit is likely to destroy the components that are used to control the switching circuit. Unfortunately, if this is done, the unit must be returned to Optoelectronics for repair.

Optoelectronics makes a little circuit board that plugs in between the Optoscan unit and the tape recorder's remote jack to ensure that voltage from the recorder does not destroy the components used to switch the recorder on and off.

The small recording circuit is available free for OS-456 users by calling Optoelectronics and requesting the OS-456 tape pause control. Optoelectronics can be reached at 954-771-2050.

"The second most important skill for a search operation is patience."

ner, and assuming you're not looking for a frequency that's only used once in a blue moon, 2 to 4 MHz of space is probably about right. "Two to four MHz?" I hear you cry, "Do you know how long it's going to take to do the entire military band?" Yes, but what else were you using your scanner for during the work day when you're not there?

The second most important skill for a search operation is patience. Particularly with military operations, but it applies everywhere, some of the frequencies are not used on a daily basis. Perhaps some National Guard frequencies are only active when they are conducting monthly exercises. Or possibly training frequencies may only be active during training operations which only take place occasionally. To find these obscure channels, you may search the same area of the spectrum over and over for a month and get nothing until the exercise starts. What fun, right? But it's worth it when you finally hit something.

Identify targets for your searching. One of the most useful exercises I have done recently was to look at my data from a frequency point of view. If you glance at almost any frequency guide, you'll quickly see that there are pre-determined band plans for each area of the spectrum. In other words, there are places or frequencies in your scanner's coverage range where we should expect to find something, and places where we shouldn't. For example, our local police occupy 154.830 and 154.845 which are, as it turns out, adjacent channels. Nobody should be on .835 or .840. By simply mapping the available channels against what you already know, you can find a revealing number of holes in your information. A computer spreadsheet makes short work of this, but it can be done with paper, too.

Once you've found your missing areas, it may turn out that you have a very narrow range to search in a particular band. This will cut down your time, as well as help with identifying things on the recorder. Using the computer, and Probe for the Optoscan, I can delete parts of the search range that doesn't interest me.

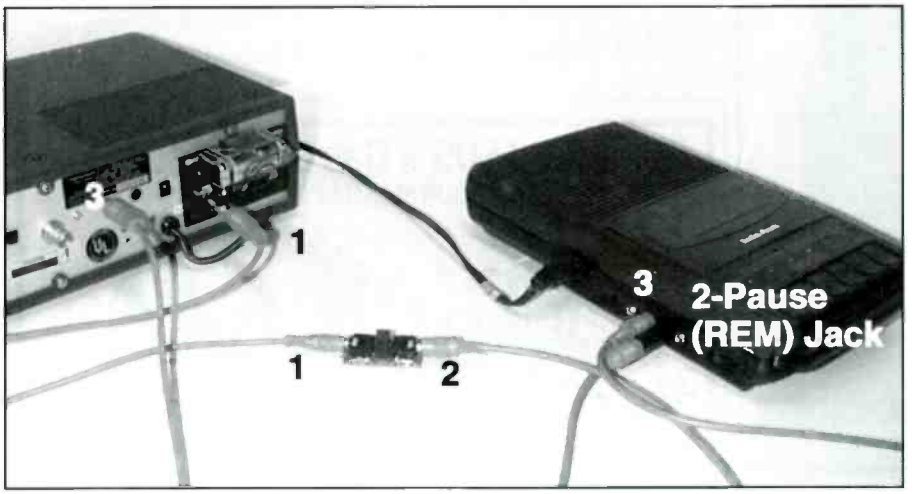
Develop a Tracking System

And my final piece of advice is to develop a tracking system. Computers are great for this too, but you can do it with a notebook or index cards. Make notes of when you searched a particular swath of frequencies. What day of the week was it? Could you be looking for something that is only used on weekends? Or every third Wednesday when they test the tornado sirens? What did you find on your search? Can you identify any of it, just based on what you already know, or can find from frequency directories and other sources? The more information you have, the more useful the system will become in the long run.

Having said all that, maybe this is too much trouble. If you're quite happy scanning the local police and fire frequencies that you already know about, keep scanning. But if you're getting bored, or wonder who else uses some of those other frequencies that your scanner covers, searching, especially while you're away from the equipment anyway, can be a lot of fun.

Your Input Needed

I'm always looking for your input. Got any search results to let us in on? Pictures of your system in operation? Send them in! Remember, this is *your* column. ■



An OS-456 tape control connection. Note the Tape Pause adapter connected between the radio (1) and the record remote (2). Without this circuit, you will destroy the OS-456's circuit for tape control.

CB Scene

BY JOCK ELLIOTT, SSB-734

27 MHz COMMUNICATIONS ACTIVITIES

The "Mailbag-O-Rama" and S.608 Passes Senate Commerce Committee

This month's column is devoted entirely to stuff that has come in from the most important people in the world, the folks who read this column.

Tony Dewitt is looking for info on the old Super Penetrator antenna by HyGain. He'd like information on the vertical and radial lengths for low SWR on CB frequencies. Contact him via e-mail: <TDewitt@pns.anl.gov> or write to me here at *Pop'Comm* with the info.

The Un-Radio Koffee Klub International

Dwight C. Jones, Sr., wrote to us from the Pacific Northwest with news about a couple of interesting sideband groups that operate in the Puget Sound area. The first is called the Un-Radio Koffee Klub International. It operates on Channel 36 LSB, 3:30 to 7 a.m. It's a really diverse group of people who get on the air in the morning to talk about whatever interests them.

The group attracts hams as well as many engineers, including the head of the AWAC program for Boeing. Drop by, and you can get an answer for just about any question you might have, Dwight says. The Un-Radio Koffee Klub covers a large area, from North of the Canadian Border to south of Olympia, WA. These folks don't venture into the freeband and most run legal, unmodified, 12-watt SSB CBs. Dwight also reports that this is one of the busiest CB frequencies in the area.

Around 7:30 p.m. a lot of the people who participate in the Un-Radio Koffee Klub show up on Channel 39 LSB as part of the Whiskey Tango group. This is another loose-knit, diverse group that has members all over.

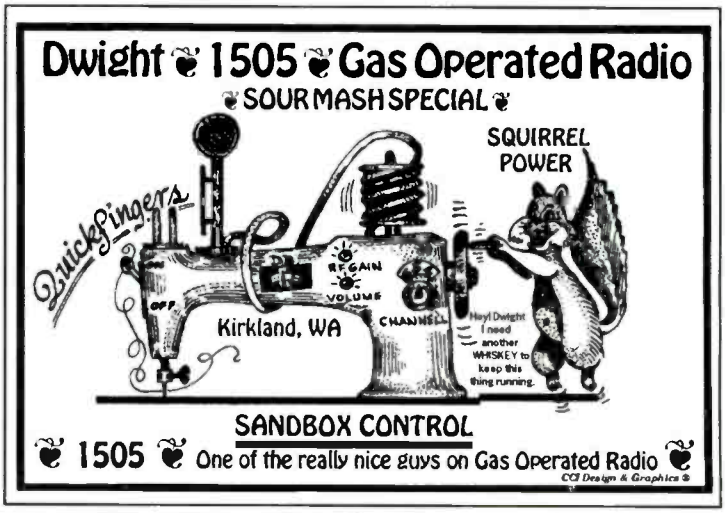
Dwight also designs QSL cards for people, including his own wild "Gas-Operated Radio" card. If you are interested in your own custom card with a unique look, write to him, Dwight C. Jones, Sr., Design & Graphics, 7922 N.E. 131st Street, Kirkland, WA 98034.

Concerns About S. 608

Pop'Comm reader Ryan Saylor e-mailed his concerns about Congressional bill S.608. "After reading the September issue of *Pop'Comm*, I was greatly disturbed to learn of this bill's existence. I believe that citizens band does need a bath to rid the true-hearted CBer like myself of these foul mouthed, dead key-

John's shack in Canada, a typical operating set-up for a Radio Canada International operator.

Dwight Jones' card is distinctive and original.



ing nuisances that interrupt our conversations on a regular basis.

"I do not believe that turning the FCC's authority over to state and local law enforcement is the answer. Doing so could be dangerous and quite possibly intrusive to our privacy in general. If this must be done, then there needs to be monitors set up by the government to insure that the state and local officers act within the law and the Constitution.

"I consider my radio to be a hobby and a love of mine. I do not wish to give it up. As a general rule most of the persons I modulate with are respectful toward others and do not abuse their right to use the equipment. But as we all know, there are a few that throw dead keys constantly, use foul language and use enormously powerful equipment that bleeds over other channels as well as TVs. As I said earlier I do not wish to give my radio up because of some of these jerks on the air. I have radioed since I was four years old and would greatly miss it if it were gone."

John, my correspondent from Radio Canada International, reports that RCI is going stronger than ever, after a recent change in leadership. If you'd like to know more about this interesting club, check RCI's web site at <http://www.cyberbeach.net/~rc1720/rchome.htm>. If you want to do some serious drooling, check out the photo of John's shack printed with this column!

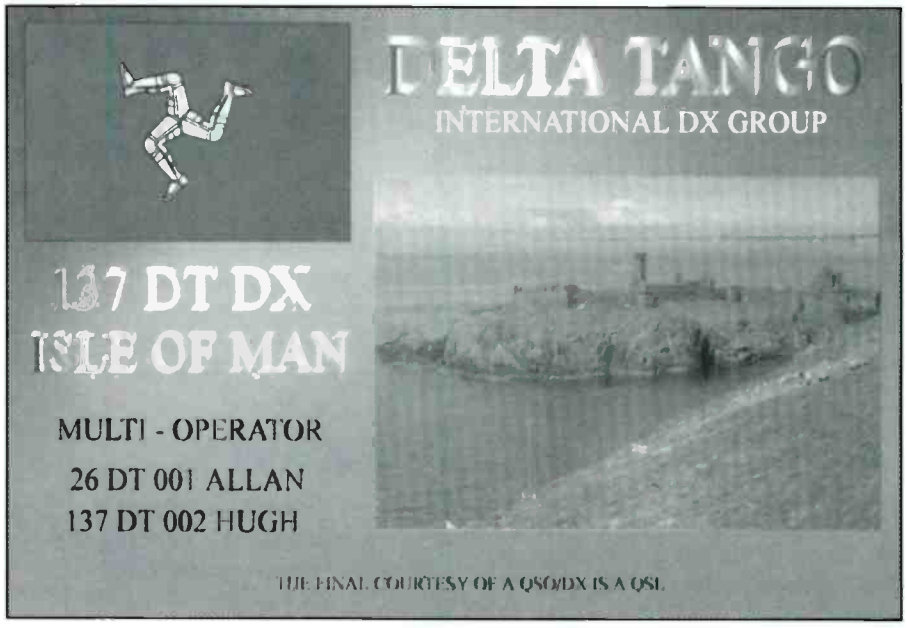
S. 608 Moves Out of Committee

While I was writing this, the fax machine spit out a news release from Senator Feingold's office that said: "Legislation proposed by U.S. Senator Russ Feingold that would give localities the ability to prevent unlawful use of citizen band radios causing interference with telephones, televisions, and other home electronic equipment passed unanimously out of the Senate Commerce Committee this week, preparing the bill for floor action.

"'Committee passage of this bill provides an important breakthrough for local and state governments who have tried to resolve the vexing problem of unlawful CB use that causes endless headaches for residents,' Feingold said. 'Under current law, states and localities can neither pass their own ordinances preventing unlawful CB operation nor rely on the federal agency with exclusive jurisdiction over radio services to enforce the very law which preempts them. Passage of my bill in Committee gives localities hope that this contradiction may finally be resolved.'

"Beloit and other localities through Wisconsin have contacted Feingold on the problem of persistent interference with home electronic equipment sometimes caused by use of unauthorized CB equip-

Hisayoshi Tanaka sent in these interesting QSL cards from Japan.



Allan, president of the Delta Tango International DX Group, sent in these outstanding Delta Tango cards.

ment. The Federal Communications Commission (FCC) is responsible for investigation and enforcement of CB radio violations under the Communications Act of 1934 but is unable to enforce regulations on these violations because of budget and resource constraints. Because the FCC has exclusive jurisdiction over radio regulation, states and localities are unable to halt interference even if it is caused by a violation of FCC rules." Feingold's bill allows state or local governments to enforce FCC regulations that prohibit the "use of citizens band radio equipment not authorized by the Commission" and that prohibit "the unauthorized operation of citizens band radio equipment on a frequency between 24 MHz and 35 MHz." At the time of this writing, the full Senate had not yet voted on this bill.

Sporadic Waves Seeks Sideband Net Info

Keith Herzig, publisher of Sporadic Waves newsletter, e-mailed to say that many people had responded to a brief mention in the October issue. One of the features of the Sporadic Waves that I think is particularly helpful is a listing of sideband networks in New England, including the day, time, channel, and (sometimes) where to write for additional information about the network.

If you participate in a regular sideband network anywhere in the country, Keith would love to hear from you. Be sure to include the day of the week, time, channel (or frequency), and any relevant contact information. Write to Keith at PO Box 751, Chester, MA 01011 or e-mail <keith107@msn.com>.

American Eagle Club Grants Membership With Check-Ins

Keith also sent me some interesting information about the American Eagle Club, which operates on Ch. 37 LSB from 9–10 p.m. Sunday nights. Net control operates out of Washington, MA, at a location with some pretty good altitude. As a result, American Eagle club has over 200 members in Massachusetts, New York, and Vermont. You can get a life membership by completing three consecutive check-ins.

I thought several of the American Eagle bylaws were pretty good, including:

❶ Profane language, such as unnecessary swearing, racial and ethnic slurs, or things that are simply in bad taste have no place on Ch. 37 LSB during nets and club chats.

❷ Harassment between members—regardless of reason, will not be tolerated during nets and club chats.

❸ Any member that willfully chooses to break one or both of the first two bylaws will lose their American Eagle club number permanently.

And I particularly enjoyed bylaw #10: All members are encouraged to follow this simple motto: IT'S JUST A HOBBY; YOU CAN ALWAYS TURN THE RADIO OFF!

Sidebanders Sponsor Attention-Grabbing Activities

In addition, the American Eagle Club has an interesting gimmick going: A contest sheet. It has a crossword puzzle of approximately 50 words, and has scrambled words, trivia, and tricky trivia on the other side. The crossword puzzle is worth 30 points for 100 percent complete and 15 points for partially done. The scrambled words are 5 points each and the trivia questions are usually 5 to 10 points each. The total possible score is 100 points.

Anyone can request a contest sheet, but only American Eagle members can win the prizes. First prize is 10 Massachusetts Lottery Scratch Off tickets. Second prize is five of the Massachusetts Scratch Off Tickets, and third prize is one book of 32-cent stamps. If you'd like a copy of the American Eagle contest sheet, write to Keith Herzig at the address above with a self-addressed, stamped envelope.

Keith also reports that other New England sideband groups are sponsoring various activities to attract interest. The Golden Eagle Club has been holding drawings for its members for cash, turkeys, and a $200 shopping spree. The Southwestern Vermont Net has its buy/sell/swap/trade/giveaway announced twice per net. And the Rhode Island Independent Network has trivia games every Saturday night until midnight. Boy, it sure is great to see sideband clubs thriving!

Kudos for REACT Volunteers

David M. e-mailed some information about some REACT members in the Louisville area whose dedication could be an example and an inspiration to us all:

"One is named Ed, Unit 213, and goes by 'Wildman' on the CB. He takes 10 calls minimum for local directions from truckers every night on the CB. He is so well known by truck drivers in these parts that he gets Christmas cards from pretty much every major trucking company in the region. There are several trucking companies that, when they assign drivers to make a run to Louisville, their dispatchers say 'When you get to Louisville, get on channel 9 on the CB and call for Wildman, he'll get you the rest of the way.'

"In the 10 years I have been a member, I have yet to see Wildman have a month where he has taken fewer than 500 calls, and that includes the month that his father died. If this team has ever had a member, in its 30-something year history, that deserved the name 'Mr. REACT,' Ed Keeney is the person. We used to give out a certificate every year to the person who took the most calls in a year (and yes, we do keep log sheets and records) . . . then we quit doing that when Ed won seven years in a row. Our choice was either retire the certificate, or just have them preprinted with Ed's name on them."

"The second member is named Theresa, Unit 234. Her CB comes on around 10 a.m. every morning. She takes calls until around midnight—every day. Sitting here looking at Theresa's log sheets, I see very few nights where she didn't take at least five calls. And those are the slow nights."

A Question From Chuck

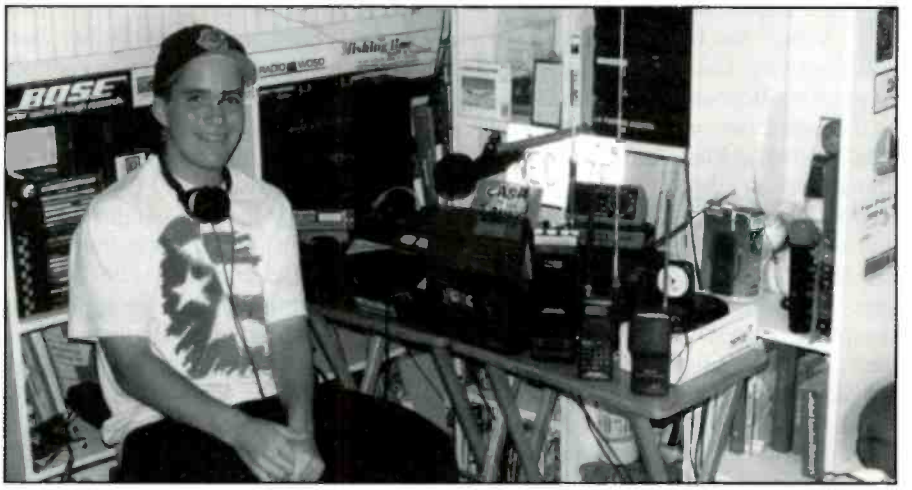
Chuck Stadler wrote in from Missouri with a question. "I have noticed on old CBs (23 channel), that there is a position between channels 22 and 23 marked only with a dot, giving 24 switch positions. Do you know the purpose of that dot and why it is between channels 22 and 23 and not between channels 1 and 23?"

Chuck, I got involved in CBing just as the transition was made between 23 and 40 channels, so I don't have a clue, but I'm pretty sure one of our readers can solve the mystery for us.

Until next time, keep those cards and letters—and shack photos—coming to me here at *Pop'Comm* or e-mail: <lightkeeper@sprintmail.com>. ■

How I Got Started

Congratulations to Pedrin Zorrilla of Puerto Rico!



Pedrin Zorrilla of Puerto Rico in his well-equipped monitoring post.

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 and grammar, and to improve 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: How I Got Started, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801-2909 or e-mail your entry to <popularcom@aol.com>, letting us know if you're sending photos.

Our February Winner

Pedrin Zorrilla writes: "I'm 15 years old. Ever since I was very young I always had the dream to become an airline pilot. About three years ago I bought my first RadioShack scanner (PRO-2038) base/mobile so I could listen to air traffic control communications. When I got my scanner I found that it could also scan CB and amateur radio, local police stations and other communications.

"Later on I bought a portable radio with more frequency coverage, also from RadioShack (PRO-60). The base/mobile scanner is connected to an antenna on the roof. I also have a Realistic CB radio from which I transmit in my dad's car. I also have a RadioShack shortwave radio (DX-375)—with it I listen to stations all around the world. This is very exciting!

"All this equipment is connected to a mixer. In addition, I also have connected two speakers for higher volume and fidelity like a radio station; a tape recorder so I can record interesting communications; and a microphone so it looks like a real radio station.

"Recently I saw your magazine and when I realized it was about CB radio, scanners, shortwave and other amazing things, I said to myself, 'Welcome to Heaven, this is my magazine.' Since then I have bought it and read this interesting column from which I got the inspiration to write this letter. And now I'm studying for my amateur radio license." ■

BY BRUCE CONTI

Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

The X-Band Files

The expanded AM band, or "X-band," has been filled with radio activity. The FCC has finally started granting licenses to applicants based on the public notice issued on March 17, 1997, known as Plan Three. The first two plans were scrapped due to software errors and objections from broadcasters that didn't make the list. Only broadcasters that made the list are allowed to apply. Stations were selected based on computer analysis to maximize use of the AM band by first considering existing daytime-only operations to move to the X-band, and then the allocations were determined such that interference would be minimal using non-directional facilities and powers of 10 kW days and 1 kW nights.

Stations that had been broadcasting on the X-band until now, KXBT Vallejo, California at 1640 and WJDM Elizabeth, New Jersey at 1660, were operating on a special temporary authority. The FCC announced in September the first two X-band applications granted as KKSL Lake Oswego, Oregon at 1640, and KQXI Arvada, California at 1690 kHz. Since then, a number of other applications have been granted. But the first of the new stations to go on the air was WCMQ Miami Springs, Florida at 1700 kHz, with Spanish programming. Keep an ear open for many more DX opportunities as more grants are approved. A complete list of the stations that may apply for operation on the expanded band per FCC plan three can be found at the FCC Audio Services Division website at <http://www.fcc.gov/mmb/asd/decdoc/letter/1997—03—17—pubnot.html>. Once the application and grant process under plan three is completed, then stations not on the list will be allowed to apply. Meanwhile, an application has been filed with the CRTC for a station at 1670 kHz in Toronto, Ontario. This could be the first Canadian X-band station if approved.

Land Of Aahs

If you've been wondering what's happening with Aahs World Radio since it was announced that the kids' network would be discontinued, the Children's Broadcasting Network has decided to give Aahs another chance. Thirteen of the network's stations were sold after former partner Disney acquired ABC and decided to start their own kids' network. But instead of folding, Children's Broadcasting will continue with Aahs, along with production of syndicated children's radio programs for stations outside the Aahs network as a part of a plan to rebuild the company and compete with Disney. Aahs World Radio can be heard on KPLS Orange, California at 830 kHz, although sometimes preempted by local sports, and WJDM Elizabeth, New Jersey at 1660 kHz on the X-band.

Long Distance DJ

KKBT 92.3 FM, "The Beat" listeners in Los Angeles might be surprised to learn that Kevin "Slow Jammin" James no longer resides in California. James recently moved to Florida, but KKBT didn't want to lose his popular R&B love songs and dedications program. So through the miracle of ISDN phone lines and digital audio technology which provide near CD quality audio, James has been able to continue his Sunday night program on KKBT. Even some of the KKBT staff was unaware that James was no longer at the station. The program airs

Bumper stickers from WHAS 840 kHz, Louisville, KY and WKMT, Kings Mount, NC.

"The program provides an excellent opportunity for radio hobbyists to learn about amateur radio and is well worth a listen."

9 p.m. to 1 a.m. in Los Angeles; that's midnight to 4 a.m. from James' home studio. James also tapes a weekly three-hour syndicated radio show called "The Love Affair" that may soon be carried on as many as 200 stations nationwide, and a live Saturday night program on WHUR Washington, DC.

Amateur Radio Broadcast

While DXing on the X-band, take a spin just a little further up the dial for a listen to an interesting program about amateur radio. "This Week in Amateur Radio" is a weekly amateur radio news and information service, broadcast by WA0RCR Wentzville, Missouri, on 1860 kHz every Saturday night at 9 p.m. Eastern time. The program is also carried on the "W0KIE Satellite Network" and various VHF/UHF repeaters throughout the United States and Canada. Transponder time and uplink equipment are provided by Mike Reynolds, W0KIE, as a service to the amateur radio community. Production and transmission expenses are underwritten by contributions from repeater system operators, amateur radio clubs, and individuals. Host Stephen Anderman, WA3RKB, opens each edition with the latest ARRL bulletins and other amateur radio news.

In addition to the national "RAIN Dial-up" service, the program also carries other features unavailable anywhere else. Vern Jackson, WA0RCR, provides weekly updates of upcoming contests and conventions. George Bowen, N2LQS, covers special event stations and the weekly propagation forecast. Periodic features on amateur radio's history, DXing, contesting, QRP, amateur satellites, SAREX, VHF/UHF, homebrewing, safety, and other facets of the activity are also offered during the weekly 50-minute feed. The program provides an excellent opportunity for radio hobbyists to learn about amateur radio and is well worth a listen. Also while discovering amateur radio, don't forget to listen in on the National Radio Club Ham Net on 80 meters at 3840 kHz, Wednesday and Sunday nights beginning at 9 p.m. Eastern time, for conversation about the latest happenings in AM broadcast DXing.

AMax AM Stereo

RadioShack is carrying the Sony SRF-42 AM Stereo/FM Stereo Walkman in their 1998 catalog as RadioShack number 12-127. The unit carries the AMax AM stereo marking and receives Motorola C-QUAM AM stereo broadcasts. Most AM stations are now broadcasting in AM stereo with C-QUAM. The AMax AM stereo marking indicates that the receiver meets minimum audio performance standards per the AMax standard produced by the National Association of Broadcasters. This walkman does indeed perform quite well when receiving strong AM stereo broadcasts, dare I say rivaling FM. Tuning is somewhat difficult, as is the case with most walkman-style receivers, due to the small analog tuning dial. Reception in the AM stereo mode produces whistles and noise between stations, and the desired station must be fine tuned for clear reception. Propagational fading of distant stations can result in some interesting left/right phasing effects. But if you have a local AM stereo station, then you should experience AM sound quality above and beyond what's available from most consumer home stereo equipment available today. While the wide bandwidth reception required for high fidelity AM stereo sound isn't conducive to DXing, some good signals can be pulled in by coupling to an external antenna such as the Select-A-Tenna, or just a couple of turns of wire wrapped around the radio to a longwire. And the mention of listening in AM stereo would certainly make for a unique reception report. When you visit RadioShack to look for the AM stereo walkman, give the salesperson the catalog number 12-127. Most of the sales people don't even know AM stereo exists. If your local RadioShack store doesn't have any in stock, ask the salesperson to check via their computer link if the warehouse or other stores in the area have them in stock.

Loggings

Congratulations to Mark Connelly, the first AM broadcast DXer in history, or at least recent history, to hear India on mediumwave from the United States. Mark says, "I put in a 2 1/2 hour DX session (2222 UTC: 21 OCT to 0052 UTC: 22 OCT) out at the salt-marsh in Rowley, Massachusetts. A few of the more interesting logs included Senegal-765 (heard with Switzerland nulled), super-loud Syria-783 with a tentative 666 kHz parallel mixing with Portugal/others, unID Arabic-sounding station on 1559 (WQEW in phase null) similar to what European DXers have reported, and the prize catch on 1566 which had to be AIR Nagpur, India. At 0022 UTC, bits and pieces of Indian-accented English talk by a woman kept surfacing as I constantly tweaked the knobs to chase a drifty phase null on WQEW-1560. I recognized the words 'external service', among others. I used the Drake R8A and the loop/whip cardioid array with the DCP-2 Dual Controller-Phaser. 'Local-likes' included Kuwait-1548, France-1206, Croatia-1134, Norway-1314, and a few others."

"Most of the sales people don't even know AM stereo exists."

India has been logged at 1071 and 1566 kHz in past Newfoundland, Canada DXpeditions, but this may be the first in the U.S. Congratulations, Mark!

Mauricio Molano in Madrid, Spain also reported hearing India-1566 in October, perhaps just as impressive as Mark's report due to interference from Iran. The 1566 kHz frequency has been fairly open since Switzerland went off the air. India broadcasts at 1566 in English briefly before 0030 UTC, parallel shortwave, a worthy target for East coast North America DXers.

Here are some stations heard in AM stereo on the Sony SRF-42.

☞ 1160 WVNJ Oakland, NJ at 1800 ET with big band/nostalgia in AM stereo.
☞ 1590 WSMN Nashua, NH at 1900 ET, country music in AM stereo.
☞ 1660 WJDM Elizabeth, NJ at 2100 ET with the top 20 Aahs World Countdown in AM stereo.
☞ 1700 WCMQ Miami Springs, FL at 1700 ET in Spanish, "la nueva CMQ stereo, la gran cadena" and ID in English as WCMQ Miami Springs-Miami, WZMQ-FM Key Largo-Homestead-Miami, and WVMQ-FM Key West, in AM stereo.

Thanks to Stephen Anderman, Mark Connelly, Mauricio Molano, Stephen Moyers, and Tulowitzki. Until next month, 73! ■

Requesting Permits to Construct New FM Stations

AK	Valdez	93.3. MHz	
AL	Bessemer	88.1 MHz	25 kW
AL	Georgiana	89.3 MHz	
AL	Monroeville	88.9 MHz	
AL	Thomasville	90.1 MHz	5 kW
AR	Blytheville	88.1 MHz	
AR	Greenwood	101.5 MHz	
AR	Nashville	96.9 MHz	
AR	Springdale	88.5 MHz	
AR	Stamps	104.3 MHz	
CA	Barstow	91.3 MHz	1.5 kW
CA	Grass Valley	103.3 MHz	
CA	King City	91.3 MHz	930 watts
CA	Mendota	100.5 MHz	
CA	Wasco	91.7 MHz	
CA	Williams	99.1 MHz	
CO	Canon City	89.1 MHz	
CO	Glenwood Springs	95.5 MHz	
CO	Rocky Ford	95.5 MHz	
CO	Steamboat Springs	95.9 MHz	
DE	Harrington	88.7 MHz	
FL	La Belle	88.3 MHz	3.4 kW
GA	Cordele	90.3 MHz	
GA	Lumpkin	88.5 MHz	
GU	Dededo	105.1 MHz	
IA	Anamosa	89.1 MHz	2.3 kW
IA	Castana	107.5 MHz	
IA	Cedar Rapids	89.1 MHz	250 watts
IA	Council Bluffs	88.1 MHz	
ID	Franklin	97.7 MHz	
ID	Orofino	89.1 MHz	
ID	Rathdrum	90.3 MHz	
ID	Victor	92.3 MHz	
ID	Victor	104.3 MHz	
ID	Weston	95.9 MHz	
IL	Earleville	102.9 MHz	
IL	East St. Louis	89.7 MHz	
IN	Goshen	89.9 MHz	1.75 kW
IN	Hardinsburg	96.9 MHz	
KS	Cawker City	96.3 MHz	
KY	Benton	88.1 MHz	
LA	Ball	105.5 MHz	
LA	Buras	91.1 MHz	
LA	Plaquemine	88.1 MHz	
MI	Rose Twp.	89.7 MHz	
MO	Thayer	92.3 MHz	
MO	Tipton	89.9 MHz	
MT	Colstrip	93.7 MHz	
MT	Missoula	88.1 MHz	
NE	Ralston	88.1 MHz	
NC	Aurora	104.5 MHz	
NM	Alamogordo	107.9 MHz	
NM	Lordsburg	105.7 MHz	
OH	Painesville	88.3 MHz	700 watts
OK	Dickson	103.5 MHz	
OR	Florence	88.1 MHz	
PA	Cooperstown	107.7 MHz	
PA	York	88.7 MHz	
TN	Savannah	88.1 MHz	
TX	Del Rio	90.7 MHz	3 kW
TX	Brenham	89.7 MHz	
TX	College Station	89.9 MHz	
TX	Doss	88.1 MHz	
TX	Eagle Pass	90.5 MHz	3 kW
TX	Fannett	90.5 MHz	
TX	Gatesville	89.9 MHz	11 kW
TX	Huntsville	88.3 MHz	28 kW
TX	Llano	96.3 MHz	
UT	Randolph	102.3 MHz	
UT	Weston	95.9 MHz	
VA	Cape Charles	89.1 MHz	
VA	Chincoteague	96.5 MHz	
VT	Putney	91.9 MHz	
WA	Naches	99.3 MHz	
WI	Mukwonago	105.3 MHz	
WI	Wautoma	102.3 MHz	
WV	Vienna	106.1 MHz	(WRZZ booster)
WY	Fort Bridger	99.1 MHz	
WY	Gillette	97.7 MHz	

Granted Permits to Construct New FM Stations

AZ	Willcox	92.5 MHz	
AR	Fayetteville	89.3 MHz	
CA	Rancho Bernardo	106.5 MHz	4 w. (KKLQ booster)
HI	Princeville	99.9 MHz	51 kW
HI	Lahaina	101.1 MHz	984 w. (KLHI booster)
MI	Negaunee	101.9 MHz	2.1 kW
TX	Brazos	87.9 MHz	Experimental
WY	Casper	102.5 MHz	

Requesting Permit to Construct New AM Station

CA	Clovis	1040 kHz

Cancelled or Revoked

KBTT	Bridgeport, TX	90.5 MHz	40 kW
KFCC	Bay City, TX		
KFRC-FM1	Danville, CA	99.7 MHz	Booster
KRFC-FM2	Pleasanton, CA	99.7 MHz	Booster

FCC Actions Against Unlicensed Broadcasters

Ft. Walton Beach, FL	89.9 MHz	Shut down
Lutz, FL	96.7 MHz	Equipment seized
Tampa, FL	102.1 MHz	Operator fined $1,000
Minneapolis, MN	97.7 MHz	Equipment seized

Requesting AM Facility Changes

KIOQ	Folsom, CA	1030 kHz	Seeks to change power
KMCA	Burney, CA	1450 kHz	Seeks to change city and power
KREH	Oakdale, LA	900 kHz	Seeks to change city and power
KRHW	Sikeston, MO	1520 kHz	Seeks to change night power
KSEN	Shelby, MT	1150 kHz	Seeks to change day power
KYCY	San Francisco, CA	1550 kHz	Seeks to change day power
WAIK	Galesburg, IL	1590 kHz	Seeks to change power
WOKX	High Point, NC	1590 kHz	Seeks to change day power
WREN	Topeka, KS	1250 kHz	Seeks to change day power
WTHE	Mineola, NY	1520 kHz	Seeks to change power

Requesting Changed FM Frequencies

KCVS	Salina, KS	90.7 MHz	Seeks move to 91.7 MHz, 25 kW
WARU-FM	Peru, IN	98.3 MHz	Seeks move to 98.5 MHz
WNHW	Nags Head, NC	92.5 MHz	Seeks move to 92.3 MHz
WVRB	Wilmore, KY	105.9 MHz	Seeks move to 95.3 MHz
WXZX	Culebra, PR	106.5 MHz	Seeks frequency change

Pending AM Call Letter Change

New	Old	
WFRF	WANM	Tallahassee, FL

Changed AM Call Letters

New	Old	
KBPA	KDFC	Palo Alto, CA
KDUS	KUKQ	Tempe, AZ
KESQ	KUNA	Indio, CA
KGAM	KPSI	Palm Springs, CA
KPSI	KDES	Palm Springs, CA
KQDI	KMSL	Great Falls, MT
KSEK	KNIN	Pittsburg, KS
KSFN	KXNO	N. Las Vegas, NV
WFCM	WZRS	Smyrna, TN
WKEZ	WKOY	Bluefield, WV
WNOX	WIVK	Knoxville, TN
WRDT	WLLE	Kingsport, TN
WSKR	WBIU	Denham Springs, LA
WSWW	WCZR	Charleston, WV
WTMS	WTMI	Melbourne, FL
WVBV	WFOG	Chesapeake, VA
WVLR	WLQE	Moneta, VA
WVPA	WZHF	Arlington, VA
WWGB	WNTL	Indian Head, MD

New FM Call Letters Issued

KANG	Sun Valley, NV
KAXB	Tuba City, AZ
KHWS	North Pole, AK
KNWP	Port Angeles, WA
WA2XNX	Brazos, TX
WATP	Laurel, MS
WATU	Port Gibson, MS
WDEE-FM	Reed City, MI
WGDE	Defiance, OH
WGNG	Belzoni, MS
WJPL	Farmington, IL

Changed FM Call Letters

New	Old	
KBZK	KAGR	Morro Bay, CA
KBZX	KAKR-FM	Paso Robles, CA
KCVM	KZME	Hudson, IA
KHYF	KAPF	Taos, NM
KJJJ	KJCC	Lake Havesu City, AZ
KKDJ	KDNO	Delano, CA
KLOV	KXLV	Winchester, OR
KLVU	KSKD	Sweet Home, OR
KMGR	KTKL	Tooele, UT
KNBZ	KAWO	Redfield, SD
KNEX	KZTQ	Laredo, TX
KNHK	KZSR	Reno, NV
KNSY	KQAC	Amarillo, TX
KQSN	KXXS	Toppenish, WA
KTHK	KLKY	Milton-Freewater, OR
WBHX	WTUC	Tuckerton, NJ
WDSD	WSRV	Smyrna, DE
WELL-FM	WDVI	Dadeville, AL
WFCM-FM	WFCM	Murfreesboro, TN
WFMZ	WKJE	Hertford, NC
WHYT	WBTI	Lexington, MI
WKKT	WTDR	Statesville, NC
WLEV	WFMZ	Allentown, PA
WMXV	WHPA	Holidaysburg, PA
WNDY	WAQN	Crawfordsville, IN
WNLC-FM	WXZR	East Lyme, CT
WNOX-FM	WNOX	Knoxville, TN
WOLF-FM	WZOS	Oswego, NY
WRDX	WDSD	Dover, DE
WSJZ	WKLB-FM	Boston, MA
WSPX	WACJ	Bowman, SC
WSVV	WMYK	Moyock, NC
WTOP-FM	WINX-FM	Warrenton, VA
WUMC	WAUJ	Elizabethton, NC
WWJD	WOAL-FM	Pippa Passes, KY
WZNS	WJUS	Fort Walton Beach, FL

The Computer Corner

BY ED GRIFFIN/BONNIE ZYGMUNT

RECEIVER CONTROL, SOFTWARE AND MORE

Do You Believe in Magic?

By Ed Griffin

The Magic I'm referring to is a software application from Computer Aided Technologies, P.O. Box 18285, Shreveport LA, 71138. This is the same company that sells the ScanCat software for radio control. Magic doesn't require a radio with a computer interface port, but if you use a computer-controlled radio, you will be interested in this application because it assists in the programming of the frequencies for your radios.

The program takes text in many different forms, and using programmed and customizable intelligence, parses and converts frequency information found in the text into formatted lists of frequencies, modes, and incremental information arranged in a format that is ready for use or importation into the radio control software. The text can start off as an e-mail message, a Web page, or just a text file. Some formats such as lists that are single columns will convert more easily than others and the user can specify portions to be ignored. Each frequency found will be converted into a record with a 15-character description and 70-character comment.

Magic's system requirements are modest in terms of the amount of hard disk space needed for installation, which is only 4 megabytes. It is a Windows program so users need to have a PC running version 3.1 or greater. Installation is straight forward, and within minutes you'll be using the program. The hardest thing may be deciding what to convert first. Magic can work with files up to 5 megabytes in size, yielding approximately 10000 records of 500 characters. Most users will never come close to this limit, but if you do, simply divide the source file into smaller portions before attempting conversion. Magic just ignores anything beyond its maximum size.

Magic Tricks

Magic by default removes quotes, commas, MHz, kHz, dashes, and other non-alpha numeric characters and substitutes spaces for them in the output file. A feature called Boundary Deletion allows the user to place margins on the input screen, which tell the conversion program to ignore content to one side of the line. User Programmable Parsing lets you program up to 100 words or characters can be automatically removed or replaced. There are options for global find and replace, as well as deletion, so the user can manipulate the input file prior to conversion. This helps fine tune the finished output. The user can preview the source file in a display window, and then see the conversion take place and the converted output in another window. Keyword searching and printing from the viewer window is supported.

Presto Change O!

Magic can read and write files used by the ScanCat (FRQ and SCN) and CE-232 loader (APF) applications, as well as dBase (DBF) and comma delimited (SDF and ASC) and text (TXT) formats. Other radio control files from ScanStar, ScannerWear, WinRadio, and RadioManager software can also be read and converted. Web pages formatted with HTML automatically are converted to text prior to conversion into scanning files. It's easy to toggle between the viewer window for the source file and the converted output to see how effective the conversion process has been. There are many great sources for frequency information on the Web, and Magic keeps you from having to spend a lot of time editing or retyping that information into your radio control software after you've found and saved the information onto your computer's hard drive.

I think many folks who purchased scanners that allow the memories to be programmed via a computer interface port did so for two major reasons. They frequently reprogram the memories and because they wanted to save time. Magic helps you save additional time by speeding the process of getting your frequency data into a format the computer can send to your radio. I'm always running out of time to program my AR8000 before leaving for an out of town trip. With Magic I can accomplish that task in less than 30 minutes if I find a written source of frequencies. Use of one of the Internet search engines, such as Digital's Alta Vista <http://www.altavista.digital.com> almost always results in a find.

"There are many great sources for frequency information on the Web, and Magic keeps you from having to spend a lot of time editing or retyping that information"

Technical support is provided via telephone between 9 a.m. and 1p.m. Monday through Friday, as well as through a fax machine, e-mail <magic@scancat.com> and Web site 24-hours-a-day at <http://www.scancat.com>. The program comes with a small users manual, on-line help and example files. Hints on usage appear at the bottom of the screen as the mouse's cursor moves over the command buttons. Magic for Windows is $34.95 + $5 S&H and can be ordered by calling 1-888-SCANCAT (888-722-6228).

Computer "Junkies" Need A Fix?

I recently received a letter from a reader and active radio enthusiast who expressed a strong opinion that computers and those of us that use them in conjunction with radios are doing damage to our hobby and its clubs. His letter is long, but I wanted to share what I think the critical issues he raised in it with you. He wrote in part, "You computer junkies are destroying the radio hobby. You are not using computers to advance the radio hobby, you are using radio to advance the computer hobby. The tail is now wagging the dog. You are removing the radio enthusiast from participation . . . How soon will it be before you have publications like *Pop'Comm* on the Internet

"I don't have to control my radios using my computer every time I monitor, but it's nice to know that tool is available."

only? We know you won't rest until you do. So what do we the ordinary radio enthusiast do?"

I've thought about this since I like BOTH computers and radio, it makes sense to me to explore the combination of the two in my personal life, and thanks to *Pop'Comm's* benevolent editor, I can also do the same here in my column. I don't have to control my radios using my computer every time I monitor, but it's nice to know that tool is available. I spend time on the computer reading and researching things that are not radio related, but it's nice to know that if I find I'm going on a business trip to South Dakota or some other place I've never monitored before. I can use my computer as a tool to enhance my monitoring. I value what things like the software I wrote about this month can do for my monitoring. I'm using my computer to advance all aspects of my life, including my radio hobby. I still write postcards and letters to folks who don't have e-mail, and I still belong to a radio club that prints a newsletter. I have friends who share my interest in radio and often proclaim that they will never use e-mail or the Internet, and we still exchange frequencies! I'd only observe that many things compete for our time, and computers, jobs, families, radios, and other hobbies all enter into the mix. If a fellow is less active in the radio club after buying a computer, how is that different than another guy who's less active after beginning to take flying lessons?

I'll admit to wishing that *Pop'Comm* and other magazines were available in an electronic subscription for a couple reasons, including not having to wait for the U.S. Post Office to get it here each month, cheaper subscription rates, easier searching for information, and one less thing to have to pickup when cleaning up the shack. I wouldn't support the elimination of the paper version, because I DO see how that would exclude folks in the hobby. My views and values differ in many ways from the reader whose concerns appear above, but we both see the importance of supporting our radio hobby and don't want to exclude others from it. If you'd care to comment on this issue, please send your thoughts to me at either my e-mail address <griffined@sprynet.com> or via mail at the *Pop'Comm* HQ address.

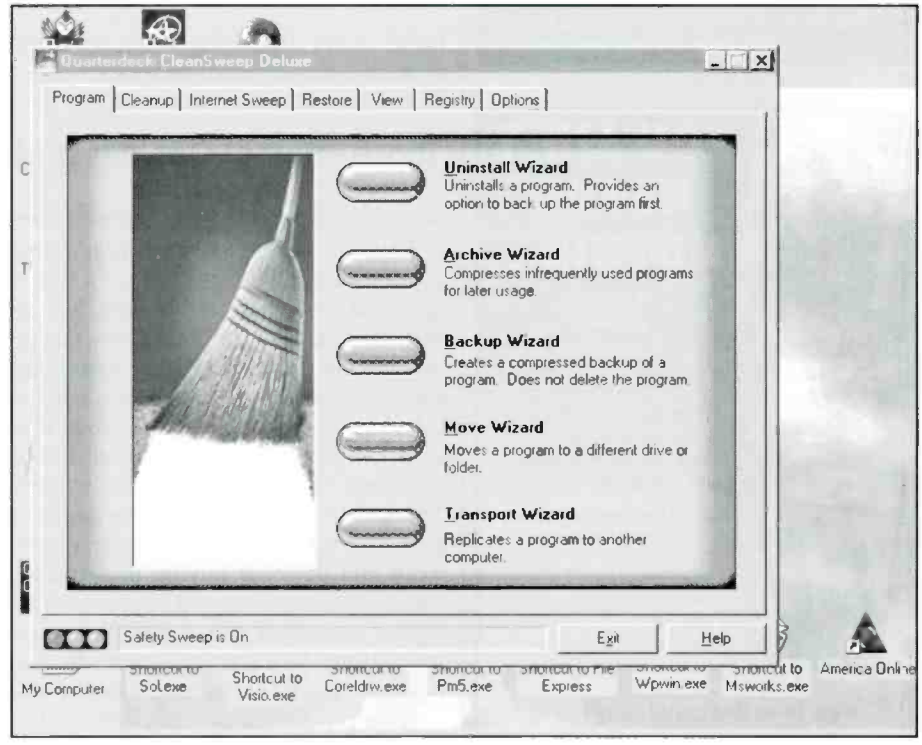
Cleaning Up Your Hard Drive—The Easy Way . . .

By Bonnie Zygmunt

Personal computers today have come a long way since they were first made available to the home user. The speeds of the processors have increased. The prices have come down. CD ROMS have been added to the type of input media and the speeds of CD's are going ever higher. Hard drive sizes have skyrocketed to multiple gigabytes when they were first just counted in megabytes. However, even with humongous hard drives every computer user knows it will never be enough. We always know that no matter how many gigabytes of hard drive we have, this axiom always holds true "Computer files always expand to fill all available space."

Someday it will happen to us all. We will have filled our hard drives and we won't know where all our lovely space went. Nevertheless, all is not lost. Programs have been developed to help us manage our hard drives and return our free space.

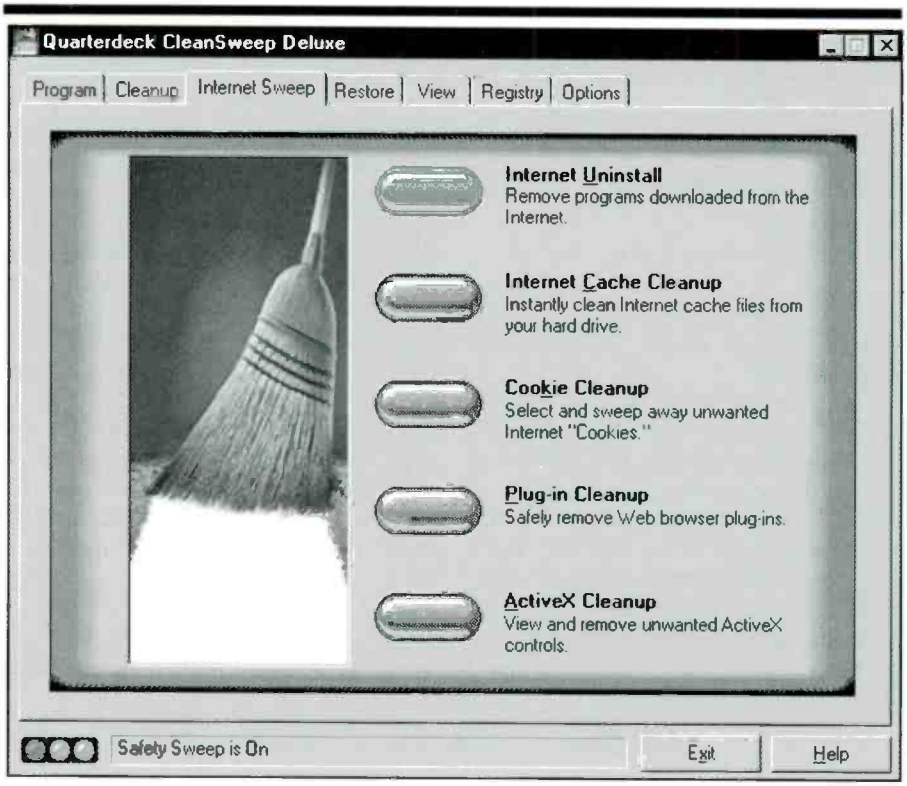
One such program is CleanSweep Deluxe from Quarterdeck Corporation. I have installed this program and will describe how it safely cleans up unwanted files from your hard drive including Internet downloads.



CleanSweep's main window shows the seven tabs which allow users to use the major product features from a single panel.

The Internet is truly great, but it has a habit of filling your hard drive with files, sometimes without you even knowing about it. These may be Internet Cache files, Internet Cookie files, browser plug-ins, or ActiveX controls from Web pages. CleanSweep even has a process to de-install programs downloaded and installed previously from the Internet.

The Internet Cache Cleanup button will clean out the Microsoft Internet Explorer, Netscape Navigator, and America On-line cache directories. These cache files are placed locally on your hard disk for improved performance when surfing the Internet. Since many files and graphics cached are fairly large,



Click on the third tab and it will take you to the Internet Sweep window where you can clean files originating from the Internet.

these cache directories often invisibly consume megabytes of hard disk space.

Those Internet Cookies and More!

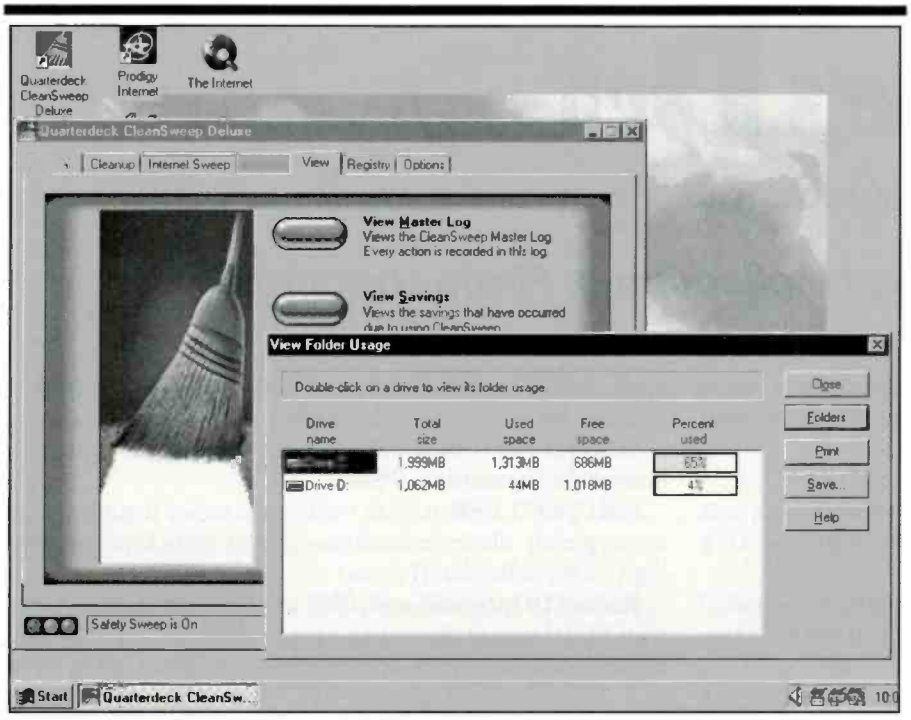
Internet Cookies are small files which are automatically deposited on a user's hard disk when surfing the Web. Not all Web sites use cookies, but the ones that do use them to store information about their site within the cookie. Web sites use the information in cookies for various reasons, but most often to store a profile of your browsing habits for Web advertisers. The information can be as harmless as your user ID or as sensitive as your password and personal buying preferences. These cookies will stay on your hard drive even if you don't revisit that Web site a second time. So if you are interested in disposing of cookies after each browser session for privacy reasons you will need to remove this type of debris.

A plug-in is basically a program that extends the efficiency of a browser, such as support for special video and audio effects. Each plug-in may be several megabytes in size, so cleaning unwanted plug-ins can save a lot of hard drive space.

ActiveX controls are small programs that Web masters can embed within a Web page and execute when a user views a page. These controls energize Web pages with movies, animations, audio clips, and so on. When you visit a Web site that uses an ActiveX control, your browser checks to see if you have the needed control installed. If not, it will install it for you. Once you are done with that page, you no longer need that control and leaving it on your hard disk just takes up useful space.

I did a small experiment with my hard disk using CleanSweep. We have divided my hard disk into two drives, C and D. Drive C is where I have my Internet software, so I started there. Before running Browser Cache cleanup I had a hard drive capacity of 1.95 gigabytes with 587 megabytes of free space. The program showed me that there were 3,977 cache files on drive C. Once I ran the clean up those files were deleted and the free space on drive C was up to 686 megabytes. The used space went from 71 percent used to 65 percent used.

Have you worried about removing installed programs, afraid that you won't get all the linked files and end up with files in your system folder that are just taking up space? CleanSweep scans your hard disk when it starts up and knows which files are needed to run your applications. By using their de-installing program it will know which file to remove without disturbing any system files needed for other applications. What's more



The Folder Usage window is on the View tab. It allows you to see how much disk space is being used and how much free space remains.

this product offers a feature they call Safety Sweep which makes it impossible for you to delete a critical file. When it is on, you can only select those files that CleanSweep has determined to be completely safe to remove. The program color codes the files to help you know which are safe to delete. Thus, green items are those that are totally safe to delete, yellow items can be deleted with more care, and red items cannot be deleted.

The Bottom Line

I'm very pleased with this program. I think it will make controlling my hard disk and the files there much easier. If you'd like more information about CleanSweep Deluxe from Quarterdeck, you can visit their Web site at <http://www.quarterdeck.com> where you can download the program directly from their Web page. You can also find the package at local computer stores. The price runs about $59.95 on the Web page store and at local stores.

"These cookies will stay on your hard drive even if you don't revisit that Web site a second time."

Even if you can't be in control of all aspects of your life you can take control of your hard disk. Happy clicking! See you in April. ■

Just Released—Scancat-Gold for Windows Supports Bearcat BC-895!

Computer Aided Technologies announces Scancat-Gold for Windows support for the newest addition to their scanner lineup, the Bearcast BC-895 TrunkTracker. This unique desktop scanner from Uniden has 300 memories that can be programmed for either conventional or trunking channels. Scancat can control all the conventional operations of the unit, plus permits you to selectively load the banks of the radio with your favorite trunking frequencies. It can read the radio's memory contents to files, including trunking information.

With Scancat's support of over 45 radios from over 10 manufacturers, there's no need to buy several programs. There's no need to purchase separate "drivers." Computer Aided Technologies, P.O. Box 18285, Shreveport, LA 71138. Phone 888-772-6228 or e-mail <scancat@scancat.com> also can supply the serial cable necessary to connect the BC-895 to a computer. Or you can buy the software and cable as a package. Don't forget to tell 'em that *Pop'Comm* sent you!

The Pirate's Den

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Another Great Collection of Pirate Loggings!

Let's get right down to business with another great bunch of pirate loggings. Remember, it's your column, so send in those loggings!

Radio Free East Coast, 6955 USB at 0018 to 0100 with rock groups, fake commercials and call about a job interview. (Dirk Matuska, IL)

KNBS, 6954.8 USB at 2007 with drug-related tunes hosted by Capt. Gonja, ads for "Pirate Connection" and "ACE." Also at 2007. (Dick Pearce, VT)

Radio Free Euphoria and **Radio Star of the North, 6950.1 USB** doing a joint broadcast. Mentions of mushrooms, paraphernalia, etc. (Pearce) 2058 with Captain Gonja. Also at 1734 with Peter, Paul and Mary, etc. (Lee Silvi, OH)

Radio Metallica, 6955 at 1400 with political comments, various songs including "Happy Days" theme. Says transmitter is a home-brew rig and that they are broadcasting from the sea off Long Island. Powered by two generators, one of 10 kW the other 25 kW. Also heard at 2310 with Dr. Tornado and "Señor El Nino." (Pearce) 1925 with tests, sound effects and IDs. Eventually a three-way talk between Tornado, Jack Boggin from WLIS and a third party. Also at 2106 announcing they were now broadcasting from the Atlantic Ocean. Also another time at 1426. (Dave Jeffery, NY) 0155 with modulation problems or something. Also 0030. (Silvi) 6957 at 0250. Said they are trying to be different and want people to send ideas and pictures; they want people to get away from the "standard boring QSL reports." (Garth Doetzel, BC) 0000 with good music mix, professional sounding. Also at 2353 and 0137. (William Wilkins, MO)

WSSR, 6955 USB at 2155 with variety of tunes and mostly unidentified comments. (Pearce)

CSIC, 6953 USB at 1942 reading the entire Road Kill Café menu, parody ads for broadcasting school, and a bit about sending vowels to Bosnia. (Pearce)

Radio 510 International, 6955 at 1709 relayed via NAPRS, with YL DJ named Stevie who said the program was also being relayed via IRRS in Italy, WHRI, Sweden, Holland and by KIWI and Radiowave. Address: P.O. Box 510, 4010 Basel, Switzerland. (Pearce) 1557. (Silvi)

Radio USA, 6955 at 0138 with rock, ID, Belfast address. Switched to SSB mode at 0145. Also at 2213 with ID, comedy, pirate radio report, letters. (Jeffery)

Radio Azteca, 6955 AM at 2305 with listener letters, IDs, top 10 things about the radio hobby. (Pearce) **6954.7** at 2350 with mailbag. (William T. Hassig, IL)

WARR, 6955 USB at 2356. Also noted at 0046 and 0126. Says to use the Belfast, NY drop. Also at 0010 and 0208. (Silvi)

KRAP, 6955 with oldies two different days at 0130 and 0032. (Wilkins) 0026. (Silvi) 0030 signing on with "Avalon" followed by soft rock. (Hassig)

One Voice Radio, 6955 USB at 2301. (Silvi)

WLIS, 6955 USB at 2333 with Robert Roth special broadcast. (Silvi)

Voice of Shortwave Radio, 6955 USB at 0000 with "explosion on Mars." (Silvi)

Is there anyone who hasn't yet heard this very active pirate powerhouse?

Radio Nonsense, 6955 USB at 0045 with music, parodies, ID. (Silvi)

Radio Free Speech, 6955 at 1311. Also at 1311 with "I'm Really Gonna Retire This Time" broadcast. Also at 2335, 1521 and 1824. (Silvi)

Voice of Runaway Maharishi, 6955 USB at 1929 with music and IDs. Also at 2055. (Silvi)

WMPR, 6955 at 1349 with new ID replacing old loop, several songs. (Silvi) 0049 with new age, ID by man and woman. No address. (Wilkins)

WFRR (tentative), 6955 USB at 1953 with a couple of songs and off in the middle of mentioning a mail drop. (Silvi)

Voice of the Purple Pumpkin, 6955 at 2017 with Beatles and other groups, station history. (Silvi)

WRYT, 6955 at 2248 saying "good white music" and "just say no to rap." Also at 2331 with comic phone call. (Silvi)

Radio Nonsense, 6955 USB at 0031 with music, IDs and mention of the Belfast drop. (Silvi)

Radio Eclipse, 6955 USB at 2304. (Silvi)

WPIG, tentative, 6955 USB at 2200. Heard one song and two IDs. (Silvi)

WREC, 6955 monitored at 2222 with Boardwalk parody, Stallone diet. More comedy bits during a 2309 logging. Also heard at 2159. Another day at 1543. (Silvi) 0000 with many comedy bits. (Hassig)

WRAY, 6955 at 2249 with many IDs, guitar music, old Wellsville drop. (Silvi)

WEED, presumed, 6955 USB at 0730 with "American Pie," many references to drinking, and smoking pot. IDs sounded like "WEEE." (Silvi)

Radio Tellus, 6955 USB at 2300 with "bare knuckles" broadcast using a Walkman and a transmitter. (Silvi)

Mystery Radio, 6955 USB heard at 0237 with usual new age music. (Wilkins)

Take It Easy Radio, 6955 USB heard at 0235 sign on with pops. (Wilkins)

Radio One, 6955 USB at 0058 with oldies. (Wilkins)

WFMQ, 6955 USB at 0445 with country, Beatles song in German, ID, Providence address. (Wilkins)

WIRT, tentative, 6955 heard at 0034 "we are broadcasting live . . ." Belfast and e-mail addresses. (Wilkins)

6YCAT—Voice of the Cat, 6955 USB at 2215 with reggae and cat songs, ad for a Swedish magazine, "Pirate Connections," meowing cats, ID, Providence address. (Wilkins)

RMWW, 6954.6 at 2343 with legal discussion, rap. Off with "Secret Agent Man." Also 6954 at 0136, signing on with the Macarena. Also 6956 at 2302. (Hassig)

WVOL—Voice of the Loon, 6955 USB at 0130, heavy metal rock, testing, said hello, also QSO with other stations. (Hassig)

Jerry-Rigged Radio, 6955v USB at 0100. Opera and classical music. Providence drop. Very weak. (Hassig) (Jury-rigged? Editor)

Thanks for all your letters and reports. Pirate activity continues to be at what must be an all time high. Keep the reports coming and I'll see you next month! ■

The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

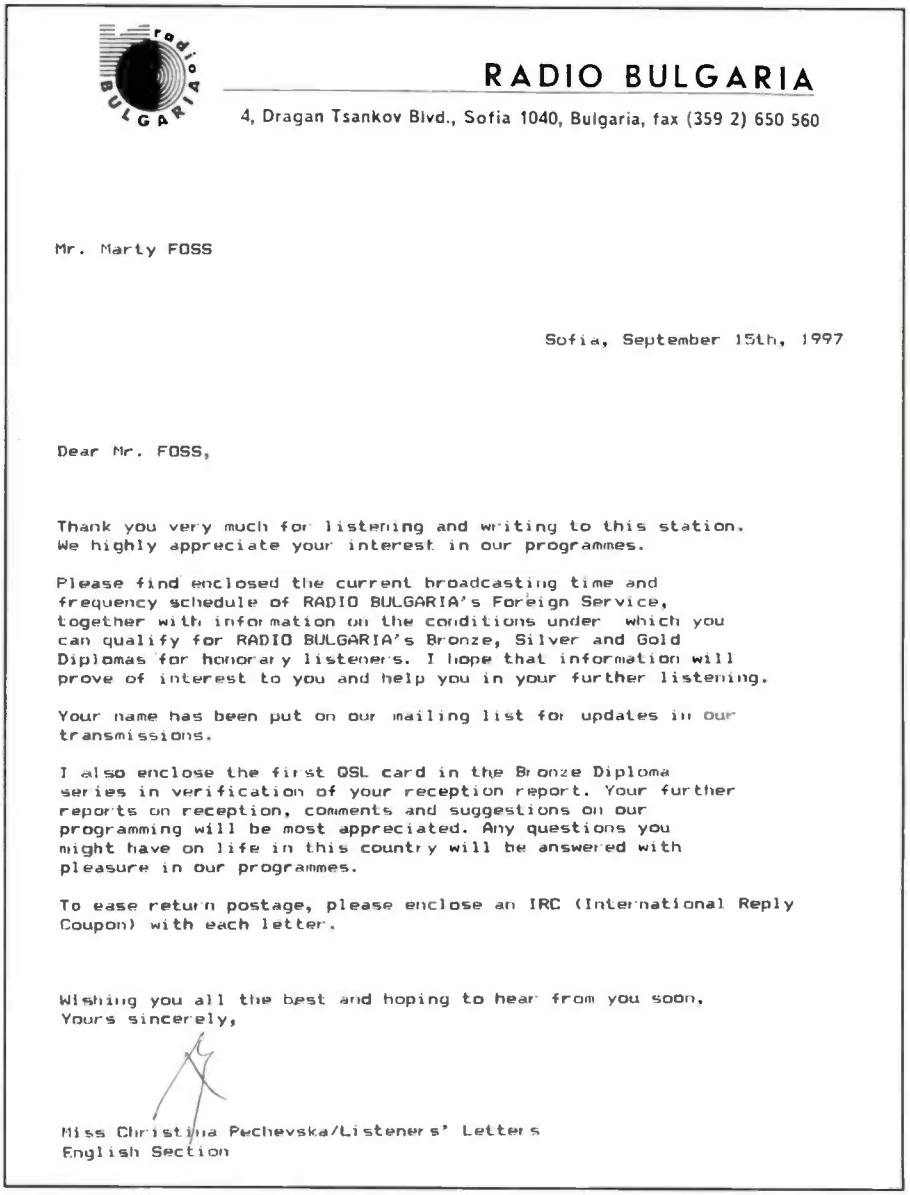
WVHA Purchased by LeSea Broadcasting

Shortwave station WVHA in Maine, which went off the air a few months ago because it couldn't pay its bills, has been purchased by LeSea Broadcasting and may have come back on the air by the time you read this. LeSea owns World Harvest Radio which operates WHRI in South Bend, Indiana and KWHR in Hawaii. WVHA had been owned by Prophecy Countdown which, in turn, had purchased the station from the Christian Science Monitor's Herald Broadcasting. No schedule is yet available for the new operation but keep an ear on the spots WVHA frequented: **5850, 9930, 9975, 11580, 15665 and 15745**.

A new station from Liberia is called Star Radio, with a 10 kilowatt transmitter. Initial test broadcasts were carried out between 0500 and 0800 (which would provide best reception in North America) and again between 1700 and 2000. Currently the 0500 broadcast is on **3400**, the 1700 airing on **5880**. The station is funded by USAID and managed by a Swiss journalistic group called NGO Foundation Hirondelle. Broadcasts are in English and several local languages. They are on the Web at <http://www.hirondelle.org>. The mailing address is: Star Radio, Sekou Toure Avenue, Mamba Point, Monrovia, Liberia.

There continue to be shortwave relays of various Argentine mediumwave and FM stations on no particular schedule. Radio Continental, Radio Rividavia, Cadena Cien, "De Coleccion" (a program aired from Radio Provincia de Buenos Aires), and Aspen 102FM have all been noted on **8098 upper** (sometimes lower) sideband at various times. The frequency **11133 LSB** has carried Feeling FM 100.7 and **13363.5 USB** as well as **20276 USB** have also carried Radio Rividavia. These are broadcasts intended for Argentine personnel in Antarctica.

It's probably a pirate, but we'll trespass on that territory just the same, since SWBC enthusiasts are always excited over the prospect of a new country. Radio San Marino International is supposed to be on the air periodically from that teeny tiny European republic surrounded by Italian territory. They have a Web site at <http://www.exactweb.com>.RSMI/ Apparently only a few broadcasts were—or are—being planned, for airing on specific dates. An earlier test used **11410**. Reception reports can be sent in care of the Play DX radio club, via Davanzati 8, 20158 Milano, MI, Italy.



RADIO BULGARIA

4, Dragan Tsankov Blvd., Sofia 1040, Bulgaria, fax (359 2) 650 560

Mr. Marty FOSS

Sofia, September 15th, 1997

Dear Mr. FOSS,

Thank you very much for listening and writing to this station. We highly appreciate your interest in our programmes.

Please find enclosed the current broadcasting time and frequency schedule of RADIO BULGARIA's Foreign Service, together with information on the conditions under which you can qualify for RADIO BULGARIA's Bronze, Silver and Gold Diplomas for honorary listeners. I hope that information will prove of interest to you and help you in your further listening.

Your name has been put on our mailing list for updates in our transmissions.

I also enclose the first QSL card in the Bronze Diploma series in verification of your reception report. Your further reports on reception, comments and suggestions on our programming will be most appreciated. Any questions you might have on life in this country will be answered with pleasure in our programmes.

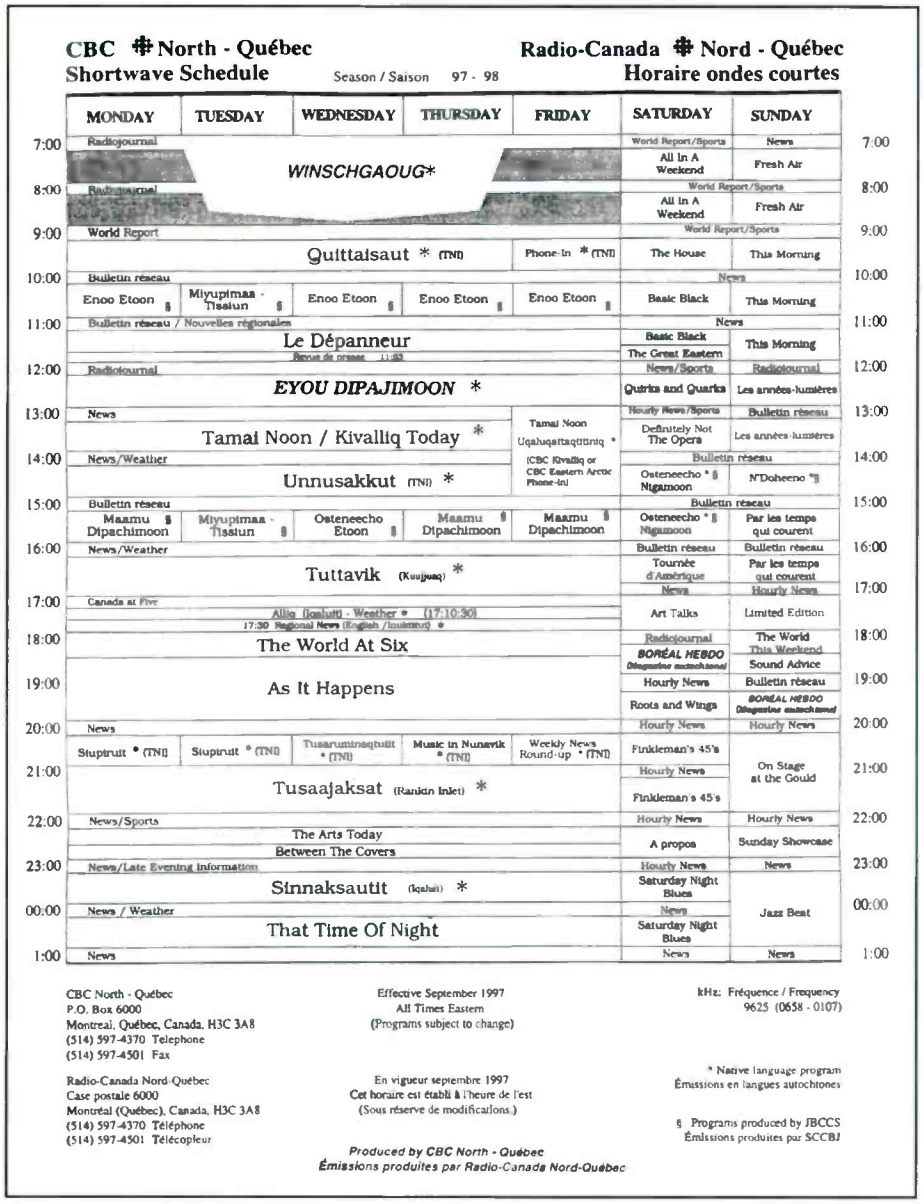
To ease return postage, please enclose an IRC (International Reply Coupon) with each letter.

Wishing you all the best and hoping to hear from you soon,
Yours sincerely,

Miss Christina Pechevska/Listeners' Letters
English Section

Marty Foss in Alaska got this recent QSL letter from Radio Bulgaria.

The government station in the Congo-Brazzaville (where the most recent civil war took place) now calls itself Radio Congo de la Liberte or variations on that (it was Radio Congo or Radio National Congolaise under the former government) and continues to operate on **5985** where it can sometimes be heard to past 2000. Another frequency, **9610**, is in



CBC North - Québec
Shortwave Schedule Season / Saison 97 - 98 **Radio-Canada Nord - Québec**
Horaire ondes courtes

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	
7:00	Radiojournal	WINSCHGAOUG*				World Report/Sports	News	7:00
						All In A Weekend	Fresh Air	
8:00	Radiojournal							8:00
						All In A Weekend	Fresh Air	
9:00	World Report					World Report/Sports		9:00
	Quittaisaut * (TNI)				Phone-In * (TNI)	The House	This Morning	
10:00	Bulletin réseau					News		10:00
	Enoo Etoon §	Miyupimaa - Tisatun §	Enoo Etoon §	Enoo Etoon §	Enoo Etoon §	Basic Black	This Morning	
11:00	Bulletin réseau / Nouvelles régionales					News		11:00
	Le Dépanneur					Basic Black	This Morning	
	Revue de presse 11:33					The Great Eastern		
12:00	Radiojournal					News/Sports	Radiojournal	12:00
	EYOU DIPAJIMOON *					Quirks and Quarks	Les années-lumières	
13:00	News				Tamai Noon Uqaluqattaqtitiniq * (CBC Kivalliq or CBC Eastern Arctic Phone-In)	Hourly News/Sports	Bulletin réseau	13:00
	Tamai Noon / Kivalliq Today *					Definitely Not The Opera	Les années-lumières	
14:00	News/Weather					Bulletin réseau		14:00
	Unnusakkut (TNI) *					Osteneecho * § Ngamoon	N'Doheeno * §	
15:00	Bulletin réseau					Bulletin réseau		15:00
	Maamu § Dipachimoon	Miyupimaa - Tisatun §	Osteneecho Etoon §	Maamu § Dipachimoon	Maamu § Dipachimoon	Osteneecho * § Ngamoon	Par les temps qui courent	
16:00	News/Weather					Bulletin réseau	Bulletin réseau	16:00
	Tuttavik (Kuujjuaq) *					Tournée d'Amérique	Par les temps qui courent	
17:00	Canada at Five					News	Hourly News	17:00
	Allig (Iqaluit) - Weather * (17:10:30) 17:30 Regional News (English /Inuktitut) *					Art Talks	Limited Edition	
18:00	The World At Six					Radiojournal	The World This Weekend	18:00
						BOREAL HEBDO (Magazine autochtone)	Sound Advice	
19:00	As It Happens					Hourly News	Bulletin réseau	19:00
						Roots and Wings	BOREAL HEBDO (Magazine autochtone)	
20:00	News					Hourly News	Hourly News	20:00
	Siuptuit * (TNI)	Siuptuit * (TNI)	Tusaaruminaqtuit * (TNI)	Music in Nunavik * (TNI)	Weekly News Round-up * (TNI)	Finkleman's 45's	On Stage at the Gould	
21:00	Tusaajaksat (Rankin Inlet) *					Hourly News		21:00
						Finkleman's 45's		
22:00	News/Sports					Hourly News	Hourly News	22:00
	The Arts Today					A propos	Sunday Showcase	
23:00	Between The Covers News/Late Evening Information					Hourly News	News	23:00
	Sinnaksautit (Iqaluit) *					Saturday Night Blues		
00:00	News / Weather					News	Jazz Beat	00:00
	That Time Of Night					Saturday Night Blues		
1:00	News					News	News	1:00

CBC North - Québec
P.O. Box 6000
Montreal, Québec, Canada, H3C 3A8
(514) 597-4370 Telephone
(514) 597-4501 Fax

Radio-Canada Nord-Québec
Case postale 6000
Montréal (Québec), Canada, H3C 3A8
(514) 597-4370 Téléphone
(514) 597-4501 Télécopieur

Effective September 1997
All Times Eastern
(Programs subject to change)

En vigueur septembre 1997
Cet horaire est établi à l'heure de l'est
(Sous réserve de modifications.)

Produced by CBC North - Québec
Émissions produites par Radio-Canada Nord-Québec

kHz: Fréquence / Frequency
9625 (0658 - 0107)

* Native language program
Émissions en langues autochtones

§ Programs produced by JBCCS
Émissions produites par SCCBJ

Here's the current schedule for the CBC Northern Quebec service on 9625. (Thanks Dave Jeffery)

operation around 0700. Broadcasts are mostly in French.

Radio Australia's 24-hour programming now includes a minimum of six hours per day of programs relayed from the ABC's domestic Radio National network. This is one result of the budget cutbacks at Radio Australia. The domestic broadcasts are picked up after Radio Australia's 1200 news broadcast. We've also noted that the old standby **9580** now goes off the air a lot earlier.

Belgium's Radio Vlaanderen International is also experiencing "shrinkitis." Budget restraints are forcing a cutback in on the air hours, dropping programming in Spanish and Arabic and restricting broadcasts in French and German to the weekends. However, RVI is now using the facilities of Deutsche Welle as well as the Bonaire and Madagascar relays of Radio Netherlands along with sites at Tashkent (Uzbekistan) and Petropavlovsk, Russia.

Radio Saint Helena's 1997 broadcast appears to have been very successful, with many DXers in Europe and North America reporting good reception, although accompanied by a bit of hum or heterodyne. The station is also very pleased with the response they get each year. The 1997 broadcast occurred on October 29 from 1900 to 2300 on **11092.5**. We haven't seen definite word that there will be a 1998 broadcast (they skipped one a couple of years ago) but you can check their Web site for news. It's at <http://www.sthelena.se>—but it may not be active year 'round.

The North American Shortwave Association has released a new, revised edition of its shortwave broadcast country list. The new edition includes a "gazetteer" which gives pertinent info about the shortwave and/or geo-political activity of the country. The new version of the list is on standard size paper and has been three-hole punched. The NASWA list is considered the premier SWBC countries list. Copies are available to both members and non-members alike. To get a copy send $3 to: Kris Field, The NASWA Company Store, 705 Gregory Drive, Horsham, PA 19044.

Here's the usual reminder that we never fail to appreciate your informational input to this column. Please format your shortwave loggings by country, double space between each item and add your last name and state abbreviation after each item. Also sought are photographs of you and your shack, station pictures, spare QSL cards, program schedules and other station literature, as well as details of station address changes and QSL policies. Thanks for your continued support.

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 abbreviation is included the broadcast is assumed to have been in English.

ALBANIA—Radio Tirana, **7160** at 0234 with news. (Moser, IL)

ANTIGUA—BBC World Service, **5975** at 0114 and **6195** at 1023, both with the Americas/European program stream. (Jeffery, NY) **5975** at 2200. (Harris, TN)

ARGENTINA—RAE, **11709** at 0240 with music, sports news, DX program. (Jeffery, NY) **11710** heard at 0200-0300 with EE to North America; news and music alternating. (Silvi, OH)

ARMENIA—Voice of Armenia, at 1400-1459 on **12025** in Tibetan to South and Southeast Asia. (Silvi, OH)

AUSTRALIA—Radio Australia, **9415** at 1237 with interview and **9580** at 0940 with program on insects. (Dybka, TN) 1018 with "Blacktracker." (Jeffery, NY) **9415** at 1400. (Northrup, MO)

VNG time station, **8638** with time pips at 0947. (Dybka, TN)

AUSTRIA—Radio Austria Int'l, **13730** at 0539 with pop vocal, man in GG. (Foss, AK)

BELGIUM—Radio Vlaanderen Int'l, **13785**

Abbreviations Used in Listening Post

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

at 1230 with ID, frequency info, news, "Radio World." (Jeffery, NY)

BOTSWANA—Radio Botswana, **4820** at 0310 in unidentified language. Music with a man announcer. (Jeffery, NY)

CANADA—Radio Canada Int'l, **9640** at 1336 with "This Morning." Off at 1358. Also **13650** at 1315. (Jeffery, NY) **17820** at 1840 in RR. (Harris, TN) 2115 with CBC News. (Dybka, TN)

CHU time station, **7335** at 1325. (Northrup, MO) **114670** at 1758 with announcement in EE/FF, ID. (Dybka, TN)

BBC World Service, **5965** at 1010. (Dybka, TN) 1210 with "World Business Report," Big Ben chimes. (Jeffery, NY) **17840** at 1725 with program on global warming. (Harris, TN)

CHILE—Radio Esperanza, **6090** in SS at 1019 with ID, pops. (Dybka, TN)

CHINA (presumed)—China Radio Int'l, **6933** at 2225 in what seemed to be SS. Traditional folk music. **6950** at 1200-1300 in EE and 2200-2226 in possible PP. (Silvi, OH) **9440** at 1243 in CC with Chinese music, female announcer. (Jeffery, NY)

China People's Broadcasting Station, **7770** at 1230 in CC. (Northrup, MO)

COSTA RICA—Radio For Peace Int'l, **7385** at 0350 with "New Dimensions Radio" and program preview. (Jeffery, NY) 15050 at 1911. (Harris, TN)

CUBA—Radio Havana Cuba, **6000** heard at 0245. (Harris, TN) **9550** at 1215 in SS. (Northrup, MO)

ECUADOR—Radio Quito, **4919** at 0642 in SS with bright and fast-moving Latin instrumental music. (Foss, AK) HCJB, **9745** at 0248 with classical music. (Harris, TN)

EGYPT—Radio Cairo, **12050** in AA at 0521. (Foss, AK)

ENGLAND—BBC, **9515** (probably via Canada, Editor) **11680** at 2129 with Calling the Falklands. Also **15225** at 1841 in Russian. (Jeffery, NY) **12095** at 1755 with Sport News. Utility QRM. (Dybka, TN)

FRENCH GUIANA—Radio France Intl,

RADIO AUSTRIA INTERNATIONAL

Through us you have a world-wide link to Austria. We report objectively and comprehensively on the latest events in politics, economics, the arts, as well as on human interest stories and sport. In our news and news magazine REPORT FROM AUSTRIA we also keep you up to date with international events. This broadcast includes a review of listeners' letters in the weekend edition starting Saturday at 1330 UTC.
Radio Austria International is the voice of Austria around the world. Our service is operated at the request of the Austrian government and funded by the federal budget. Our editorial independence is guaranteed by law.

	UTC		Frequencies (kHz)	
Europe	0530	0830	6.155	13.730
	1330	1730	6.155	13.730
		2230	6.155	5.945

You can also hear these broadcasts on ASTRA DIGITAL RADIO (ADR): look for ROI WIEN on the display.

North America	0130		7.325	
	0530	0630	6.015	
	1330		13.730	
Latin America	0130		9.870	9.495
Middle East	0530		15.410	17.870
	1730		9.655	
Africa	1730	2230	13.730	
Asia	0930		15.455	
	1730		13.710	
Australasia	0830	0930	17.870	

For the best reception of our programmes via shortwave we recommend that you try all of our frequencies being used at the time of listening. You might also be able to hear some transmissions directed to other parts of the world.

Cover: The Parliament in Vienna

Radio Austria International's current world broadcast schedule.

13625 at 1200 with ID, news. (Jeffery, NY)Swiss Radio Intl relay, **9905** at 0448 with program about a South America art exhibition in Basel. (Foss, AK)

GABON—Africa Number One, **17630** at 1400 to 1557 sign off in FF to Western Africa. Much music. (Silvi, OH)

GERMANY—Deutsche Welle, **7285** at 0205 with news, Newslink. (Jeffery, NY) **13780** at 0649 with DJ in GG. (Foss, AK)

GREECE—Voice of Greece, **7140** at 0140. Greek architecture. (Moser, IL)

HAWAII—WWVH, **2500** at 0925. Woman with time announcement, pips. (Dybka, TN)

INDIA—(presumed) All India Radio, Bangalore, **11620** heard at 2200 in EE with news. Severe QRM from a utility station from 2201. (Silvi, OH)

IRELAND—West Coast Radio, Ireland, via Germany, **5910** at 0142 with discussion on local topics, music, ID, letters, anthem and off at 0200. (Jeffery, NY)

ISRAEL—Reshet Bet service, **9388** at 2154. Two men in Hebrew, 6 time pips at the top of the hour, news in HH. (Dybka, TN)

ITALY—RAI, **6010** heard at 0306 in SS. (Harris, TN)

JAPAN—Radio Japan/NHK World, **7230** (via England) at 0657 with EE ID at 0659. Also **11760** at 0510 with woman talking in RR. (Foss, AK)

JORDAN—Radio Jordan, **11690** at 1605. Woman with news, music and letters show. Salaam and good evening to you, friends. ID. (Dybka, TN)

KUWAIT—Radio Kuwait, **11990** at 2010 with pops. (Harris, TN)

LIBYA—Radio Jamahiriya, **15235//15415** at 2158 with anthem, chimes, 3 time pips, man in AA. (Dybka, TN)

MALI—RTV Malienne, **4782** at 2300 in FF with talk by a man. (Jeffery, NY)

MOROCCO—VOA relay, **15410** at 1905 with VOA NewsEurope Edition. (Harris, TN)

NEW ZEALAND—Radio New Zealand Intl, **6100** heard at 1028 with Late Edition. (Dybka, TN) **9795** at 0608. (Foss, AK) 15115 at 0129 with a brief piece of music, then Cadenza. (Jeffery, NY)

NIGERIA—Voice of Nigeria, **7255** at 0602 with news, ID, time check, frequency info, preview of coming weeks programs, listener letters. (Jeffery, NY)

NORTH KOREA—Radio Pyongyang, **13760** at 2309 with news. (Jeffery, NY)

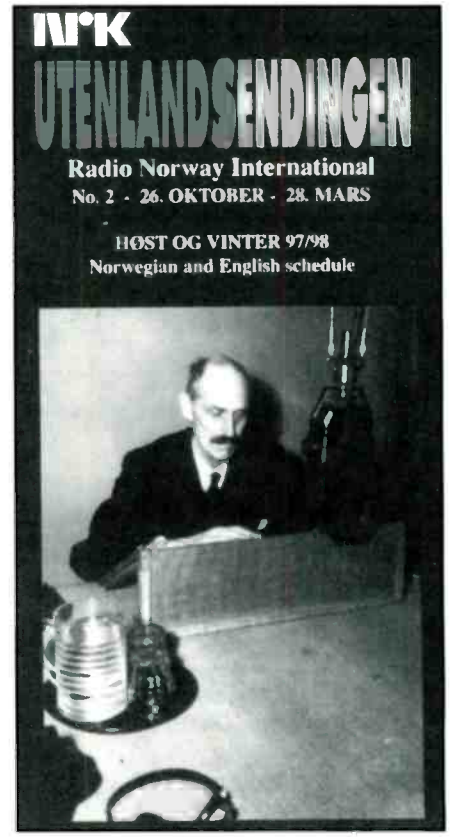
NORWAY—Radio Norway Intl, **7485** at 0533 in Norwegian. (Foss, AK) **11680** 1630 to 1700 with last day of broadcasting from the Fredrikstad transmitter site Very nice historical program. (Silvi, OH)

PAPUA NEW GUINEA—NBC, Port Moresby, **4890** at 0845 with news, country. (Dybka, TN)

PHILIPPINES—Radio Veritas Asia, **7265** at 1320 with ID in EE and close. (Northrup, MO)

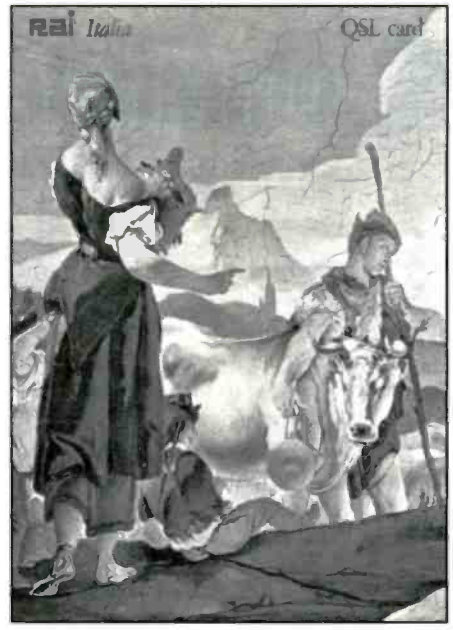
PORTUGAL—Radio Portugal, **9570** at 0343 with news. (Moser, IL)

RUSSIA—Voice of Russia, **7270** at 0531 with program about the Moscow uprising of 1905, jazz, ID This is the Voice of Russia. (Foss, AK)



The cover photo of the current Radio Norway International schedule shows King Haakon VII opening Radio Norway's foreign service on January 3, 1948. Norway recently closed its transmitter site at Fredrikstad. There are still high power sites in operation at Kvitsoy and Sveio.

This good looking group is the English language staff at Radio Netherlands.



Andy Johns got this artistic card from RAI, Italy back in 1975!

12010 at 0305 with world news. (Moser, IL) Voice of America via Russia, **12065** at 2135, to Asia, in presumed Korean. (Silvi, OH)

RWANDA—Deutsche Welle relay, **11810** at 1744 in FF and 1909 in EE. (Harris, TN) Tentative, **15275** at 2202 with announcer in GG. (Dybka, TN)

ST. HELENA—Radio St. Helena, **11092.5 USB** at 1909 on their annual broadcast. Calls from USA, Brazil, Germany, the UK, Ireland, maybe New Zealand plus pops, local news. My phone call got through and I spoke to host Derek about my listening equipment. (Schwartz, WI) 1957 tune to 2304 with very good reception this year. The entire family listened. (Silvi, OH) 1915 with host Nick Lowe, music. Very good. (Dybka, TN)

SAO TOME—Voice of America relay, **6035** at 2125 with World Report. (Jeffery, NY)

SOUTH AFRICA—BBC relay via Meyerton, **11940** heard at 0519 with news. (Foss, AK)

SOUTH KOREA—Radio Korea Intl, **15575** at 0000-0100 in KK. Into SS at 0100 and EE at 0200 but has faded out by then. (Silvi, OH)

SPAIN—Voice of America via Spain, **6055** at 0133. (Moser, IL) **11805** at 1700 with Russian to Eastern Europe/Western Asia. Parallel **15215** which faded by 1710. (Silvi, OH) Radio Exterior de Espana, **11775** at 2014 with news. (Harris, TN)

SRI LANKA—Voice of America relay, **15395** at 1600 to 1700 and beyond. EE to Southeast Asia with Middle East Report. Co-channel to UAE Dubai; mixed but distinguishable from each other. (Silvi, OH)

SWEDEN—Radio Sweden, **7135** at 0255, **7290** at 0135. (Moser, IL)

SWAZILAND—Trans World Radio, **4760** at 0300 to 0330 in unidentified language with religious programming and music. To 0345 on Saturday. (Silvi, OH) 0323 with music and female announcer. Off at 0330. (Jeffery, NY)

TURKEY—Voice of Turkey, **9460** at 2311 in Turkish with Middle-Eastern music. (Jeffery, NY)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13675//15395** at 1600 with EE. Then back to AA. 15395 co-channel to very audible VOA-Sri Lanka. **11795//13675** at 1753 with mostly music, occasional AA announcements. **11795** much stronger. **15395** was inaudible. (Silvi, OH) **15395** at 1615 with Islamic Literature. ID: This is the United Arab Emirates—Radio Dubai." (Dybka, TN)

UKRAINE—Radio Ukraine Int'l, **7150** at 0335 discussing economic future. (Moser, IL) **12040** at 2142 with "Close Up" program. (Dybka, TN)

VIETNAM—Voice of Vietnam, **7250** (via Russia, Ed) at 0122. Abrupt close at 0127. Back again at 0130 in VV. (Moser, IL)

That's the lot for this time! A huge hollar of "thank you!" to the following readers who took the trouble to do the good thing this month:

Lee Silvi, Mentor, OH; Dave Jeffery, Niagara Falls, NY; Stokes Schwartz, Madison, WI; Marty Foss, Talkeetna, AK; Jill Dybka, Nashville, TN; Mark Northrup, Gladstone, MO; Howard J. Moser, Lincolnshire, IL and Paul Harris, Columbia, TN.. Thanks to each of you!

Until next month—good listening! ■

This familiar building was featured on a VOA QSL card a few years ago.

One of Radio Japan's many QSLs shows the Japanese Broadcasting Corporation's headquarters building.

BY RICHARD "RD" BAKER
e-mail: CommConf@concentric.net

Communications Confidential

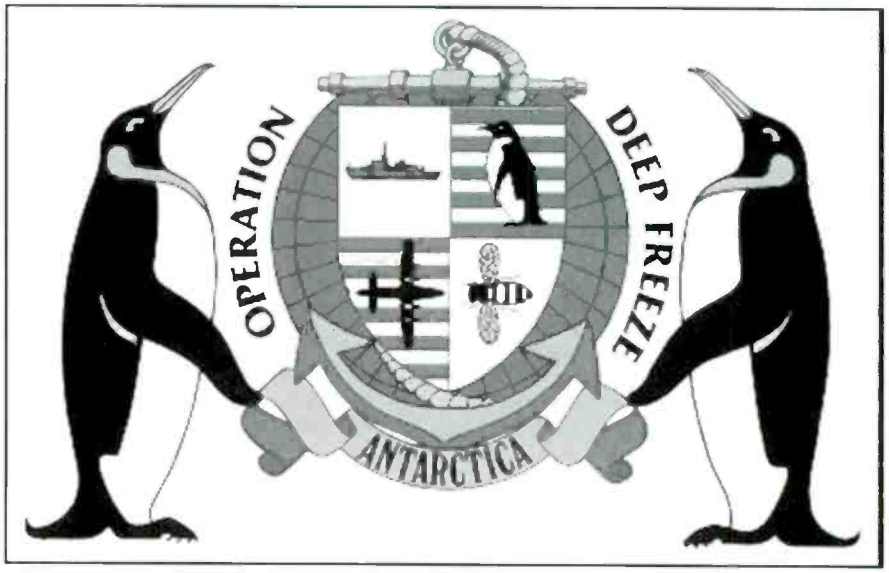
YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Operation Deep Freeze

First, it's hard to believe but this is my first year anniversary in writing this column. Time does fly when you're having fun. I want to thank everyone who has taken the time to send logs, info, pictures, QSL's, comments and provide help. I'm still looking for some shack photos. Second, my friendly postal folks told me I need to change the zip+4 on my post office box. You should note that it's now P.O. Box 4222, Youngstown, Ohio 44515-0222. Those with internet ability can check my Web site at: <http:www.concentric.net/~CommConf/index.shtml>; more on that next month.

Operation Deep Freeze is the annual re-supply of the U.S. stations in Antarctica. Starting in October and running to February during the summer months there, Operation Deep Freeze is a massive effort. Many summer stations spring to life as do field operations. The U.S. Antarctic Program is run by the NSF, or National Science Foundation. There are three year-round stations where support people "winter over:" NGD, McMurdo (aka Mac Center or Mac Op's); NHG, Palmer (home of the NSF research vessel R/V Polar Duke); and NPX, Amundsen-Scott South Pole (aka "Pole" or "Ice Op's"). Palmer, unlike the two, has no period of winter isolation and is accessible year-round. A second NSF research vessel, the R/V Nathaniel B. Palmer, is based out of Punta Arenas, Chile. During summer in Antarctica (winter in the northern hemisphere) these isolated stations can be re-supplied. This mission is performed presently by the Naval Support Force, Antarctica (NSFA). NSFA is made up of military personnel from the U.S. Navy, U.S. Army and U.S. Coast Guard. Military units come under the operational control of the Commander, Naval Support Force, Antarctica and are collectively called "Operation Deep Freeze."

In addition to providing direct support for stations and facilities in Antarctica, Operation Deep Freeze personnel provide communication facilities, medical and dental care, vital weather information, air traffic control, chapel airport, radio, television, welfare and morale recreation services. Antarctic Development Squadron Six (VXE-6) operates seven ski-equipped LC-130 Hercules aircraft on the continent. The squadron's mission is to provide airlift, aerial photomapping services, search and rescue operations, reconnaissance support for the scientists and a wide-range of related transportation services throughout Antarctica. These aircraft use the callsigns "Navy X-ray Delta" and two numbers. The U.S. Navy will formally turn-over the responsibility for logistical support of the U.S. Antarctic Program to the U.S. Air Force in a ceremony to be held on Feb. 21 in Christchurch, New Zealand. A second ceremony will be held on March 12 at the Naval Construction Battalion Center in Port Hueneme, Calif. This ceremony will formally disestablish the historic U.S. Naval Support Force, Antarctica after 42 years of providing expeditionary and logistical support on the world's most southern continent. The New York Air National Guard also fly the LC-130 using callsign "SKIER" from the 109th Mobility Air Wing at Niagara Falls, NY. The ANG has been assuming some of the air transport mission from the NSFA. Units of the U.S. Air Force also provide C-141 Starlifter and C-5 Galaxy aircraft for additional transportation to Antarctica during the main-body deployment. These aircraft use the callsign "ICE" usually flying the Christchurch, New Zealand/McMurdo/Christchurch route. U.S. Coast Guard icebreakers accommodate scientists who conduct experiments in the Ross Sea. The icebreakers also cut a channel through the frozen Ross Sea into McMurdo Sound. This channel, which is sometimes cut through ice that is eight to 10 feet thick, is 10 to 20 miles long. This allows the Military Sealift Command (MSC) ships access to McMurdo Station. The icebreaking duty is rotated yearly between the U.S. Coast Guards two polar-icebreakers: NRUO, USCGC Polar Sea (WAGB-11) and NBTM, USCGC Polar Star (WAGB-10). These are the worlds largest non-nuclear icebreakers.



This insignia for Operation deep Freeze seems very fitting.

What does this mean for you? You still have time to log these stations from Antarctica before winter returns and activities there slow down. Table 1 is a listing of frequencies for you to try. Let me know what you hear.

An interesting article by Bill Gertz appeared in the *Washington Times* recently which quoted an FBI affidavit in the recent arrests of three Americans for spying for East Germany. It stated " . . . they were trained in espionage "tradecraft" and

got messages from East German spies via Cuba on short-wave radio while sending microfilm of secret U.S. documents to East Berlin." Thanks to Chris Smolinski and others who made me aware of the article. The Japanese Ministry of Posts and Telecommunication recently announced its decision to close down the standard time and frequency station JJY on 2500, 5000, 8000, 10000, 15000 kHz., and replace it with a longwave station in 1999 in order to avoid interference and improve accuracy. Norddeich Radio ceased all radio telex service on the MF and HF bands as of September 30th, 1997 heard at 2300 UTC.

Reader Mail

Hideharu Torii of Japan reports on the New Star numbers station, which in Chinese is Hsin Hsing Kuanpo Tientai. Hideharu confirms they are up almost every hour on the hour on in Chinese.

The stations are: Hsin Hsing Kuanpo Tientai No.1 Station on 11430 kHz; Hsin Hsing Kuanpo Tientai No. 2 Station on 15388 kHz; Hsin Hsing Kuanpo Tientai No. 3 Station on 9725 kHz; Hsin Hsing Kuanpo Tientai No. 4 Station on 8300 kHz; Hsin Hsing Kuanpo Tientai No. 5 Station on 13750 kHz. Note that the fifth channel is a new addition. According to Hideharu, the Wade phonetic code, not the Pinyin phonetic code, should be used in referring to this station because it is undoubtedly a Taiwan-based station. Also that Hsin has many meanings such as "new," "mind" and others, while Hsing means "star," "happiness," "going," etc., in Chinese and that he can not confirm a direct translation to "New Star." In the 1980s, Hideharu reports this station used 8400, 10725 and 17056 kHz. Also in the 1980s, IOK Tiantai and BOT Tiantai, both number stations in Chinese, appeared on 8300 and 11310 kHz. Similar stations already existed in the early 1960's when he began DXing. China stopped jamming of such stations in the early 1980s.

First time contributor Bill Smith (CA) maintains his SWL post as a ham shack. Bill's antenna is a BIG horizontal loop nearly of some 800 ft. of wire up 15 to 20 ft. in a square, fed at the corner with 450 Ohm ladder line to a 4:1 balun, 10 ft. of 50 Ohm coax to his tuner, then to a Yaesu FT-990 transceiver. Chuck Bernth (NY) also checks in with his first log also this month. Chuck uses a Drake SW-8 and a R&F systems all-band vertical antenna. Another new check in is Dean Burgess (MA) also using a Drake SW-8, and a 70 foot dipole. Ray Colbert (TX) reports once again hearing the "woodpecker" which has been absent from HF for some time. The woodpecker was a Russian OTH radar system that resembled the sound of a woodpecker at work, hence its name. Ray caught it around 7038 kHz at approximately 0150 UTC. The signal was narrow-banded, about 5 kHz wide and just above the noise level. Ray also caught it a week before between 6995 and 7002 kHz and also in the 10 and 14 MHz ranges. Chris Smolinski also caught it around 1315-1330 UTC on 6780, drifting down to 6760, 6755, 6750, and then jumping to 4815 kHz. Is this the 'woodpecker' or a new Over The Horzion (OTH) system somehwere? Alan Gale checks in from the UK with news that Plymouth Rescue in the UK closed on the 1st of December, 1997. They acted as a 'back up' service to Kinloss until the 12th of December, and then officially closed with a ceremony and fly-past. Alan was hearing some unusual callsigns recently making tests, and this appears to have been the technicians sorting out the 'remote' switching to Plymouth. Alan also reports HM Coastguards helo 'Mike Uniform" as back in service. This was the Stornaway Coast Guard helo that crashed during a mountain rescue in Scotland at the end of August. While listening to 6577, Tony Orr noticed a new waypoint in use along A699 between AKERS and KOHOE. it wasn't BRUNZ but FOCUS. Very late word from Joe Olig as I was sending this column of the closing of WLC Rogers City Radio in Michigan. Joe had received a letter from announcing the closing, which was effective Nov.28, 1997. I should have some more information next month, but this sadly looks like the end of an era on the Great Lakes in the U.S.

Now, on with the show . . .

UTE Logging's SSB/CW/DIGITAL

139: DCF49, BMPT, Bonn, D at 0945 in ASCII 200bd tests and encrypted msgs. (AB)
198: DIW, Dixon, NC at 0726, 543 miles at 2K watts. (JD)
203: DMZ, Dickson, TN at 0728, 28 miles at 25 watts. (JD)
214: OHE, Monahans, TX at 0045. (BF)
228: "VZ," unid. (SP)
230: VQ, Detroit, MI at 0303. (BF)
232: "AZN," Amazon NDB, St. Joseph, MO. (CB)
236: GNI, Grand Isle, LA at 0233. (BF) Same at 0750, 507 miles at 2k watts w/CW and vx ". . . regular wx broadcast will be resumed at 1100 zulu, for current . . . wx conditions or other services contact the flight service station." (JD)
248: AM, Amarillo, TX at 0253. (BF)
251: LUG, Lewisburg TN at 0806, 39 miles at 15 watts (per the airport). (JD)
254: "ILJ," Willard NDB, Springfield, MO. (CB)
290: AOP, Rock Springs, WY at 0508. (BF)
293: NDB UI, Quincy, Il (25 watts). (CB)
308: NDB EQZ, Seymour, Indinana, heard at 0355. (SW)
317: IBM, Kimball, NE at 0555. (BF)
332: CZX, Crosbyton, TX at 0024. (BF)
338: NDB LM, St. Louis, MO. (CB)
339: Unid NDB "B." (SP)
342: NDB CCL, at 0405, was informed this is in Springfield, OH. (SW)
344: FCH, Fresno, CA at 0333. (BF) NDB PPQ, Pittsfield, IL. (CB)
349: RG, Oklahoma City, OK at 0028. (BF)
352: NDB ICL, Clarinda, IA. (CB)
353: JUK, Brunswick, GA at 0240. (RH) Unid NDB "QG". (SP)
356: ODX, Ord, NE at 0234. (BF) "LLU," Spring River NDB, Lamar, MO (City of Lamar). (CB) IUL, LaPorte, IN at 0339. (RH)
359: "DO," Dotte NDB, Kansas City, MO. (50 watts). (CB)
362: CYW, Clay Center, KS at 0237. (BF) SUR, Fitzgerald, GA at 0448. (RH)
365: NDB PTS, Pittsburg, KS (City of). (CB) CZM, Cozumel, Mex. at 0327, ex 330. (RH)
370: NDB PUR, Marshall, MO. (CB)
375: OGM, Ontonagon, MI at 0202. (BF)
379: NDB FSK, Fort Scott, KS (City of), 25 watts. (CB)
389: MEJ, Meade, KS at 0210. (BF)
393: NDB EZZ, Cameron, MO. (CB)
400: XW, Flemingsburg, KY heard at 0430 ex XWI. (RH)
403: BPO, Oneida, TN at 0417. (RH)
410: DAO, Ft Huachuca, AZ at 0219. (BF)
411: NDB HAE, Hannibal, MO. (CB)
428: SYW, Greenville, TX at 0223. (BF)
500: OHC, Helsinki R. FIN at 2005 in CW; 9AR, Rijeka R. HRV w/CW at 0218; OXJ, Torshavn R. FRO in CW at 1949; EAF, Finisterre R. E w/CW at 2048; IAR Roma R. I in CW at 2109. (AG)
521: ORC, Orange City, IA at 0545. (RH)
1610: SPA, Gdynia Radio, POL at 2140 w/CW marker. (AB) TIS stn at Kansas City Int'l Airport, no callsign noted. (CB)
1692: FFB, Boulogne Radio, F at 2138 in USB w/Nav. wngs. (AB)
1758: OXJ, Thorshavn Radio, DNK at 2145 w/Nav. wngs. OXZ, Lyngby Radio, DNK at 2150 w/same, both in USB. (AB)
1869: GKZ, Humber Radio, G at 2138 in USB w/Nav. wngs. (AB)
1876: FFU, Brest Radio, F at 2208 w/pp. TFA, Reykjavik Radio, ISL at 2204 w/pp, both in USB. (AB)
2461.5: 0A, Irish Navy Dublin, IRL at 2210 in ARQ w/'Routine' msgs. (AB)
2520: PEED, Oilrig L13FD, at 0011 in USB w/Scheveningen Radio. (AB)
2670: NCF, USCG Group Miami, FL, USA heard at 0620 in USB w/notice to mariners bdcst. (MT)

Abbreviations Used For Intercepts

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

2840.7: DBIG, German CG vsl BG23, Sellin, at 0001 w/CG Cuxhaven re posn rep. DLVC, German CG vsl Ruegen, at 0007 w/CG Neustadt, same.
DBAZ, mv Bremen 2 (police boat), at 1742 w/CG Cuxhaven. Is still in the harbor. DLVP, mv Kniepsand (customs launch), at 1747 w/CG Cuxhaven for posn rep. All in ARQ mode. (AB)
3130: OVALTINE wkg TRAVELER at 1233 in USB, USN Jax area. (AWH)
3413: Shannon Volmet, IRL heard at 0226 in USB. (SW)
3485: Gander Volmet, CAN at 0327 in USB w/wx, out at 0330. (SW)
3693.2: RFLI or RFLIC in ARQ-E 192/120 (IGE) to RFLIGE St.Jean du Moroni. On evenings and nights to about 1100. Probably RFLIG Cayenne but have not yet been able to verify. (FH)
4064: TBO, Turkish Navy Izmir, TUR at 1914 w/CW VVV de TBO T23C. (AB)
4295: Cuba? unid voice net at 1255 in USB, 007 wkg 865 SP M QSO, numeric msgs, "35 final" last thing hrd. Seemed to be continuous carrier on this freq, so maybe yet another "6589" type telephone- line-fed-audio operation. (AWH)
4328: YL/SS w/5FG in AM from 0412 to 0430. (GS)
4396: WLO, Mobile Radio at 0502 in USB w/Hurricane Erika info. (PB)
4448: Navy 50496 heard at 0450 in USB working Andrews. (PB) (VP-3A bureau #150496, a/c of CinCLANT, Command-in-Chief Atlantic —Ed.)
4573: "NNN" Number Station at 0405 in AM (MON). YL/EE w/5FG's in progress, off w/"ended," and to carrier at 0413. (Ed.)
4604: Abnormal Mossad callsign heard, Mossad lady rptng "Romeo Oscar Victor Sierra" at 1900 in USB. This is a new Mossad frequency. (TY)
4675: At 0257 LT401 wkg Gander at 48N50W, selcal BS-PQ, at 0258 SK908 wkg Gander for selcal ck BC-HJ. At 0307, SR107 having trouble contacting Montreal, QRMed most of the flights above until Churchill broke in and took their ARP at H80W! Selcal was MS-DF. At 0311 UA960 wkg Churchill w/VHF freqs of 134.55/134.85 for MTL. All in USB. (TO)
5123: ZKG21, Dept of Conservation, Auckland, New Zealand at 0600 in USB w/2 OMs having problems w/where the aileron and flap ribs went. They must have been assembling a kit-set plane. This freq has a hodge-podge of various users on it. (IJ)
5145: WHU959, Maricom, Foley, AL at 0503 in FEC w/"now pls selcal 1139 1139 xxks xxks de whu959." (DW)
5205: BLACKHAT, RAF 352nd SOG Mildenhall, G at 1219 in USB w/Shadow 25. Shadow has a msg for 67th Ops Squad. (AB)
5257: Cuban CW net heard at 1325 w/HIN clg 43. (AWH)
5287.5: RETYV, Guardia Civil, Valencia, E at 1938 in ARQ w/msgs. (AB)
5320: USCG et al, a ton of stations, at 1300 Miami Op's w/comm ck w/Group Charleston, then brief ANDVT on channel. At 1301 Miami Op's clg any station, at 1302 AirSta Savannah replied, then more green coms. At 1304 Group Key West clg District 7 Center. At 1305 Miami Op's for comm ck w/Group Miami. At 1306 Miami Op's w/comm ck w/ Group Mayport, then Group Key West wkg Miami Op's. At 1308 Miami COMMCENT wkg Grp St. Petersburg. At 1310, Miami COMMCENT wkg AirSta Clearwater, though latter off-freq. At 1312 Miami COMMCENT wkg AirSta Miami. (AWH)
5320.5: Guardia Civil Guipuzcoa, E at 1906 in ARQ w/msgs. (AB)
5390: CDG206, Alma Radio, PQ, CAN at 2309 in USB w/FF bush pp's. (MT)
5391.7: Tunisian Naval vsl NHO Salammbo (A701) at 2258 in ARQ w/'Secret' msgs to EMAM/BOR. (AB)
5417: Numbers stn in AM at 0715 (Mon) w/5FG's. (PB)
5422: Lincolnshire Poacher lady passes 5FG's in USB at 1700. (TY)
5532: Prague LDOC, CZE heard at 2043 in USB w/7ET in EE and various others in Czech. (AB)
5649: IB9691 heard at 2214 wkg Gander in USB at 49N40W, FL310, at 50W QSY YQX 122.37. (TO)
5680: Westland 08 (helo) clg Kinloss Rescue at 1619; DRES clg Karup Rescue DNK at 1058 (DRES is the German Navy coastal minehunter Weiden (M-1060)—Ed.). Quebec 90 in sitrep with Sweden Air Rescue at 1122; G-BIMU clg Kinloss for r/check at 1134 (this was the helo that crashed just back in service!). Mission 4851 in r/check w/ Glucksburg at 1138 (app German Navy); Belgian Air Force 93 wkg Koksidje Rescue BEL at 1634. (AG) G-BIMU, HM Coastguard Mike Uniform at 2330, a Sikorsky S-61N Mk II of Her Majesties Coastguard contracted through Bristows Helicopters wkg Kinloss Rescue, Air Rescue Coord Centre Kinloss (ARCCK), RAF Kinloss, Scotland, w/tfc. At 0020 MU reporting airborne w/6 POB. All in USB. (Ed.)
5685: RAF CWL53 at 0955 in USB w/RAF Finningley w/posn rep. (AB)
5687: German Air Force 822, at 1127 wkg GAF Munster for selcall ck CK-AH. (AB)
ZKX, RNZAF Auckland, New Zealand w/IROQUOIS 3805 (UH1)at 2050, 3805 was over head Limestone Downs which is approx 40 miles South-West of Auckland near the Coast. (IJ) Both in USB mode.
5696: At 1932, CG 6035 reporting flight ops and position to CAMSLANT Chesapeake. (MF) F/V Celeste wkg CG Group Moriches, NY and helo RESCUE 6010 re helo being sent to scene for p/u of man injured by shark that the F/V had hauled aboard. Hrd 0120-0145 in USB. (RK)
5710: SAM 31683 at 1310 in USB w/pp via Andrews. (PB)
5762: SS/YL numbers stn w/5FG at 0230 to 0245 (Sat) in USB, poss Cuban. (GS)
5820: YHF Mossad best in USB at 1600 // 7918 kHz. (TY)
5841: 22 CHARLIE at 1934 in USB clg 33 CHARLIE for posn. (MF)
5915: NAR, USN Saddlebunch Key, Fl at 1155, found second tx finally w/RTTY 75/850, plain text KAWN wx //6397. At 1200 switched to 7784/9830. (AWH)
6200: M/V Auroral Ace, 3FYR5, clg "Alaska Radio" for medical assistance. Pos. 4504N 17400W (North Pacific, about 450 mi. south of Aleutian Islands) passes course/speed/destination (LA), USCG CommSta Kodiak answers. M/V passes they have crewman aboard w/2nd degree oil fire burns. ltr CG adv patient can not remain on vsl, recommended to proceed to closest port and obtain commercial assistance or medivac. Hrd 1356 to 1537. (WS) NKJU, USCGC Kukui (WLB-203) at 1453 passing posn to NMN, adv is maintaining a comm sked re has no HFDL, 3rd and newest of the Juniper-class buoy tenders. All in USB. (Ed.)
6285.5: WBM6522, Tug Goliath at 0617 in ARQ w/TG tfc. (DW)
6321.5: CBV, Valparaiso w/ARQ ready-signal, signing in CW at 1000, new here. (FH)
6376: WCC Chatham Radio at 0407 w/CW wheel. (SW)
6388: FUF, Ft. de France in 75/850 RTTY RYs at 1020, new here. (FH)
6550: Coastguard 1 at 1205 w/Coastguard Center (Dutch CG); At 1342 Neth. CG Centre IJmuiden, HOL w/CG vessel Zeevalk (PBWW) re oil pollution. Both in USB. (AB)
6576: Unid stn at 0400 in USB discussing fuel levels. (SW)
6577: CO227 at 2128 wkg New York at posn GABES, FL 310, selcal ck CG-AH. At 2200 UA916 wkg NY for selcal ck on the ramp at IAD (AQ-BL). Both in USB. (TO)
6586: IB6401 at 2232 wkg New York at posn DEENO, FL 370, selcal ck DK-AS. At 2321 Accra ACC wkg SA201 req FL 390. Both in USB. (TO)
6716: Poss Australian Customs at 0830 in USB, OM adv target is 21 miles, there is only one light on. (IJ)
6741.5: TSBD, the PLM La Galite (501), a Tunisian Navy Combattante III M-class fast attack missile boat, at 0325 in ARQ w/posn report marked "secret" in FF. (Ed.)

Logged or Known Frequencies Used by The U.S. Stations in Antarctica. All Frequencies in kHz and in USB Mode

3023.5	Operation Deep Freeze
4131.0	McMurdo, R/V Polar Duke, R/V Nathaniel B. Palmer
4134.0	USCG polar icebreakers on CG SCN (CommSta on 4426)
5643.0	Auckland (flights north of 60 degrees)
5726.0	McMurdo, Byrd Surface Camp
6200.0	USCG polar icebreakers on CG SCN (CommSta on 6501)
7995.0	South Pole with field parties
8240.0	USCG polar icebreakers on CG SCN (CommSta on 8764)
8294.0	McMurdo, R/V Polar Duke, R/V Nathaniel B. Palmer
8867.0	Auckland (flights north of 60 degrees)
8998.0	McMurdo, South Pole (flights south of 60 degrees)
10639.0	South Pole (scheduled meteo reports)
11255.0	McMurdo, South Pole Secondary (flights south of 60 degrees)
11553.0	McMurdo, South Pole, Palmer, field parties, summer camps and research vessels.
12242.0	USCG polar icebreakers on CG SCN (CommSta on 13089)
13261.0	Auckland (flights north of 60 degrees)
13828.0	NNN0ICE, Navy MARS, McMurdo in Sitor-B
13976.0	NNN0ICE, Navy MARS, McMurdo in Sitor-B

Gary Seven adds this information:

McMurdo Station (Williams Field) ICAO identifier is NZCM.

South Pole Station (Jack F. Paulus Skiway) guards 8998 and 11255 with alternates of 4718.0, 5726.0, and 13251.0 kHz in USB and 6835.0 reportedly in AM. CW may be found on 4223, 6708 and 8975.5.

Teniete R. Marsh Martin on King George Island. ICAO identifier is SCRM. Marsh uses 8864.0, 10024.0, and 17907.0 kHz USB. Operates Mon.- Fri., 1230–2130 UTC.

6826: SS/YL/5FG Atencion stn at 0300 in AM. (CS) Same, also at 0300. (GS)

6830: REACH 45038 working Mildenhall metro via Andrews re wx at arr time at 0011 in USB. (RK).

6850: YL/SS 5FG numbers stn in AM heard at 0318. (SW)

6868: Cuba "6617" at 1135, w/OM/SS w/long counts beginning 1207, telco-fed audio, then 29 wkg 6617. SS/YL/OM seemed mostly comm check stuff. 1307 more long counts, mic-banging. Gone at 1400 recheck. Presumably the Bored Man tx being used for something else, poss related to 6990 activities from previous day. Some QRM from FHWA net on 6870L. (AWH)

6871: HEP7, Kantonspolizei Geneve, SUI at 1412 w/CW Marker (AB)

6976: The Counting station, EE/YL, w/3+2FG's in AM at 1500 Friday //10723 kHz. (TY)

6983: SS/YL/5FG Cuban atencion station at 0200 in AM, excellent signal. Carrier noted about an hour before the transmission. (CS) Same at 0202 w/5FG's (Fri). (PB)

7039: Russian Navy Kaliningrad at 0056 w/CW "P" mkr, weak. (AWH) "F," Russian Navy Vladivostok at 1044 w/CW mkr. (DW)

7470: VLM, Casey Meteo at 1035 w/FAX 120/576 somewhat readable chart. (DW)

7692.5: Unid Pacific Island Net at 0800 in USB w/OM in Pacific Island Language w/commentaries (sounds very professional. I am wondering if it's not the Tuvaluan Police which has been listed on 7691 in the 9th ed of CFL?). (IJ)

7726: YL/SS numbers station at 0206 (Tue) w/5FG's. Poor signal quality. (SW) (Cuban 'Atencion' stn—Ed.)

7845.2: Cuban Atencion station at 0200 in LSB, SS/YL/5FG, 2 finals Note rare use of LSB. (CS)

7890: YL/SS in AM w/5FG's at 0230, at 0242, it sounded like she dropped something on the floor. Could be Cuban. (GS)

7975: SS/YL/5FG Atencion at 0300 in LSB, again rare use of LSB. (CS)

7995: NPX, South Pole, Antarctica at 0615 in USB. YL and OM talking to various field parties. (IJ)

8012: SS/YL numbers stn at 0535 in AM (Mon) w/5FG's. (PB)

8022: VKS737, Penta Radio, Gosford NSW, Australia at 0800 in USB w/4x4 wheel drive club comms. (IJ)

8047: Navy 50496 at 0234 in USB wkg Andrews w/QSY 10202. (PB)

8156: Bahamas Police marine net at 1145 in USB w/Coral Harbour Base wkg MIKE LIMA w/sitrep. (AWH) (Royal Bahamian Self Defense Force, Coral Harbour—Ed.)

8186: SS/YL/5FG Atencion stn at 0200 in AM, very strong, S9+60 dB. (CS) Same at 0226 w/5FG's (Mon). (PB)

8207: LAMU4, cruiseship M/S Monarch of the Sea at 0241 in USB wkg WOM (on 8731) for R/T tfc. (MT)

8255: M/V Capulet at 0112 clg Cape Town Radio; at 0907 3FYF5, M/V Ansac Sincerity wkg Singapore Radio; VL3T, unid. at 1002 clg Valparaiso Radio. All in USB. (DW) (8255 is a worldwide voice calling frequency—Ed.)

8291.3: 6YX, Jamaica Coast Guard Radio, Kingston at 1332 in USB w/Carib EE marine wx, Port Royal tides, closing ID and sked as 1330 and 1830 on 8291.1, VHF channel 13 at 1430, 1900, 0130. No mention of 2738 where previously audible at 1330 during local winter. (AWH)

8297: ZLM, RNZN Auckland at 0935 in USB w/M1B, down at 0955. (DW)

WBV, Moran Towing, Port Richmond, NY at 2039 in USB wkg unid towboat. (MT)

8316: ZLP, RNZN Auckland, New Zealand at 0615, YL w/Nav warnings. (IJ)

8402.5: PWF33, Natal Naval, Brazil at 0437 in RTTY 75/850 w/RY/SG's to PWUN, Niteroi-class frigate Uniao (F-45). (Ed.)

8406: Unid stn 4XML Rptng"V BFR7 DE 4XML" in dirty chirpy CW at 0947. (TY)

8420: KHF, Globe Wireless Guam in FEC //12629 which is stronger at 1357-1500, both new here, usually ARQ ready signal, signing CW. On FEC have only logged idling and test so far. (FH)

8496: CLA, Havana Radio at 0422 w/CW wheel. (SW)

8582.5: KLB Seattle Radio at 2236 w/CW wheel. (SW)

8633: YL/SS repeating "Atencion" at 0407 (SAT) in AM, then w/5FG's. (DB)

8794: CKN, Vancouver Military, BC, CAN at 2252 in USB wkg unid Canadian warship w/tfc from HMCS Huron, this is a new freq for Canadian Forces Maritime Command for me. (Ed.)

8891: NZ2 heard at 0319 in USB wkg Churchill rdo, just caught selcal (JQ-EF) and req for FL 370. (TO)

8903: Bangui rdo at 2144 wkg Kinshasa w/traffic report for LH573; at 2235, SA232 wkg Luanda at ILDOR 2233, FL 310; at 2236 SR287 wkg Kinshasa at BUT, FL 310; at 2240, Nigeria 9875 wkg N'djamena, FL 330, est overhead N'djamena 2247, DC10 reg. 5N-ANN selcal FK-CJ. All in USB. (TO)

8968: INVADER at 1620 in USB wkg CHARLIE 2 OSCAR, BLUESTAR (P-3 ASW Op's, NAS Rosy Roads, PR) and ALPHA NOVEMBER re trying to contact callsign FLAME. (RK)

8971: MOLSON 711 at 1802 clg 8 YANKEE OSCAR to pass spare group data. (MF) SNOW FOX wkg SNOW FOX Base re coordinates for strike on "DULL SWORD" at 2315. (RK) Both in USB.

8978.4: HABITAT, COMPATWING TEN, NAS Whidbey Island, Wa at 0235 in USB wkg Q2E, others. (Ed.)

8983: RESCUE 1705, USCG HC-130H7 at 0810 in USB wkg JRCC, Joint Rescue Coordination Center re alert at 600nm West/Northwest of Oahu, unknown vsl, 1705 to proceed there and search for any vsl which may be in distress. (DW)

8992: TROUT 99 at 2044 in USB w/pp via MacDill. (PB)

8998: South Pole Antarctica relaying comms for McMurdo at 0700 in USB w/'38H' and '38L' two helicopters. (IJ)

9007: CanForce 80 at 1905 in USB wkg Trenton Military (Sec. 6706 USB). (PB)

9023: SIDECAR, Canadian NORAD SOCC at 1527 in USB clg Q2Z for radio check. No joy. Again at 1547. (DW)

9063: YL/SS w/5FG in AM at 0200, this one was inactive for a while. (GS)

9111.7: Dept of Sea Transport, Jakarta, Indonesia at 0915 in ARQ w/tfc, thanks go to Murray Lehman WA Aust for IDing these ones for me. (IJ)

9215: Federal Police Net, Argentina at 0315 in USB, OM in SS clg Cordoba and Corrientes. (IJ)
9222: The Counting Station heard at 0200 in AM, SS/YL, another SS TCS transmissions Id'ed. (CS)
9430: 3MA34, CNA T'ai-pei at 0947 w/FAX 120/576 w/Chinese plain text chart. (DW)
10204: RARECOIN heard at 2010 in USB discussing secure order wire with LAMP-CORD. (MF)
10352: Abnormal Mossad transmission, Mossad lady Rptng only "Kilo Papa Alpha Two" for more than 20 mins in AM at 1415. Another day usual C102 heard at 1245. (TY)
10585.5: Unid fishermen discussing gambling on hockey games at 2021 in USB. (MF)
10600: XVN37, Hanoi in 50/480 RTTY w/VNA EE nx in progress at 1220. Ends 1210, then idle carrier. (FH)
10722: DRAN, FGS Augsburg (F-213), "The Wild 13" at 2043 in USB wkg DHJ59, Wilhelmshaven Naval, w/RTTY coordination, 1st time logged here. (Ed.)
10780: KING 1 at 1322 in USB clg Cape Radio. (PB)
10873.7: RFVI, French Forces Le Port, Reunion at 1028 in ARQ-E3 100/425 idling only. (EW)
10971: HBD20, MFA Berne, Switzerland at 0725 in ARQ w/5LG's. (IJ)
11053: SAM 31683 and SAM 86971 at 1317 wkg Andrews. (PB)
11175: Knighthawk 91 (VH-60?) at 1506 w/pp 925 DSN via MacDill. (PB) (indeed the most common NIGHTHAWK c/s user is USMC Executive Flight Detachment 1 or HMX-1, MCB Quantico, VA and Detach 1 at Anacostia, D.C., they fly VH-52's, VH-60's and VH-46's and become MARINE 1 or 2 when the U.S. Pres. or VP come aboard -Ed.) WISE 81 (AC-130, 1st SOW Hurlburt Field, FL) wkg Plantation Ops (Hurlburt CP) at 2219 via Thule. Reports "We are 'snake' (?) at this time." (RK) Both in USB.
11181: WGY912 at 1848 clg American Girl. (PB) FOG PATCH at 0255 wkg unid stn w/long list of problems (i.e. #4 Radar sweep jammed at 7 o'clock posn). (RK) (probably an E-6B—Ed.)
11214: Trenton Military at 2014 in USB w/pp for MAGIC 57 to commercial number. (MF)
11217: OLD CROW at 2054 wkg MacDill. (PB) BANDSAW QUEBEC, E-3 AWACS, 964th AACS, 552nd ACW, Tinker AFB, OK heard at 2000 in USB working unid station w/pp for meteo. (MT) Both in USB.
11232: SHUCK 79, E-3, 552nd ACW at 2334 in USB clg TRENTON Military. QSY to 11269. No joy on 11269. (DW)
11244: Thule at 2005 wkg RARECOIN re wkg freq to join the NIGHTWATCH Net. (MF) PINION 11 (above FL-600) at 1720 clg Skybird-no joy. (PB) (PINION is a 1st Recon Sqd, 9th SRW, Beale AFB training c/s, so poss this was a U-2 or TR-1—Ed.)
11247: RAF Cyprus at 0630 in USB clg ASCOT 9519 for radio check. (IJ)
11255: McMurdo Base Antarctica and IAF INDIA 2000 at 0440 in USB INDIA 2000 req McMurdo phone Terra Nova Base re names of their passengers. (IJ)
11268: RAAF Sydney NSW, Australia at 0630 in USB w/AUSSIE 283 for pp's to Richmond base OPs. (IJ)
11271: Thule at 1912 in USB w/SAM 300 re secure pp w/State Dept., at 1916 w/pp to UN Mission NY. (MF)
11387: Sydney VOLMET at 1331 in USB. (computer voice). (PB)
11415: Unid a/c at 2046 in USB clg "Central Control." (MF)
11430: New Star Radio Station, Taiwan at 1200 in AM, CH w/4FGs 2x. (AWH)
11460: Andrews VIP at 2018 in USB w/pp for SAM 206. (MF)
11550: ZME, Joint WX/Dept of Conservation Station, Raoul Island, the Kermadecs at 2345 in USB w/phone call to New Zealand. (IJ)
11553: NGD, McMurdo Base and NPX South Pole Station, Antarctica at 0425 in USB, 2 OMs talking about packing up equipment. (IJ)
11576.7: FJY3, DTRE Durmont d'Urville, Antarctica at 0430 in ARQ-E3 96/400 w/msgs very garbled due to flutter fading. (IJ)
12197: The Counting Station, at 1500 in USB EE/YL/3/2FG, msg to 300, count 200. (CS)
12353: KDT254 "Balboa" base, San Diego, CA, talking to some boat about not exceeding a certain pressure reading. The boat agreed to comply. (BF)
12634.5: TAH, Istanbul in ARQ w/ready signal, signing CW at 1340, new here. (FH)
12818: SAB, Goteborg radio, Sweden at 0934 in ARQ w/msg to ship at sea. (EW)
12942: RKLM, Arkhangelsk Fisheries Radio, RUS at 1319 w/CW QSX tape. (AB)
12950: C102 Mossad best in USB at 1445//10352//7605 kHz. (TY)
13211: SAM 20375 wkg Andrews at 1905 in USB w/pp Elmendorf Base Ops and Metro via Andrews. (PB)
13245: WAR46 at 1930 in USB wkg WGY916 w/encoded tfc. (RK) (WAR46 is the Alternate National Military Communications Center (Site R), Raven Rock Mountain, PA while WGY916 is the FEMA MERS vehicle (Mobile Emergency Response Support), in Denton, TX—Ed.)
13257: CanForce 2430 at 1705 in USB wkg Trenton Military, QSY 9007. (PB)
13282: Aukland Volmet at 0620, Honolulu Volmet at 0630, w/avian wx report //8828 kHz. (TY)
13438.6: PIAB Bonn, Germany at 1015 in FEC-A 96/425 w/GG nx items. (EW)
13527.8: Navy Kaliningrad, RUS heard at 1740 w/CW "P" mkr, also "S" Archangel'sk on .9 and "C" Moskva on 13528.0, pattern which is followed on every beacon cluster noted here. (AWH)
13567.7: SHARK 09, USCG Cutter on drug interdiction mission heard at 1551 in USB working FALCON 90 for waypoint position. SHARK 09 could be USCGC Campbell (WMEC-909) or USCGC Aquidneck (WPB-1309) since the last two digits of the hull number are used. (Ed.)
13780: HMF35, KCNA Pyongyang N.Korea at 0420 RTTY 50/250 w/nx in EE. (IJ)
13927: USAF MARS at 1820 w/pp for REACH 7002. (MF)
13980: Unid ARQ-E3 100/850 at 1315, may not be Beirut, formerly logged here. (FH)
14551.7: RFHJ, Tahiti at 1315 in ARQ-E3 96/400, traffic on ckt HJL to Ft de France, weak. (AWH)
14686: ATLAS heard at 2137 in USB w/pp for 413. (MF)
14699: YIX70, INA Baghdad, Iraq at 1115 in RTTY 75/400. (EW) **14901.7:** MFA Cairo, Egypt at 0720 in ARQ w/ATU-A msgs. (IJ)
15016: AIREVAC 5256 in pp to NAS Rosy Roads re POB to offload: one litter, 8 walking, 6 'EAVs' at 1544 in USB. (RK)
15041: CASEY 01 (KC-135E) at 1947 in USB wkg Andrews. (PB)
15616: Cherry Ripe stn hrd at 1000 in USB //10452 //17499kHz. (TY)
15733: Andrews VIP at 1848 in USB w/pp for SAM 375 on F265. (MF)
16000: VNG, Sydny TS, New South Wales, Australia in Powerful AM at 0900. (TY)
16104: MFA Oslo, Norway heard at 1120 in Twinplex 100/400 sending encrypted text. (EW)
16687.5: CCES, Chilean Navy 4-masted training sailing schooner Esmeralda (BE-43) at 1527 in ARQ w/login to CBV, Valpariso Radio (19006 ESME), later w/5LG's. (Ed.)
16863: ZSC, Capetown w/ARQ ready signal, signing in CW, at 1500, new here. (FH)
18255: CNM78, Rabat in 50/400 RTTY w/MAP FF/Nx at 1500 to 1600, good clean strong signal, also good reception on 18245, 18265, 18275, 18285, 18295, 18305 and 18315! (18265 is listed). (FH)
18441.2: JMJ5, Tokyo Meteo, Japan at 0748 in FAX 120/576 wx maps. (EW)
18635.9: CLP44, Harare in 50/500 RTTY relaying SS msg from Baghdad to MINREX, Havana at 1615. (FH)
19726: A9M, Bahrain radio, UAE at 0510 w/CW mkr. (EW)
20970: So called "English man and family" # stn, EE/OM start at 0900, Rptng 837 until 0905, then "596"+"31" each sent twice, followed by 5FG's also sent twice, ended by "00000" at 0911 in AM (AM compatible reduced carrier USB Mode). Able to hear this nbr stn at 0900 every day. (TY)
23238: Unid stn in 75/850 at 1552, probably MKL who uses this channel sometimes. (FH)

This Month's Contributors

(AB) Ary Boender, The Netherlands; (AG) Alan Gale, UK; (AWH) Albert W. Hussein, FL; (BF) Bill Farley, NM; (CB) Charles Boyd, MO; (CS) Chris Smolinski, MD; (DB) Dean Burgess, MA; (DW) Dave Wright, TX; (EW) Eddy Waters, Australia; (FH) Fred Hetherington, FL; (GS) Gary Seven, NY; (IJ) Ian Julian, New Zealand; (JD) Jill Dybka, TN; (MF) Mike Fink, FL; (MT) Matt Thompson, PA; (PB) Paul Bunyan, U.S. mid-west; (RH) Russ Hill, MI; (RK) Richard Klingman, NY; (SP) Scott Pastor, MI; (SW) Sue Wilden, IN; (TY) Takashi Yamaguchi, Japan; (WS) William Smith, CA; and (Ed.) ye editor in Ohio. Thanks to all for a great turn out.

✉ **Editor's Note**—A special congratulations and thanks to "RD" Baker, our resident utility expert, for an excellent column on his one-year anniversary with *Pop'Comm!* ■

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

Wallpaper: Home Improvement for Hams

You say you don't like the color of your shack's walls? Perhaps the paint's peeling? Or maybe the room is just too bare, too spartan? Fear not, fellow decorator! It's time to hang some real ham radio wallpaper in your radio room. The decor will improve dramatically, and so will your enjoyment of your favorite hobby.

The great wallpaper chase—the quest for ham radio operating awards and certificates—captures the attention and efforts of almost every ham at one time or another. Some make it a lifelong journey. So, whether you're after one specific award, or you're aiming to cover every inch of available wall space, the sheer number of available awards will keep you tuning the bands for quite some time. With the solar cycle providing a welcome boost to propagation, award-hunting opportunities will exist day and night.

In addition to providing a creative outlet for that pile of QSL cards you've been amassing, chasing awards can motivate you to improve both your station and your operating skills. A lot of ham activity is sparked by the desire to get some award or another.

You can spend as much time as you like in the chase because you're really competing with yourself. There are hundreds of awards and certificates to work toward, some easy, some almost impossible. Set your sights on one or two that make sense and go for the gusto.

In this month's column we'll examine several of the most popular awards, show you how to apply for them, and how get more information about them.

Worked All Continents

WAC is a beginning DXer's first achievement award. It's given by the International Amateur Radio Union for confirming contact with hams in the six continental regions of the world: Africa, North America, South America, Asia, Europe and Oceania (the South Pacific, including Australia, New Zealand and Hawaii). Endorsements are available for different bands and modes. This award can easily be worked on the Novice/Tech-Plus subbands.

Once you've earned the right to wear this lapel pin, you'll be an expert player in the great ham radio wallpaper chase.

Once the basic award is under your belt you can start on the Five Band WAC award and the Six Band WAC endorsement. For complete rules and an application form, send an SASE to Awards Manager, ARRL, 225 Main St., Newington, CT 06111, or point your Web browser to <http://www.arrl.org/awards>. ARRL membership is required for U.S. hams.

Worked All States

The Worked All States award is just what it says: Work and confirm contacts with hams in all 50 states. Aside from the basic certificate for any combination of bands/modes, specialty certificates are issued for a variety of different bands and modes such as Satellite, 160 meters, SSTV, RTTY and each VHF band. Available endorsements include SSB, CW, Novice, QRP, Packet, EME, and any single band except 30 meters. Your QSL cards are checked locally by a volunteer ARRL HF Awards Manager affiliated with an ARRL Special Service Club (although QSL cards can be checked at HQ, absent an awards manager). For a complete list of WAS rules, send an SASE to the ARRL Awards Manager or point your Web browser to <http://-www.arrl.org/awards>.

To encourage increased activity and station improvement throughout the bands, the Five-Band WAS certificate (and plaque) is available for working all states on five amateur bands (except 10/18/24 MHz). Once you've secured your WAS or 5BWAS award, you can announce it to the world with a WAS or 5BWAS pin!

The DX Century Club

This sought-after award is the DXer's benchmark. DXCC is awarded to hams who confirm contacts with fellow hams in 100 or more "DXCC countries." Although countries such as France and Sweden are definitely DXCC countries, other areas such as Hawaii and Alaska are also considered DXCC countries, which makes your job a little easier!

There are presently more than 300 countries on the official "ARRL DXCC Countries List," which is available from the ARRL in printed form, or from its Website at <http://www.arrl.org/awards>. There you'll also find a complete list of rules and DXCC award endorsements. ARRL membership is required for U.S. hams.

Before Novices and Tech-Plus licensees had access to 10-meter SSB, DXCC was a real challenge. It's much easier today, and when the solar cycle peaks in two to three years, it'll be like a walk in the park! Many DX contest competitors work DXCC in one day, so you should be able to finish working your DXCC contacts in a few months of mostly casual operating.

Other Awards

As I mentioned earlier, there are hundreds of other ham radio awards that you can work toward. They're sponsored by ham radio magazines, national societies and local/regional clubs and associations.

Tuning In

(from page 4)

Maybe we should contact Senator Torricelli's secretary and set up lunch for him and Billy.

An ad in a Canadian newspaper was sent to me recently from writer Joe Cooper that says it so perfectly. The full-page advertisement for Qualcomm CDMA phones shows a businessman holding a large sign "The combination to my office safe is: 18R 36L 24R." The text of the ad says in part, "Before you ask what kind of bonehead would broadcast his confidential business, may we ask if you've got an anti-eavesdropping phone? Trying to keep business calls private without our new . . . phone is about as smart as putting this bloke in charge of security . . . technology assigns each of your calls one of 4.4 trillion possible codes that continually scramble as you talk. The net result is private, secure calls. CDMA also protects you from phone number theft . . ." Now the nagging question remains, if the phone industry can do this in Canada, why can't it be done here the U.S.? Then again, I suppose we should be grateful for small favors and consider the re-write a major victory.

Perhaps Billy and his advisers are right. And maybe the ban on monitoring conversations, both wireless and wired, should be reinforced by additional legislation atop more legislation so some of the nosiest eavesdroppers around, our own U.S. Government in the name of the CIA, FBI, and NSA are held to the letter of the law. After all, what works for us should work for them, right?

What about all the criminal activity that goes on right under Thomas Wheeler's nose on the very cellular systems his mega-buck industry is all about? Has anyone ever brought the government to task, asking for a detailed explanation about the use of cell phones and other communications systems in the conduct of mega-buck illegal activity from money laundering, drug trafficking and an assortment of other not-so-above-board activity? Seems to me the very industry that would have casual monitors labeled as "electronic stalkers" is directing fire away from a more sinister problem.

Meanwhile, the cellular industry, by its own admission in a news release from Wheeler's office talks about the "pulse of the wireless industry." Tom, the release says, " . . . is happy to report that it is strong and steady." No kidding, Tom. A blinding glimpse of the obvious, wouldn't you say? The release continues to report the actual revenues at an all-time high; 12-month service revenues were $25.5 billion." Looking at the CTIA's own figures beginning a year before the ECPA was enacted, in 1985 the estimated total subscribers was 203,600 with annual total service revenue of about $355 million. Four years later in 1989 cellular subscribers jumped to nearly three million and revenue a whopping $2.5 billion. No doubt about it, the industry is alive and well, as the CTIA reports. But we didn't need a news release to come to that conclusion.

But we did need a news release to find out about real-world cellular phone privacy issues. It came in a while ago from the Consumer Electronics Manufacturers Association in Arlington, Virginia. An informal telephone survey was conducted and asked 150 American cell phone users what they thought about cellular phone privacy. Quoting from the release, "Most users responded they believe their conversations on cellular phones to be less secure than on their corded phones at home. However, most Americans are willing to accept diminished privacy rather than pay a premium for a more secure phone. Fewer than one out of four American cellular phone users would pay a 20 percent premium for a cellular phone which is 100 percent secure."

". . .when folks use their cell phones having all kinds of business and personal conversations within earshot . . . I'm getting half the conversation without a scanner."

Gary Shapiro, CEMA president says, "Most cellular consumers believe cellular calls are less secure than corded or cordless phones and appear unconcerned about this." In fact, the news release continued, "Only 15 percent of the respondents considered privacy the most important issue in the use of their phones. Cost of cellular service and reliability of service were much more important to users, rating 36 percent and 29 percent respectively. Another 15 percent consider clarity of sound the most important issue." It continues, "Fifty-six percent of the respondents realized that their cellular phones were less secure than their corded or cordless phones."

Hmmm. Seems CEMA hit the bulls eye.

Maybe someone inadvertently forgot to give a copy of the findings to Billy because in a news release from the CTIA several months later, CTIA President and CEO Thomas Wheeler (202-785-0081) says, "Chairman Tauzin understands the privacy concerns of wireless phone subscribers. Americans have the right to expect the law to protect them against unauthorized interception of wireless calls, the same as it already does for wired calls." So who in this baloney bonfire is telling the truth? You be the judge.

Meanwhile, I wonder if, for those, how shall we say, *calls he'd rather others not hear*, Newt has invested in—or perhaps, more accurately, we taxpayers have purchased him—an encrypted mobile phone system. I don't know about you, but if I were Speaker of The House, my garage door opener would be encrypted and I'd shred my RadioShack flyers that come in the mail.

As usual, we invite your letters and comments on this volatile issue. Send them via U.S. mail to us at Popular Communications, 76 North Broadway, Hicksville, NY 11801 or via e-mail at <popularcom@aol.com>. ■

Ham Column

The biggies include the ARRL and the Radio Society of Great Britain (RSGB). You can earn awards for working all 10 callsign areas in Japan, for working 100 or more Russian oblasts (similar to U.S. states), or for working 100 or more "islands of the world" (IOTA, short for Islands On The Air).

Another popular awards program is managed by *CQ Amateur Radio* magazine, *Pop'Comm's* sister publication). For more information, point your Web browser to <http://members.aol.com/cqmagazine/index.htm>. For a huge list of awards worldwide, and related Web links, look up AI6V's ham radio awards page at <http://ns1.qsl.net/s57iio/awards/linki.htm>. Ted Melinosky, K1BV, has published *The K1BV Awards Directory* since 1987. Look up the electronic version at <http://top.monad.net/~k1bv/>.

Once you've finished qualifying for all of the awards listed in these resources you'll be at least 317 years old! (There are *tons* of awards, if you get my drift!) So get cracking! Propagation is picking up, so don't delay!

Send your letters, questions and photos to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. ■

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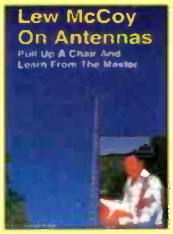

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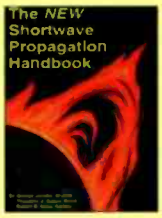

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The Loose Connection

RADIO COMMUNICATIONS HUMOR

BY BILL PRICE, N3AVY

Rumors of Bill's Demise . . .

It's been 100 years since Mark Twain wrote "Rumors of my demise have been greatly exaggerated." It was a great line, and now, through the good graces of my own digestive system, I've had a chance to use it.

Had you listened to the local ambulance-hospital frequency (as so many of my friends were doing on the night of my pseudo-heart attack), you'd have heard a volunteer ambulance dispatched to my address with mention of chest pains and a description of a rather hefty male patient waiting for either an ambulance or the grim reaper (depending on traffic and road conditions). My scanner-friends are an astute bunch, and quickly matched the address with the description and began to call one another to establish that the patient was indeed me. They must have started calling to ask if I was OK, because my wife tells me that when she returned home later, there were eight messages on the machine "from your lunatic friends."

"*Concerned* lunatic friends," I replied.

They formed a loose-procession and drove to the hospital to see how I was doing. I later learned that they asked if the doctors and ER staff needed any help, and if my wife wanted to sell any of my radios. My friends.

The ambulance beat them to the hospital by a good 10 minutes—ample time for me to be stripped of some of my clothes, most of my dignity, and a few chest-hairs I didn't need anyway. At the admitting desk, my wife filled out the necessary forms, divulged all my PINs, and signed a hastily-written form granting power-of-attorney to a patient at the next window. She then stayed by my side through the entire ordeal, comforting me (though she denies it now) with phrases such as "If you live through this, I'll kill you," and "Don't you die on me—I've got tickets to a concert next week."

While the staff connected me to several monitors and the hospital's ATM, I did feel a twinge of remorse that I might die without ever writing a single word about Billy Tauzin. A commotion by the nurses' station was the first indication I'd had that my scanner friends had followed me to the hospital. Although several of them did sneak in to see me when the staff stepped out, they were quickly (and repeatedly) asked to leave by almost everyone there. "I'm fine," I told them. "Really. Call one of the hams on the repeater so they spread the word I'm OK."

"The nurse says anyone admitted with chest pains is considered 'critical.' You're *critical,*" he told me. The E.R. staff gave every indication that they knew what was going on at every moment, carefully avoiding pesky phrases like "ooops," and "If this is Mr. Price, then where's the comatose serial killer the police brought in?" Two of my radio pals were behind me, admiring the monitoring equipment and commenting on my EKG waves. "Looks like he's a bit overmodulated here on this line," one said before a nurse took him by the ear and led him out.

"They're my brothers," I told the nurse. "They can wait in the waiting room with your other brothers," she told me. It's so tough to fool nurses these days.

While I waited to find out how long I had to live, someone brought me a nitroglycerine tablet and dropped it under my tongue from a tiny paper cup. "Shouldn't you be handling that with padded tongs?" I asked. I decided if they gave me another, I'd sneak it into my pocket and blow something up later. I never had any explosives to play with as a kid. As luck would have it, they gave me *the rest of the bottle* which I now keep in my underwear drawer next to the giant firecra . . . ooops!—*sparklers* left over from last year.

Since it was already late when everyone was satisfied that I'd live through the night, my attending physician asked if I wouldn't like to spend the night. I would have declined but seeing as how they'd already turned down my bed and all . . .

By 2:30 the lights went out and some really nice people had wired me to another monitor and tucked me in. "Who are these people out in the hallway?" a nurse asked. "They claim to be your relatives. I don't want to cause problems, but I'm going to have to call security. Could you ask them to leave so I don't have to?" she asked. I told her to bring one of them to the door.

> ***"Dr. Bones and I joked while my wife begged for a serious report on my condition . . ."***

"Listen, you clowns—I appreciate that you care, OK? I'm not gonna die, and none of my stuff is for sale. Now go home and listen for fires or crashes or something, OK? I'm fine. Really."

They all waved through my window to the hallway and slowly wandered off. Great bunch of guys, really. I wouldn't trade them for all the stamp collectors in the world.

At 6 a.m. a nice woman drew some blood and must have thought I looked well-rested, because she turned on the lights, opened the blinds allowing the full brightness of the sun to fall directly into my eyes. I got her to close them, and after the noise of the day began in the hallway, I asked if they might arrange for someone with a thump-speaker stereo to park outside my window to muffle the noise. I swear that it wasn't even seven o'clock when someone came by with (I swear) Tim Taylor's turbo-charged lawn mower from *Home Improvement.* They must have hit a difficult patch of weeds right outside my window, because it took about 19 passes before they moved on.

My wife was by my side later that morning when my own physician came in. Dr. Bones and I joked while my wife begged for a serious report on my condition, then he said I was fine—no heart attack. "Go home. Rest up for a stress test Monday." Sharon asked again for a serious answer regarding my condition. "He's fine," Dr. Bones told her. "Enzymes normal—no heart attack. Don't know why the pain responded to nitro, though. Probably an I.F." "An I.F.?" she asked. "I thought you said there was no Infarction?"

"There's not," he said. "That's Impacted Flatulence. Take him home and give him a hug. Not too hard, though . . ."

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