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ON THE COVER: The 320 ft. towers of KOMA radio in Oklahoma City, Oklahoma. The station broadcasts on 1520 kHz and runs 50 kW. Find out how to successfully QSL stations in “QSLing TV and FM Stations” by Frank Aden on page 10. (Photo by Larry Mulvehill)

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Tuning In

AN EDITORIAL

Freebanders: Get Licensed!

By Duane P. Mantick, WB9OMC

Editor’s note: The last time we gave the Tuning In microphone to anyone was back in April. Since then, we’ve received lots of interesting letters, many of which get published in our Pop’Comm PO. But once in a while, like we did in April, we hand over this space to a reader who has a particularly interesting viewpoint. Congratulations to reader Duane Mantick of Indiana!

There has been considerable bantering, bickering, whining and name-calling back and forth regarding the illegal radio hobby known as “freebanding” or freeloading. A recent letter to Pop’Comm by a ham who freeloads, er, freebands really turned my stomach. Of all people, a licensed ham ought to know better. One of the first things that any decent ham class should teach is that out-of-band operation is illegal except in emergencies, PERIOD. “Skip-talking” does not, to the best of my knowledge, constitute an “emergency” in the FCC’s definition of the word.

Now I don’t know how that person got his ham ticket, via a class or on his own study, but to have a ham support freebanding strikes me as a VERY poor example to set. Having said that, I will also point out that the same ham also wrote some things that I do agree with. He said that a large number of hams are “...primadonnas with a little Napoleon syndrome.” In many respects he is right about that; and an opinion piece which I have submitted to another ham publication regarding the continued use of Morse code as a “barrier” to becoming licensed is NO enforcement, they are dead wrong —these operators just have to get the wrong kind of attention.

Another assertion by the writer of the aforementioned letter was that there is a considerable amount of CB lingo on the 2-meter band. While there is some validity to his comments, it should be pointed out that 2-meters is generally step one for new hams who have a Technician/code-free ticket. Since many of them don’t (Continued on page 75)
Another radio to tune, another reason to purchase the Scout.

Until now the AOR AR8000/2700 were the only hand held scanners to take advantage of the Scout's Patented Reaction Tune function. The Scout can now tune the new ICOM IC-R10 hand held scanner (shown below). Connection is easy: No modifications required - No custom cables to buy - Just plug and play.

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LETTERS TO THE EDITOR

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

Live Long, and . . . Enjoy the Hobby

Dear Editor:

I read your article on Railroad Scanning with great interest. But at the same time, felt I must point out one of the dangers associated with this.

A few months ago I was watching an east bound Southern Pacific going through Pt. Pinoke, CA when I suddenly noticed a pickup truck pull up. He too must have heard it on his scanner. This man jumped out fast and went running across the Santa Fe tracks that were only 40 feet from us to take a photo of the SP. When he got to the tracks, a rather loud horn from a fast-approaching Santa Fe caught his quick attention, and he nearly ended up becoming part of that train.

In other words, think first about the situation and don’t cause more problems to one of our finest hobbies. I’ve been a ham operator for 15-1/2 years and have played with scanners and shortwave and CB radios for 22 years. It’s a great hobby. I don’t think any of us need to be hampered by more restrictions.

Sincerely,

Larry Fields

Don Shares His QSL

Dear Editor:

Enclosed is a copy of my first QSL letter in a foreign language. I’m not sure how many other people get these, but I was thrilled to death! I’d just like to share my wealth with others. Is it common to receive QSL letters from some shortwave broadcasters written in the country’s official language. One of my favorite QSLs is from Radiodiffusion Nationale Tchadienne that I got largely because my daughter wrote a French-language reception report, enclosed a couple of mint stamps and waited a couple of months. The wait is always worthwhile!

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Hook Your Stereo To An Antenna and Try FM DXing!

Long Distance Reception of FM Stations, Without Expensive Equipment, is This Easy . . .

By Bruce F. Elving, Ph.D.

Those of you who enjoy AM or shortwave radio DXing, CBing, or scanning might think of the FM band as a nice place to hear stereo music, get the latest traffic reports, weather and the news, or as a background to other activities. But FM (88 to 108 MHz) offers a lot more. It can even be DXed!

If we define "DX" as listening to non-local signals and stations, a lot of what can be heard on FM is really DX. It used to be said that FM signals were limited to the approximate horizon. That’s true if you think of a market where stations sell their advertising and do their promotions. As a listener, however, you have the freedom to "invite" stations outside the local market. With more and more stations coming on the air, broadcaster interest in FM radio is at an all-time high. True, many of the new stations are not that different in their programming from what has already been on—most commercial stations opting for some version of country or rock music. Even public stations resemble one another with minor variations in the amount of classical, jazz, religion or talk that they broadcast. Nonetheless, a good reason for trying FM DXing is to seek out stations that might offer a true "alternative" in their programming to everything else you pick up on the local dial.

The FM Experience

Seeking to improve your DXing abilities on FM can be an end in itself. Like other types of DX, you can log stations heard on FM, write or fax stations for a QSL, and collect memorabilia. Many stations send bumper stickers, key chains, caps and T-shirts—all with the station’s call letters or slogans.

Better sound and freedom from interference and static has helped FM gain the majority of listeners in the U.S., but the FM DXer enjoys something else; discovering what can be tuned in from afar.

A must for the best FM DXing is a directional FM antenna, such as a yagi turned by a rotator and connected to a stereo tuner or receiver. Even without an external antenna, however, FM signals are heard for great distances when conditions are right. "Skip," caused by disturbances in the ionosphere, brings in stations 800 to 1000 miles away! This kind of reception lasts for periods of up to an hour or more and is most common during daytime in late spring to early summer, with a minor peak in December. Stations picked up by skip are usually marked by excellent stereo separation and clarity.

Another way FM signals are propagated over long distances is by the troposphere, or lowest portion of the atmosphere, which can extend normal reception. While distances aren’t as great as those caused by skip, the reception can be impressive, even up to 500 miles or more.

Ducting is a special type of long-distance tropo reception, where signals come in from only a certain far away city or small geographical area. Quality of tropo reception, and distance you can hear, is dependent on the quality of your antenna and receiver. A problem blocking tropo reception is the proliferation of stations. As more and more stations come on the air, your chances of finding FM frequencies clear enough for excellent tropo reception diminish. There are, however, usually enough channels in any area that are good enough for tropo DX to come in on—and those are the frequencies you should check from time to time, perhaps twice daily.

Other forms of FM DX include aurora, or the hearing of rather garbled signals off the "northern lights," particularly with your antenna aimed north, and meteor scatter propagation. During mete...
Most modest-priced tuners and an antenna, such as the RadioShack 15-2163, will work just fine. Maybe you already have a component high-fidelity stereo system. Merely adding a modest outdoor FM antenna system might turn it—and you—into a DXing instrument.

Get on the FM Bandwagon!

Besides having the merits of high-fidelity, stereo, and static suppression, FM is now being recognized as a medium affording regular service at long distances, as well as a medium famed for spectacular coverage at certain times, when receiving conditions are especially good. Excellent equipment, plus a willingness to tune in parts of the dial not covered by local stations can mean a lot of exciting DX for you.

Many DXers in the Worldwide TV-FM DX Association have logged over 1000 stations each. I have been an FM DXer since 1948, and from the Duluth, MN area have heard over 1700 stations. This DXing interest sparked a desire to produce a guide to the FM radio stations of North America: my first "FM Station Atlas" was printed in 1971. By turning to the maps or the directory pages, you can see all the stations in the area from which you may be getting skip or tropo reception. The current edition is the 17th and costs $18.50 with shipping from FM Atlas, P.O. Box 336, Esko, MN 55733-0336. The book also shows low-power FM educational stations and FM translators (which rebroadcast another station on a different frequency because of distance or terrain problems), and which FM stations have subcarriers, all of which can be DXed. In a future article we'll show you how to DX these FM subcarriers.

For more information on the non-profit Worldwide TV-FM DX Association, write to P.O. Box 17333, Asheville, NC 28816. Annual dues are $24 in the U.S. and $25 in Canada.

Editor's note: Bruce F. Elving was the FM DX editor of the former Newark News Radio Club in the 1950s, did a DX column for DXing Horizons in the 60s and was FCC-FM editor of the WTFDA. Besides publishing the FM Atlas he produces the FMedia! newsletter which updates the book and offers a free radio and electronics catalog featuring various radios, FM tuners and gear used to receive FM subcarrier reception. His Ph.D. in instructional communications is from Syracuse University.

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QSLing TV and FM Stations

It's Not The Same As QSLing Shortwave Stations, But It Is Just As Easy...

By Frank Aden

Any shortwave DXer who has spent time and money collecting QSLs knows such an endeavor can be a fine art. Getting a station to verify a correct report is not always easy; a DXer has to convince the station he or she did hear the station and deserves a verification reply.

Each area of the DXing world; international shortwave broadcast, shortwave utilities, amateur, public service bands (VHF/UHF), TV and FM, all have their "rules and regulations" on how to send proper reports for QSLs. Sending reports to TV and FM stations require techniques that differ considerably from the other areas. This article will cover some of the finer points to this specialized "art".

Many other publications have published articles on TV and FM DXing and usually imply obtaining QSLs from TV/FM stations heard by skip is almost impossible. Yet talk to just about any veteran TV/FM DXer and you will find that is not the case. There are many TV/FM DXers with large QSL collections.

Here's The Solution

The key to obtaining QSLs is convincing the station that it was heard (or seen). With TV and FM stations, the DXer is dealing with a group of broadcasters, most of whom believe their signal is limited to 50-100 miles from their transmitter site and are unaware that long distance skip is possible. The problem is getting the report to someone at the station who knows that long-distance reception can and does occur, or who can be informed of such reception. This is complicated by the fact that many broadcast stations have a high rate of turnover in personnel. A station may have a period where the person answering the mail is knowledgeable of skip and another time when they are not.

Even though many TV/FM stations receive DX reports each year, it has to be assumed the person reading the reception report letter does not know about DX via skip. I have found that enclosing an information sheet on the various types of TV/FM propagation can help the station personnel understand why the distant reception was possible. You can write one up yourself or use those ready made available to members by the DX clubs.

Start the report out in a friendly and polite manner, just like any other reception report. In the introduction mention the frequency or channel, date and time (use the local time of the station). Follow that with an explanation what type of propagation caused the reception to occur and point out how often that type of propagation occurs (I have had some stations reply to my reports with the misconception that the skip was happening all the time, even though it was far outside of their normal broadcast range!) Mention the condition/quality of the signal and also list some of the other stations or areas which were received at the time.

There has been debate for years among AM/FM/TV DXers if return postage should be included in reception reports. A rule-of-thumb I have found is that it isn't always necessary to do so with larger commercial stations, but is mandatory with small town, educational and religious stations. If enough information is not available on the station to determine its status, then go ahead and include return postage.

Following the signal condition information list the program details you heard. For TV stations running network programming and FM stations running satellite or network services you must try to put emphasis on the locally transmitted material. Stations running network feed are allowed several minutes each hour to run their own local commercials (spots). List details of local advertisements, local station promotional announcements, local newscasts or local public service announcements. With local commercials, list names of advertisers, including phone numbers. On promotional announcements, list station slogans and times of upcoming specials.
August 22, 1974

Frank Aden, Jr.

Dear Mr. Aden:

We are pleased to confirm your reception report of KUSD-TV, Channel 2, Vermillion, on June 13, 1974. Your description of our station identification slide and announcement were correct and sufficient to demonstrate reception of our video and audio.

KUSD-TV operates from a transmitter located two miles south of Beresford, South Dakota with an authorized visual power of 100,000 watts and an aural power of 20,000 watts. The antenna is a batwing type 657 feet above ground (2,167 feet MSL, 760 feet HAAT).

Thank you for your interest in our station.

Sincerely,

Dennis L. Haarsager
Administrative Services Officer

A letter QSL from KUSD-TV in South Dakota.

The Follow-Up

After a reasonable amount of time has passed and no answer has been received from the station, send a follow-up report. Include all of the details from the original report and add a comment stating this is a follow-up report. I usually include an audio tape in follow-up reports. This is one reason for always having a tape recorder running when DX is coming in. The tape should be a standard cassette (reel-to-reel used to be the standard but is rarely seen now). Radio stations use cassette tapes for news-gathering and sales presentations. I also include return postage in all follow-up reports.

Since VCRs are now commonplace, sending a VHS tape is another way to convince a TV station they were received. Many local electronic stores sell T-5, T-15 and T-30 VHS tapes that are cheaper to mail (being lighter in weight) than the regular T-120 but they are about the same price as T-120. A cheap source for T-5 or larger VHS tapes is thrift stores. It is not unusual to find promotional/informational video tapes for less than a dollar. Just place some cellophane tape over the record-guard on the left side and the tape can be used. The C-05 and C-10 cassettes are also great for sending reports to FM stations and even audio portions to TV stations.
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February 21, 1973

Mr. Frank E. Aden, Jr.

Dear Mr. Aden:

Your letter of last June has just crossed my desk. Please accept my apology for the lack of a prompt reply.

We confirm your reception of KLFM on 6/8/72. Your enclosed tape did, indeed, contain commercials from our station, one of them recorded by myself.

This is the farthest reception we've ever had reported to us, and we've jokingly referred to it in some of our dealings with sponsors who inquire about our coverage area.

With your permission, we will keep your short tape for our records.

If you receive our signal again, we would enjoy hearing from you about it.

For your records, we are enclosing our "normal" coverage map.

Yours truly,

Mark R. Ludke
Operations Manager, KLFM

The author's reception of KLFM back in 1973 was the farthest reception reported to the station.

ions. If a photograph is taken of a TV station's identification, it can be used in a report, especially a follow-up report (I have had several TV stations verify after sending a photograph in a follow-up reception report).

Finding the Station's Location

If you heard or saw the call letters of a station via Eskip, Tropo, or meteor skip (the most common forms of TV/FM DX) but do not know the station's location, you will need help from one or more of the available TV and FM station directories. For FM, the FM Atlas by Bruce Elving is the best and is published yearly. It's available through most of the major shortwave electronic retailers or can be ordered direct from: FM Atlas, P.O. Box 336, Esko MN 55733-0336.

The Worldwide TV-FM DX Association usually has information on available TV station lists. If you have access to the Internet, you can run a call search on: Elliot Broadcast Services, <http://www.radiostation.com/fccdata/fmcallsqsl.html> or the Federal Communications Commission at: <http://www.fcc.gov/mmb/asd/amq.html>. From there you can access FM and TV station information (including AM).

Getting addresses of TV and FM stations can be a problem. Local libraries may have out-of-town phone books and even some of the broadcast industry annuals which contain addresses. Unfortunately most of the current TV and FM guides published by DXers and clubs do not contain station addresses. A short
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FMQ FM Radio Database Query

The FM Database is updated every morning at 5:00 AM and contains the transactions of the previous day.

MENU
★ By Call sign
★ By File Number

Query by Call sign

When submitting a query by call sign, do not enter the suffix. For example, WZZZ-FM would be entered as WZZZ.

Query by File Number

When submitting a query by file number, do not enter the prefix. For example, BP1960425AQ would be entered as 960425AQ

A look at part of the FCC's Web site where you can find a radio station's location.

Putting together a collection of TV and FM stations QSLs can be a fun and rewarding part of the DXing hobby. Success can be obtained by following the above tips. Good luck and good listening!
Famous for its top-gun DX receivers, Japan Radio once again pioneers with a new receiver. Only the NRD-345 offers Japan Radio performance and quality at a surprisingly affordable price.

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

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- Personal computer control with optional RS-232C interface cable.
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TrunkTracker Talk
Answers to Your Most-Often-Asked Questions
By J.T. Ward

Since before the first units got into the hands of customers the new Uniden Bearcat 235XLT "TrunkTracker" scanner has been the hottest topic on the Internet radio newsgroups. Below is a selection of questions and comments culled from these and other on-line radio forums with responses, where appropriate, from Greg Knox, designer of the TrunkTracker's software, and Jill Prince, Uniden's media and trade show director.

Why Not GE/Ericsson?

Q. Why won't the Uniden BC235XLT "TrunkTracker" work with trunked systems outside the 800 MHz range, and why won't it work with GE/Ericsson or Johnson LTR trunking systems? Is this some plot of Uniden's to make people buy two, or even three different radios?

A. While there is no technical reason the BC235XLT could not have been made to track Motorola trunked systems in the 900 MHz range, there are relatively few of these systems in use, so a marketing decision was made not to include that capability. GE/Ericsson, Johnson and even Motorola trunked systems in the 400 MHz range use different data protocol transfer schemes than do the Motorola 800 MHz public safety systems. The Uniden BC235XLT is designed to work with the Motorola 800 MHz public safety systems, which is what most people want to monitor.

Remember, the BC235XLT is a first generation trunking-compatible scanner. Later models will likely be more sophisticated and offer more features, hopefully including multi-system capability.

Fleet Maps and Block Sizes

Q. When adjusting the size of Type I blocks, I have noticed that the sub-fleet identifications change. Is consistency of block size important? If not, then all anyone who does not have access to the actual fleet map for a target system will ever have is a "best guess."

A. There's no magic technique for determining if you have the size code for a given block correct. You have to listen to the conversations coming from that block and determine that you're hearing all the replies. If you miss replies on a consistent basis, then you probably don't have the size code set correctly.

Concerning the fleet-subfleet affiliation of a particular group of users, it will often be the case that changing the size code of a block will cause the affiliation of various users to change, but not always. For example: If block 0 is set to an S8 size code (4 subfleets/fleet, 128 IDs/fleet) then users who show up as 000-0, 000-1, 000-2, and 000-3 will still show up there if the block is changed to S3 (8 subfleets/fleet, 128 IDs/fleet). On the other hand, a group of users showing up as 000-1 under the S8 size code, would display as 000-5 with an S3 size code assigned to block 0. There is no easy way to figure this out in the general case without a computer program. And, it's not particularly useful anyway.

System ID

Q. What is the "system id"?

A. Every Motorola trunked system has a unique number known as the System ID. This is periodically transmitted on the control channel and lets the radio know to which system it is operating on the correct system. In fact, they won't operate at all if the wrong System ID is detected. Further, in order to program one of these radios you must know the System ID. The BC235XLT has no need of the system ID and in fact has no way to use it even if you know what it is.

Entering Trunked System Frequencies

Q. So far my unit has been unable to acquire the data channels in my area. In normal scan mode the city and county trunked frequencies are hopping with action. But my shiny new Uniden hasn't yet locked onto a data channel or displayed a talkgroup ID. I'm suspecting a faulty unit. Anyone have a similar problem? Any fixes?

A. It sounds like one of two things may be wrong. First, are you certain the systems that you're trying to monitor are Motorola systems? The BC235XLT won't work with GE/Ericsson trunked systems. If you're certain these are Motorola systems, then perhaps you didn't follow the instructions closely enough when programming the radio.

Frequencies for trunked systems must be entered while in the trunking mode. The BC235XLT is not a radio that you
can use successfully without following the manual, no matter how many scanners you’ve owned.

**Extra Frequency Problem**

Q. I’ve had my TrunkTracker for four days now and this morning when I turned it on it would not track the trunk system in Bank 1 that I’ve been tracking since day one. I have the same system in Bank 3 and it would track it OK there. I went to manual mode and could hear the data channel in Channel 15 of Bank 1. I compared the two banks and the only difference was that I had an additional frequency in Bank 1. Channel 16, which was not in Bank 3. I zeroed out Channel 16 and it now tracks on Bank 1. The extra frequency was not a duplicate of any of the others. I wonder why the extra frequency would not let the TrunkTracker track Bank 1.

A. I couldn’t duplicate this problem on my radio. One possibility is that the “rogue” frequency in channel 16 was the control channel for another system. If the radio locked on to this errant control channel it would never see any valid traffic due to the invalid (for that control channel) frequencies. However, since this frequency appears to have been in the last position it would seem that the radio should have locked onto the real control channel since it would be checked first. So the answer is I don’t know.

**Even and Odd Numbers**

Q. Broward County, Florida, has been reported to be on a “Smartnet Type II/III” system. In scanning them with the TrunkTracker, I’ve found all even numbers, and from what I’ve read this means it is indeed a Type II system. However, I have found the ID 6707 pop up numerous times. With this being an odd number, I was wondering if on this type of system is it possible to have even AND odd numbers pop up?

A. It’s possible that there are a few Type I radios lurking in your system. If so, one or more of the eight blocks will be designated as Type I blocks. In this case you have a hybrid system, and it may be either a mix of Type I and Type II or Type III. Type III is where the radios transmit a Type II ID to the site controller but the controller looks up the Type II ID in a database and then formats and transmits a Type I Outbound Signal Word reflecting the fleet/subfleet affiliation of the requesting radio. These radios and their IDs appear as, and are treated as, Type I IDs by the mobile units. It’s only of academic interest to the user which of these radio types (I or II) actually generated the channel grant, it’s all the same to the BC235XLT receiver.

In general, you can identify a Type II system by the predominance of IDs which are integral multiples of 16. Even a pure Type II system will occasionally display some non-Type II appearing IDs. These can be a number of things, including a “patch” where two or more talkgroups are “connected” together, an emergency button activation by a radio user, a digitally (DVP, etc.) encoded talk group, and other stuff. If you’re seeing a number of Type I IDs interspersed within what you know to be Type II IDs you will want to determine what block(s) the Type I IDs are in. Try this: divide the Type I ID by 8192 and discard the fractional part. This will tell you what block the ID is coming from. Do this for several of the IDs across the range of IDs you are seeing so that you are sure you’ve got all the Type I blocks. There might be more than one. After you figure out which blocks seem to be Type I, reprogram the fleet map to make these blocks one of the Type I size codes. S3 or S4 are good ones to start with. Make all the other blocks Type II, (SO). Now pay attention to the Type I conversations, and see if you are hearing all the replies (make sure you have DELAY on). If so, you’re all set. If not, try a different size code and repeat. There’s no way around it.

**Signal Strength**

Q. Does the Trunk Tracker need a relatively strong signal in order to trunk track? I would imagine it needs a clean read of the data channel and if the signal is in and out, it might not work.

A. Of course the better the signal the better the overall performance. But I have found the radio to track the control channel well enough even when the signal is sufficiently weak to render the audio hard to listen to.

**Just 100 ID Lockouts**

Q. The Type 2 system here in Gwinnett County, GA has a slew of IDs. I’ve been locking them out daily since I started monitoring it a week ago. When the parks department came up with yet another ID this afternoon, I went to lock it out and the TT displayed FULL. I guess there’s a limit as to how many IDs you can lockout on all banks.

A. A maximum of 100 subfleet or talkgroup IDs can be locked out at one time. In practice this shouldn’t prove to be too much of a problem except for those people trying to identify the IDs on more than one system at a time.

The preferred way to listen to a system is to put those IDs you’re interested in into the scan lists and then scan the lists. Large systems like the Gwinnett county system have an enormous number of users. Many of them, as you point out, aren’t of much interest. Rather than locking out all the junk, leaving only the interesting stuff to be found while searching, simply scan for the interesting IDs. Until you find all the interesting stuff the 100 ID lockout limit is limiting.

**NiCd Powered**

Q. I’ll bet you the BC235XLT is NiCd battery powered, which will make it useless for continuous use. Uniden did it wrong again.

A. All bets are off. Yes, the BC235XLT is powered by a special rechargeable NiCd pack. Whether this is wrong or right is a matter of personal opinion. Uniden does include two battery packs with the radio, as well as a charger that can power (and charge) the radio at the same time it’s charging the spare battery pack. We’ve had reports of the TrunkTracker lasting for as much as eight hours on a single charge.

**Too Many Talkgroups**

Q. I’ve had my TrunkTracker for three days and it looks as if the parks and water people must have an almost infinite number of IDs. I’ve been locking them out for three days now and they still show up. They appear to be what they call private line calls. They are all very high numbers 16000 and there is even an occasional phone pack. Had one just now on ID 22335. Is this common? It’s a Type II system for Gwinnett County, Georgia.

A. The Gwinnett county system has lots of talk group IDs up in that range. But you are right. It seems like parks and recreation has more than their share of talk groups. Private calls and phone interconnects should be ignored by the radio, however noise may occasionally flip the bit that tells the radio a call is a private call or interconnect. When this happens pressing the SRCH key will generally make it go away and you will not see the ID again.
When station KFWB took to the air on March 4th, 1925 it was on 1190 kHz with 500 watts. They said the call letters stood for “Keep Filming, Warner Brothers,” for the station was owned by Warner Bros. Motion Picture Studios, alma mater of stars such as John Barrymore, Myrna Loy, Louise Fazenda, and the wonder dog, Rin Tin Tin. Back in 1925, KFWB was the only studio-owned radio station. The station’s slogan was, “Movieland: Lights! Camera! Action!”

KFWB operated from the film company’s studios at 5842 Sunset Blvd., situated on 15 acres in the heart of Hollywood, CA. No doubt about the fact that KFWB was a great promotional idea for the film studio. But KFWB went one step further. As written about here previously, during the 1920s, there were a spate of portable and mobile radio stations used for actual broadcasting purposes. In those pioneer days of radio, Warner Brothers addressed the problem of bringing the broadcaster to the locations of the stars if the stars would not come to the station.

"Warner Brothers studio owned and operated a station, 6XBR, that could travel anywhere in the Los Angeles area."

Warner Brothers studio owned and operated a station, 6XBR, that could travel anywhere in the Los Angeles area. This was the largest and most elaborate of all of the 1920s portable broadcasting facilities. It was used in conjunction with Warner Brothers’ KFWB. Portable station 6XBR was licensed to operate on 2778 kHz. It ran 250 watts, which was more than many of the regular broadcasters of the era.

Station 6XBR was located in a 22-foot-long Moreland motor coach, which provided ample room for the four panels and the transmitter. It operated under all weather and terrain conditions and proved itself to be quite reliable. Best of all, the station could be set up to operate in only a few minutes and actually broadcasting within fifteen minutes of arriving at its destination.

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

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Portable broadcaster 6XBR was owned and operated by station KFWB.

Interior of station 6XBR. At the left are the battery packs. The two long panels operated the generators and transmitting tubes.

extended they reached a height of 45 feet at the high end and 25 feet at the low. The antenna wires were brought down in a fan and attached to a lead-in insulator. A counterpoise ran around the roof of the truck, and was open at the front.

The transmitter used a coupled Hartley circuit. The antenna circuit was kept detuned 33 percent to "keep the wave steady." Heising modulation was employed. A 50 watt tube acted as an amplifier for the 250 watt modulator. The speech amplifier was transformer-coupled to the modulator.

A multi-stage amplified input panel was used, and impedance-coupled for best audio quality. It delivered about 10 watts to the 50 watt speech amplifier. A 500K-ohm pot controlled the volume of the input panel. Two mics could be used, with a switch to change from one to the other.

A separate panel operated the generators. This contained switches for selecting the generator to be used, or operating both in parallel. The panel also contained meters showing each generator’s output.

A fourth panel operated the entire power supply. When all of the switches were in the “on” position, the batteries were on discharge, when “off” they were on charge. One full charge would enable four hours of continuous operation. Jelly batteries were used for the generators and low-voltage supply.

In designing and constructing 6XBR, KFWB’s Chief Engineer Frank N. Murphy, realized the possible problems of stray RF getting into the wiring. Therefore, all wires run in the truck, whether from batteries to tubes, or between panels, were in grounded lead-covered cables.

The concept behind 6XBR was for it to be used for remote broadcast of sports events, musical concerts, premiers and other events at theaters showing Warner Brothers’ films. The remote programs were sent out by 6XBR on 2778 kHz specifically for the purpose of being picked up and rebroadcast by KFWB on 1190 kHz.

Upon first testing 6XBR with KFWB, Frank Murphy was surprised when he received a big stack of reception reports from area hams and SWLs who had heard the 6XBR shortwave signals directly on 2778 kHz. Murphy told the savvy KFWB management, and they had a great idea. They immediately realized that this was an untapped potential radio audience. Thereupon, portable 6XBR scheduled a number of innovative “reverse” operations wherein the portable station rebroadcast the KFWB signals via its 2778 kHz channel for the benefit of hams and SWLs. On the first of these “reverse” broadcasts, reception reports poured in from as far east as Denver and as far north as Portland.

Before Its Time?

No doubt about the fact that 6XBR was one of the first remote pickup broadcast units, and certainly was the most formidable. But maybe it was more than that.

Beginning in 1936, the FCC allowed local broadcasters to try operating experimental shortwave relay transmitters to carry non-commercial programming. These AM relays operated on 10 discrete
Transmitter at high frequency broadcast station W8XWX, which relayed Detroit's WWJ.

Channels allocated between 25.90 and 31.60 MHz. The High Frequency Broadcast Service was an attempt to offer stations improved local coverage during night hours when DX signals interfered on mediumwave frequencies and made reception of local stations difficult.

Los Angeles station KGFJ was a 100 watt station on 1200 kHz in the mid-1930s. They opened up one of the first of these stations, W6XKG on 25.950 MHz. A typical station was W8XWX, operated in Detroit, MI, by broadcaster WWJ. This 100 watt station used 31.60 MHz, and had its antenna mounted 650 feet high on the roof of the Penobscot Tower (at that time, the tallest building in town). WWJ offered free construction plans for building a receiver to pick up this frequency inasmuch as communications receivers of the 1930s seldom could tune as high as 31 MHz (then considered UHF).

The High Frequency Broadcast Service was immediately popular with hams and SWLs, as skip propagation on these frequencies bounced the signals across the continent as well as around the globe. More than 30 stations took out experimental licenses to operate these

"... Frank Murphy was surprised when he received a big stack of reception reports from area hams and SWLs who had heard the 6XBR shortwave signals..."
shortwave relay transmitters, including WSPA, WOR, WTOR, WTCN, WECB, KSTP, WMJ, WMCA, WBZ, WEAF, WABC, WCAO, WTAQ, WFBR, WACU, KYW, WYDQ, WLY, KJBS, WHAM, WBBN, KDCA, WGA, WADC, WENR, KMBC, WCCO, KLZ, and KSD. Most stations issued special QSL cards, and several even produced programming aimed specifically at radio hobbyist listeners.

The High Frequency Broadcast Service was phased out because of the development and advent of FM broadcasting, which offered improved fidelity. Experimental FM stations had started popping up by the late 1930s.

"The High Frequency Broadcast Service was immediately popular with hams and SWLs ..."

But remember, about 10 years before the creation of the High Frequency Broadcast Service, station KFWB had quite possibly been the first local station to offer shortwave rebroadcasts of their programs intended for direct reception by area listeners.

What Else Did It Inspire?

Was it merely coincidence, or was it by inspiration from 6XBR, that the California Highway Patrol built station KAPA? In 1938, when it was constructed, KAPA ran 50 watts on 1692 kHz. It wasn’t a broadcasting station, but a complete, self-contained portable radio facility and command post. Housed in a sleek silver trailer, its call letters were displayed on its side. KAPA could be taken to any temporary location and used to communicate with the CHP’s five base stations that existed in 1938. We like to think they got the idea from 6XBR.

That’s a wrap for now. Please pass along your old time radio photos, QSLs (originals or good copies), picture postcards, station listings, news clippings, etc. If you have any anecdotes, memories, or column ideas to share, send them by mail or e-mail. Our e-mail address is <Radioville@juno.com>. We’ll see you on the road to Radioville.
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Pictured Right: The HX 1000 was a popular scanner under the Regency Electronics name.
Let's Help a Reader and Then Look at Cap Voltage Ratings

It's hard to believe I'm sitting here writing the September column early in June! It seems like winter just finished. Yet, we are approaching our first anniversary with Pop'Comm. Thanks to everyone for your letters of support. I hope most of you had some lucky finds this past summer at flea markets or tag sales. There is plenty of stuff still out there, you just have to hunt for it. I found a nifty 1934 vintage set last weekend at a local tagsale! I have plans for this gem in upcoming columns, so I can't reveal too much about it at this time.

Please send in some photos or yourself and your latest finds! Some readers asked about photos. Standard 35mm color snapshots are fine. Most of the photos used in this column have been 35mm color shots. Get your camera out and start clicking.

A Reader Needs Help

In a letter written earlier this year, Pop'Comm reader Tod Warr <warr.tracey.tod@salt-lake.va.gov> requesting help in identifying two radios he wishes to restore. The first radio is an Emerson wood table model, shown in photos A, B and C. The radio covers the standard broadcast band, and also shortwave from 1.6 to 4 MHz. The second radio is shown in photo D, and has a white cabinet with blue knobs and a blue speaker grill. I have to admit, it is one sharp looking radio! Warr was wondering if Emerson produced small radios under the Silvertone brand name for Sears. Can anyone help with this?

More On Capacitor Voltage Ratings

In the June column we discussed class A audio biasing. Class A biasing is always used in single-ended audio stages (one tube). We showed how the needed negative biasing voltage could be generated in the high voltage power supply. You can be sure the bias voltage is supplied externally if the audio tube cathode goes directly to ground.

Let's take another look at Figure 1, as was shown in the June issue, and let me offer some questions. What should the voltage rating be for the two filter caps C1 and C2? What is the polarity of C3? Looking again at Figure 1, let's see what happens when power is applied before you give me an answer.

1. The 5Y3 filament will heat up within seconds, much sooner than the 6F6 with its indirectly heated cathode.

2. While the radio tubes are still warming up, they are drawing no current, and the voltage drop across the field coil is zero.

3. With no load on the power supply, the supply voltage will be higher than normal because the DC voltage wants to creep nearer to the peak AC voltage. Remember when we discussed AC RMS and peak voltages earlier?

4. All rectifier tubes have an internal
resistance. As the supply current increases, the internal voltage drop in the rectifier increases—this is a basic principle of Ohm's law. With no load, the power supply voltage will be higher than normal because the voltage drop across the rectifier tube is much lower.

So, what is the correct voltage ratings of C1 and C2? Well, with the radio playing, a 350 Vdc rating appears fine. But, soon after we first turn the set on, the voltage on those caps will be surprisingly...
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Figure 2: Two capacitors of equal capacitance value, and voltage ratings, may be used in series to produce a capacitor with a higher voltage rating. The voltage rating is twice the rating of one capacitor, and the capacitance is one-half the value of one capacitor.

Finding electrolytics rated for 450 volts dc is relatively easy, but those with greater ratings are more difficult to find. What do you do when you need a 475 volt or 500 volt rating? One solution is to use “series” two capacitors. For example, you may take two 20 mF capacitor, each with 250 volt ratings, and connect them in series as shown in Figure 2. Always use identical capacitors—this ensures the voltage drop across each will be equal. Connect them positive to negative, just as you would with flashlight batteries. Resistors R1 and R2 are added for discharge path for the capacitors when the set is turned off to prevent shocks. Secondly, they help keep the voltages across both capacitors equal. Use about 470 ohm resistors here, with at least 3 or 5 watt ratings. Wirewounds are best. Remember that for two identical capacitors in series, the capacitance value is halved, and the voltage rating is doubled. In a future article I will discuss cathode biasing, and show why other original capacitor voltage ratings should be taken with a grain of salt! Until next month, 73 and don’t forget to contact me with your questions and comments about our column!
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AOR3000A, 8000, 05 456/535 • ICOM R7000, 7100, 9000

RCON

From Lowe-Scanner and Shortwave Radio Control
Memory management, spectrum analyzer, WDXC database, airband database, links to klingonfuse
Also from Lowe-AIRMASTER ACARS Software & Interface
AOR including “5000” • ICOM • LOWE

Message Tracker Pro Software & Interface
Earphone or Discriminator Input (Software Selectable)
Decode Pager Traffic with Ease!

PAGER Messages will display on computer

Message Tracker Pro Software & Interface
Earphone or Discriminator Input (Software Selectable)
Decode Pager Traffic with Ease!

W5M1900
Ideal for low profile mobile scanning!
25-1800MHz
Micro-magnetic base, long coax with BNC connector

Win Radio

New WINRADIO v2.0 with more features.
A Big Hit At Dayton This Year!
Imagine a wide band, multi-mode scanning receiver as part of your computer • 50-1300MHz • AM, FM, FMW, SSB • Tuning step 100Hz to 10MHz • PLL Triple Conversion • Powered by your PC • Easy to install and use • Faster than any external computer controlled receiver • Unlimited memory • Multi-scan features

V2.0 Offers Even
More...
• Spectrum Scope Facility
• Now Stores Mode & Squelch
Settings
Download a FREE Demo at...
www.winradio.com

QS2000
Mobile HT Holder
Now conveniently mount your handheld scanner in your car! The QS2000 attaches to your air vent holding your radio firmly in position, yet is easily and quickly removed for security!

QS3000
Adjustable Base Stand
This heavy-duty, fully adjustable desktop radio stand is perfect for home 'base station' use of all handheld scanners. Rubber padded mounting plate will not mar your expensive radio's finish. One of the nicest units of it's kind we've seen anywhere!

QS4000
Watson is introducing the QS4000 Dashboard Mobile Mount. The QS4000 is designed to hold cell phones, HT's, Scanners and GPS units on the dashboard of a vehicle. The holder can be quickly adjusted to suit the dashboard angle and will grip units of widths from 43mm to 71mm.

Q5200
Mobile HT Holder
Now conveniently mount your handheld scanner in your car! The Q5200 attaches to your air vent holding your radio firmly in position, yet is easily and quickly removed for security!

Q5300
Adjustable Base Stand
This heavy-duty, fully adjustable desktop radio stand is perfect for home 'base station' use of all handheld scanners. Rubber padded mounting plate will not mar your expensive radio's finish. One of the nicest units of it's kind we've seen anywhere!

SD13000
SIRIO DISCONE
Wide Band Discone
Coverage 25-1300 MHz
Suitable for Transmit As Well!

LOWE Airmaster
Combine Your PC, Scanner & Airmaster software & supplied
See "ACARS" flight information!
Adding ACARS monitoring capability to your receiving station will open the door to the world of digital aircraft communications.

LOWE W-2000-6m, 2m and 440 Base Antenna
Clean design, excellent construction
50MHz, 2.15dbi, 144 6.3db, 430 8.4db
Summer is one of the best seasons to fine-tune your mobile antenna system. Whether you have just one or two antennas for scanning, and four or five mobile antennas to combine scanning with CB and ham radio, it's good to inspect all connections to make sure you are getting every last ounce of signal coming down the antenna shaft into your coaxial cable feedline.

I just added a new combination antenna to the fiberglass roof of our new communications vehicle, and I must say the boost in performance over lower-mounted antennas was impressive. The new antenna is the Everhardt FM/CEL-1, a high-gain cellular antenna that also doubles as a powerful replacement to a regular AM/FM automobile whip. If your automobile radio also has 162 MHz FM weather channel capabilities, this antenna receives the weather, too!

We mounted the FM/CEL-1 on the top of our fiberglass roof relying on the promise it needed absolutely no ground plane to work well. "This antenna does not require a ground plane for its radiation pattern, and the elevated feed collinear design gives you a much more horizontal signal pattern," comments Mike Simmons, Marketing Manager for Everhardt. "And since many automobile AM/FM entertainment radios now include the VHF weather band, this new antenna has a weather band trap that is tuned specifically to the 162 MHz band," adds Simmons.

The antenna worked fabulously, doing a much better job on our AM radio than the small automobile antenna which we converted into a communications antenna. On the top of our vehicle gave us a big boost to a distant hard-to-reach cell site when we were traveling in the mountains. The antenna also gives a 6 dB gain in both transmit and receive capabilities from its collinear design.

On FM, it worked just fine, and on the weather band, it picked up signals slightly better than our ham radio 2-meter antenna mounted slightly lower. The antenna comes with the mounting hardware as well as the duplexer that splits out the cellular pigtail with a TNC and to the AM/FM pigtail which features the customary Motorola plus that goes in the back of our stock AM/FM/weather band vehicle radio. About the only thing that was tough in the installation was getting perfect vertical alignment on our non-level fiberglass roof. But after playing around with the mounting hardware and adding one additional wedged spacer, the antenna is now standing tall and is doing a remarkable job. You can contact Everhardt Antennas in Fort Worth, Texas at 1-800-735-0176.

Using the Wilson 5000

I also changed out my big 10-meter, quarterwave length, 96-inch whip (which also doubles as my 11-meter CB radio antenna) with a base-loaded Wilson 5000...
Power Up and Down

There are now three suppliers of 12 volt DC mobile power motorized antenna mounts. Two are designed for your common scanner and small mobile antennas, and one is designed to raise big 10-foot whips like those white fiberglass whips found on boats.

To raise 40-inch or shorter communication whips from a 12 volt DC power-up and down antenna...
Wilson 5000 Base Loaded Antenna Test Results

These test results are specific to this Antenna (Serial # A3199).

<table>
<thead>
<tr>
<th>SWR</th>
<th>1.8 MHz Bandwidth (2:1 Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
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<td>1.1</td>
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<tr>
<td>2.0</td>
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</table>

This unit was tested with a 1:1 SWR at 2.70 MHz.
Tested by: CH

The Wilson 5000 VSWR curve shows good performance on both 10 and 11 meters.

"And now there is a computer ham radio system that will let ham radio operators both receive as well as TRANSMIT."

mount with a one-inch pipe thread, consider the 12 volt power mount from a company called Newmar (Newport Beach, California; 714-751-0488) that has a running torque of 25 foot pounds. I have raised some 12-foot antennas with this mount, and it works well. There is even a panel indicator which gives you an indication when the antenna is fully up or fully down. This same company also produces commercial power supplies and voltage regulation equipment for marine, base station, and avionics applications. They don't sell direct, so you will need to contact them to find out where your nearest Newmar dealer is located or how you can order through a Newmar authorized mail order source.

Green Batteries Are Here

The new nickel metal hydride batteries will play your handheld scanner or handheld ham transceiver about twice as long as similar-sized nickel cadmium batteries. Although original equipment manufacturers are still not including nickel metal hydride batteries as part of their new-radio package, after-market suppliers like W & W Associates, Falkner Enterprises, Batteries Plus, and Advanced Battery Systems (you know them as Periphex) are working closely with the manufacturers to convince them that these new batteries won't go up in smoke in normal trickle-chargers supplied by the manufacturers. And for those of us with scanning and communications equipment wanting the most out of the new nickel metal hydride technology, a fast-charger specifically for nickel metal hydride would be the best way to go. These chargers are usually available from the same manufacturer of the actual battery cells.

The Computer Connection

Well-known radio enthusiast, Bob Grove, was recently seen at a ham show working the new WiNRADiO radio receiver card, along with software, in a computer that would tune from 500 kHz to 1300 MHz. Bob was having so much fun playing computer radio that he drew a large crowd to see how well this Australian hardware and software package works. If you have an extra slot in your computer, stand by—WiNRADiO's PC card simply plugs into a slot on your motherboard, and the wideband receiver allows you to tune in everything from worldwide shortwave to space shuttle UHF.

And now there is a computer ham radio system that will let ham radio operators both receive as well as TRANSMIT. It's from Kachina Communications (Cottonwood, Arizona; 520-634-7828). The Kachina 505 DSP is a computer-controlled ham radio, high-frequency station with all of the controls via the computer, there are no controls on the actual white box that sits beside the computer. It simply plugs into the computer serial port, and will receive and transmit on all nine amateur radio high-frequency bands, plus provide you with general coverage reception. It is a completely digital radio, so you can imagine that the performance was terrific.

Well-known manufacturer ICOM
Nickel metal hydride batteries will play almost twice as long as NiCds, but require careful charging!

America is also in on the marriage between radio and computer by their recent demonstration of the IC-PCR1000 software-controlled communications receiver that will bridge the gap between computer hardware and communications equipment with a "user friendly software interface." While WiNRArlo's receiver plugs inside the computer, the ICOM system sits on the outside of the computer with an RS-232 serial cable. It will tune between 100 kHz to 1300 MHz. (Of course, like all USA units, the cellular band is locked out.) ICOM plans to release working units by mid-summer.

Micro Transceivers

And just when you hams thought that your little 2-meter or dual-band radio couldn't get any smaller, imagine a handheld communications transceiver for the 2-meter band (plus they have one for the 440 MHz band, too) that is no thicker than five credit cards stuck together. The Alinco DJ-C1 weighs only 78 grams, and is sized just like a credit card for length and width. This unit is so small that there is no room for a speaker. You listen via earphone. But I tried it, and it works well. It's powered by a lithium ion battery, and this in itself is brand new technology.

Ham radio giant Yaesu also came out with a 125 gram dual-band transceiver, with built-in speaker, that also runs on a lithium ion battery. It puts out 500 milliwatts and offers 290 memory channels on both VHF as well as UHF. It is sized in millimeters: 81mm high x 47mm wide x 25mm deep. If you really must have the world's smallest handhelds, you now have two choices.

Well, it looks like a good year for communications equipment and accessories. Keep tuned in, and we will be reviewing some of these newly announced products just as soon as the manufacturers get type acceptance and one of these hot sets in our hands.
Radio direction finders are special antenna-receiver combinations that find the direction of arrival of a radio signal. These devices have been used since the earliest periods of radio technology. During World War II, the Allies used radio direction finders to locate the source of enemy radio transmissions. German and Japanese forces also used them for the same purpose. In addition, the Germans used radio direction finders to root out partisans, spies and others who were assisting the Allies (note: collecting those low-powered spy radios of WWII is a well-established sub-hobby amongst antique radio enthusiasts).

If you make the measurement from two or more locations, then the point where the receptions cross is the location of the transmitter. Most authorities agree that three measurements, each from a different direction, will give accurate position (it’s called “triangulation”).

In more modern times, radio amateurs use radio direction finding for “fox hunting” events. In those games, one ham operator with a portable or mobile transmitter will hide somewhere, and a bunch of others will try to find him. A buddy of mine was into “hidden transmitter hunting” in the early 1960s. He had an old 1947 Plymouth that was painted green and red, and looked like the paint was put on with a paint brush. His direction finding antenna was a small square loop about one-foot on each side, mounted on the top of a broomstick. When he was near the transmitter site one Saturday morning, he probably exceeded the speed limit a little bit, bringing some unwanted attention. It seems that some homeowner in the neighborhood complained to the police: “There’s a nut speeding up and down the street waving a cross out the window.”

**Other Radio DF Uses**

In some areas of the country a radio direction finding system is used to recover stolen cars. A beacon transmitter is placed inside the car somewhere (in a hidden location, I presume). Police cars in the area are equipped with a radio direction finding receiver. When the car owner reports the car stolen, the Lowjack™ system is activated and the vehicle is (hopefully) soon recovered. You can recognize Lowjack-equipped police cars by the four VHF whip antennas arranged in a small square on the roof.

In later columns we will talk a bit about radio direction finders, but this month let’s talk about a specialized system that greatly improves the resolution. Antenna-receiver resolution determines the ability of the system to discriminate between two closely spaced sources (i.e. two transmitters close to each other). It also improves the ability to pin-point the location of a single source. The method we will discuss this month is capable of providing angle of arrival to minute-of-angle precision.

Unfortunately, this particular method is not for everybody. This system will not recover modulation because it works on the signal strength alone. In some cases, you can use the receiver automatic gain control (AGC) DC signal. In other cases you will rectify and integrate the audio output signal in order to create a DC level. Radio astronomers and solar flare hunters use this method on VLF receivers all the time. Commercial and military RDFs also use it.

**Figure 1** shows the basic system. It requires two identical antennas, spaced...
some arbitrary distance (X) apart, and two receivers. In some commercial systems they use two-channel receivers for this purpose. The method is derived from airborne radar, where it is called nonpulse resolution improvement (MRI).

The outputs of the two receivers are passed to a signal processing circuit. It can be either an analog circuit or a microcomputer (or the related microcontroller devices). The basis for this circuit’s ability to improve resolution is shown in Equation 1. Consider V1 and V2 to be the output voltages of the two receivers:

**Equation 1:**

Where: VO is the output voltage from the signal processor, V1 and V2 are the receiver output voltages, and k is a constant used to control the process. The reason for the k constant is to prevent the value of VO from trying to hit infinity when V1 = V2. The value of k is scaled to provide the maximum allowable output voltage in any given system.

In analog circuits, the sum and difference signals are created in operational amplifiers. The absolute value of the difference voltage, ABS (V1-V2) in Equation 1, is created by an op-amp circuit called a fullwave precise rectifier. The division is carried out using an analog multiplier chip connected in the division mode. In computerized versions, the arithmetic can be carried out by software.

**Figure 2** shows the results of some experiments I did using a light emitting diode target and two op-amp optical sensors. The optical sensors were spaced 10-mm apart, and were in a fixed position. The red LED was moved along a line parallel to the line of centers between the sensors, which are at 37-mm from one end.

The curves V1 and V2 are the outputs of the two sensors as the light travels in front of their sensitive windows. Note that the curves are the same shape, but are displaced by 10-mm, which is the separation of the sensors. The sum curve (V1+V2) is made by taking the algebraic sum of V1 and V2, and is broader than either. The difference signal (V1-V2) has a two-humped appearance, but one hump is positive and the other is negative. This signal is the basis for improving resolution.
"You can recognize Lowjack-equipped police cars by the four VHF whip antennas arranged in a small square on the roof."

The other is negative. The $\text{ABS}(V1-V2)$ signal, which is the absolute value of the difference signal, is a double-humped reflection of the difference signal, but is positive on both humps.

The output of the signal processing circuit is the very large spike in the center. Notice that it's considerably narrower than either $V1$ or $V2$. If this data were taken using antennas, then $V1$-vs-$X$ and $V2$-vs-$X$ represent the beam width patterns of the two antennas, while $V_o$ is the resolution improved combination effect of the two antennas working together.

Like I said, this system is not applicable to all radio direction finding applications, but it is an intriguing way to achieve a large degree of resolution improvement where it is appropriate. There is also a method for achieving this effect using just one antenna... but that's a tale for a different time.

**Coaxial Cable Loss**

A reader recently contacted me and asked about coaxial cable losses. He uses a high frequency shortwave receiver for DXing. He wanted to know the lowest loss cable for use with his antenna. At first I thought he was talking about an installation with a huge run of transmission line between the antenna and the receiver. He wasn't—it was only 30 feet or so. At HF frequencies coaxial cable loss is so small that it's not worth the trouble to optimize the system in most cases. The only time where it becomes an issue at HF is where the run is quite long (more than 200 feet or so). For short runs, the loss is a fraction of a decibel.

At VHF/UHF, however, the loss can be considerable. In those bands be sure to use the lowest loss cable available. Unfortunately, other than TV antenna cable (which is 75-ohms and uses an aluminum foil shield), some coaxes are frequency sensitive. You would have to look at the manufacturers loss-vs-frequency graphs to see whether a particular cable is best for your particular case.

**Connections**

I can be reached at P.O. Box 1099, Falls Church, VA, 22041, or via e-mail at <carrjj@aol.com> or if you'd prefer while sending your loggings, QSLs and other material to the Hicksville office, enclose your antenna questions and photographs. See you in November!
How I Got Started

Congratulations to Alexander Kaminski of Ohio!

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) to Popular Communications. Address all entries to: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. e-mail your entry to popularcom@aol.com, letting us know if you're sending photos.

"...working at McDonalds didn't allow me to buy an amateur handheld for $400 just to use it for five frequencies."

Our September Winner

Twenty-three-year-old Alexander W. Kaminski, N8UCN of Miamisburg, OH writes, "When I was 17 I joined the Civil Air Patrol-United States Air Force Auxiliary. One of the missions is search and rescue (SAR). And one of the qualifications is to have a radio permit for communications. For a lifetime!"

Congratulations to Alexander Kaminski of Ohio!

Dayton area. I passed my test for no-code tech and received the call N8UCN on my high school graduation day.

After passing the test, I purchased my first shortwave and scanner. Before I knew it, I was sitting in front of the radio every night listening to foreign broadcasts, ships at sea, aircraft crossing the "pond" and police and fire transmissions. I received the monitoring registration KOH8IG. I then got my feet wet in single-sideband CB which gave me the call SSB-108S. All this has yielded a few QSLs from China, Cuba, South Africa, Japan and some AM DX contacts.

I now have four calls under my name, meet lots of new and interesting people and have increased my knowledge of communications, benefitting the SAR functions of the CAP. I'm also a head communications officer with the CAP, Squadron 708 in Wilmington, OH and work for Skywarn from time to time. If anything, this hobby has brought joy and knowledge that I will have for a lifetime!"

"...this hobby has brought joy and knowledge that I will have for a lifetime!"
The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

A Long List of Stations Reported This Month—Not All on 6955!

The squeeze is on, which is a happy problem I'd like to have to deal with every month. Here we go:

Mystery Radio, 6955 SSB heard at 0319 with long instrumentals. (Marina Pappas, SD)

WREC-Radio Free East Coast, 6955 SSB at 1900 with humorous ads and parodies. Belfast and Blue Ridge addresses given. (Dave Jeffery, NY) P.J. Sparxx with Miss Kitty in the studio at 2037 and 0321. (Lee Silvi, OH)

Black Rock Radio, 6956 at 0113 with rock. (Eric Miller, CA)

WARR, 6955 at 0139 with T-shirt ad and an address on Connecticut Ave., Washington, D. C. (Mark Schmidt, MA) 0139. (Silvi)

Radio Metallica, 6955, claimed 10 kW, they said no mail drop yet but an e-mail address was coming. Heard on various days at 2100, 2200, 2326, 0016, 0136, 0154, 0316, 1305, 1446, 1830, (Silvi) 2303 with Pink Panther theme. (Brad Layden, PA) 2323 on LSB, "Looney Tunes" music. (Dick Pearce, VT)

Radio Azteca, 6955 at 0104 "top ten things to do to phone solicitors," etc. Also noted at 2154. (Silvi) 2320 with "Green Acres" radio, (Eric Miller, CA) 2056; techno, rock, animal sounds. (Pappas)

Radio Jaspe 6955 at 0359 with phone segment, comedy, rock, animal sounds. (Pappas)

He-Man Radio, 6955 USB at 2309 with a test. Said USB was the "manifest of all modes." Another day at 2307 (Hodgins) 2306 with test. (Silvi)

Lounge Lizard radio, 6955 SSB at 2056 with soft music, mention it was their first show. Box 28413, Providence, RI 02908. (Jeffery, NY) 1730 with Program 2. Also at 0137 (Silvi)

KRAP, 6955 various days at 2240, 0024, 0056, 0157, 0313. Good audio. (Silvi) 0057. DJ said he's a "country boy" and asked for music requests to the Blue Ridge address. (Hodgins)

Radio Juliet 6955 USB at 0002. Other times at 2148 with the announcer advising women to get a ham license and get on the air; not to let radio be "just a boy's club." Also 0226 (Hodgins) (Voice of Juliet) heard variously at 1530, 2146, 2227, 0200 (with Program 3). (Silvi)

Radio Two, 6950 at 0118 with various tunes to 0150. Also at 0200. (Silvi)

Radio Tellus, 6955 USB on various days at 2028 (tentative), 0026, 0058, 0149, 0257, 0407. (Silvi)

Radio Garbanzo 6955 USB at 0359 with phone segment, comedy, rock, animal sounds. (Pappas)

(Totally Bogus) Radio 3, "Americans Pal Sal," 6955 USB at 2058 to 2125 sign off. (Layden, PA)

K-2000, 6955 USB heard at 2310. (Layden, PA)

Tangerine Radio, 6955 SSB at 2121 with rock. ID, off at 2135. (Jeffery, NY)

WLIWLS (We Love WLIWS), 6955 USB at 0018 with interval signal using Skynard's "Free Bird" and then the whole song. Also at 2008 with "Attention, this is not WLIWS." Announced a Rhode Island address. (Hodgins) 0120 with loop "this is not WLIWS" announcement. (Layden) 1945, when also said something about WJAZ. Another time at 0104. (Silvi)

Voice of Green Acres, 6955 LSB at 0343. Said was not Green Acres Radio but the Voice of Green Acres and was the initial broadcast. Also hrd at 2320 saying they are probably the worst station on the air. (Silvi) 2320 with "Green Acres" theme and other stations came on the air and announcers sang along. (Hodgins)

Partial India Radio, 6955 USB at 0228. Also at 2128. (Hodgins) 0130, 0202. (Silvi)

WEED, 6955 USB at 0500 with rock, some dedications. No address for QSLs yet. (Pappas)

WMPR, 6955, 2056, techno, rock, computer voice ID. Also at 0002. (Silvi)

Free Hope Experience, 6955 USB at 2112 with host Major Spoke and Blue Ridge address. Also at 2331. (Hodgins) 2111, 2329 with thanks to several pirate operators. (Silvi)

Big Harry Bald Guy Internation(al?—Ed) 6955 at 0035, host "Bill Buttocks" with first broadcast and "if you want a QSL, go to hell." (Hodgins)

FBI Radio, 6955 at 0211. Huntsville address. (Silvi)

Lazer Hot Hits, 6955 USB at 1535 relaying a Euro FM program. (Layden)

Stereo Sound Radio, 6955 USB at 0006 with Colonel Billy Bob. (Layden)

WBIG, 6955 at 1637 with IDs from many pirates. Also at 2310. (Layden)

Solid State Radio, 6955, at 0057 with mention of Providence drop. Also tentative at 0108. (Silvi)

Radio Free Speech is but one of a long list of stations reported this month.

Confirmation of reception

R
F
S
6955 Khz Shortwave

Radio Free Speech is but one of a long list of stations reported this month.
**Tap into Secret Shortwave Signals**

**Turn mysterious signals into exciting text messages with this new MFJ MultiReader™**

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

Listen to marine traffic, diplomatic and amateurs send and receive error free messages using various forms of TOR (Telex-Over-Radio).

**Printer Monitors**

**24 Hours a Day**

*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.

**High Performance Modem**

**High modem performance phaselock loop modem consistently gives you solid copy -- even with weak signals buried in noise.**

**Gain, On/Off/Bypass Control**

Preselector with external mod, improves selectivity... performs very well... good value... fair price... best offering to date.

**Receive Color News Photos, Weather Maps, RTTY, ASCII, Morse Code**

**MFJ-12/24 Hour LCD Clocks**

*MFJ-107B $9.95*  
*MFJ-108 $19.95*  
*MFJ-105B $19.95*  

**Super 11-13 Loop™**

**195**

The Super 11-13 Loop™ is a $269.1**.

**Tunable Audio Filter**

**59**

Tunable circuitry mini -circuits inter -mod... improves scanner radio sensitivity... reduces noise in like you've never heard before.

**Easy Up Antennas Book**

How to build... $16.1*

**Compact Active Antenna**

**39**

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.

**Dual Tunable Audio Filter**

**99**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Also uses AM and SSB and can be tuned with radio or speaker and phone. 10 x 2 x 6.**

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Pop'Comm's World Band Tuning Tips

September 1997

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

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

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SoundTracker™ Technology from Cobra

In response to consumer demand for less static and increased range in CBs, Cobra Electronics has developed the first patent-pending technology that improves the reception and transmission of CB signals. The SoundTracker™ system reconstructs the transmission signal which allows it to be transferred more effectively through cluttered air waves. Cobra has developed a line of six CB radios that utilize this SoundTracker technology.

SoundTracker carries a CB signal through the thousands of other signals that are on the air at any one time, resulting in an increase in the range of the CB and stronger signal reception and transmission. The technology also reduces the amount of static on all incoming CB signals by dynamically adjusting between the signal and the surrounding noise. The end result is clearer, cleaner reception of signals and more powerful transmissions.

For the 2.8 million professional truck drivers in the U.S. who rely on CBs to communicate, Cobra has enhanced its Classic CB line with SoundTracker technology. Four models, the 29 LTD ST, 29 WX ST, 25 LTD ST and 25 WX ST, will be available to professionals that rely on CB radios.
Two units have access to 24-hour weather broadcasts which provide localized forecasts and regional weather summaries, as well as weather-related highway and waterway travel information. In the event an emergency bulletin is issued by the National Weather Service, the units activate automatically. When such broadcasts are made, a special tone-alert will override CB operation, prompting the user to tune to the area weather channel.

Cobra will also offer SoundTracker in a new mobile CB, model 18 WX ST. This full 40-channel CB has sophisticated features such as electronic tuning for easy channel scanning and squelch control for signal clarity. The 18 WX ST also provides access to the weatherband for 24-hour-a-day local broadcasts from the National Weather Service. Cobra’s new HH-36 ST is also available with the SoundTracker technology. The HH-36 ST comes with power settings for utility vehicle and handheld use.

The models feature illuminated RF-signal-strength meters with dimmer, switchable ANL and noise blanking, CB/public address switches, instant emergency channel 9 controls, Dynamic gain control and front mic connection for easy installation.

For more information, contact Cobra Electronics Corp., 6500 W. Cortland St., Chicago, IL 60707; phone 773-789-8870; fax 773-794-1930.

Drake TR270 FM Transceiver

R.L. Drake Company has re-entered the amateur radio market with the TR270 FM Transceiver—the only desktop FM transceiver on the market dedicated specifically to 2-meter operation. The TR-270 is actually two radios. The first permits full 2-meter transceiver capability (142-150 MHz), while the second permits independent dual band reception (136-174 and 420-470 MHz). This range allows users to listen in on public service, marine, weather and amateur bands.

The TR-270 utilizes internal card slots for integrating 1200/9600 bps packet radio, satellite, weather fax and data reception. The optional TNC270 Terminal Node Controller and DEMOD270 Demodulator plug-in cards fit inside the TR-270. These cards are designed and pre-configured for maximum performance and they eliminate the need to jerry rig multiple components together. The TR-270 boasts total integration of FM voice, packet, satellite, weather fax and data reception.

The Drake TR-270 offers over 60 user-defined parameters including selecting filters or antennas, setting memory scan modes, or customizing channel lists for receiver and transmitter. Each parameter can be selected easily with setup menus and front panel input.

In addition to complete integration, customization and convenience, the TR-270 employs a built-in 140 watt, 115/230 Vac switching power supply for use around the world. Other features include a high-quality dynamic microphone, and external DC input for mobile or emergency power operation, DTMF and CTCSS tone encoding and decoding for both 2-meter and wideband (decode) receivers, external audio-in jack for copying short-wave fax/data transmissions, external speaker jack, headphone jack and transmit time-out timer.

For additional information, contact the R.L. Drake Company, 230 Industrial Drive, Franklin, OH 45005; phone 513-746-4556; fax 513-743-4510; or via the Web <http://www.rldrake.com>.

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THE MONITORING MAGAZINE
September 1997 / POPULAR COMMUNICATIONS / 43
Scanning The Globe

MONITORING THE 30 TO 900 MHZ “ACTION” BANDS

Being Prepared Can Pay Off

Sometimes the scanning can be so exciting that it is downright scary. If a disaster or large-scale incident takes place in your community, are you prepared for all the monitoring you can handle? If you have a scanner that has a capacity of hundreds of channels, use it as a tool. In fact, take at least one full bank and store in it frequencies you hope you never need to listen to. These may be frequencies that would become active, for instance, if a plane crashed in your community or rioting or flooding required the activation of units such as the National Guard. You may very well never hear any activity on frequencies reserved for the National Transportation Safety Board, or the National Guard, but when the incident happens, you don’t want to find yourself twiddling with dials and fumbling through frequency lists. The time you spend searching and programming may lead to the loss of important calls that may provide you with the information you need to know in your community.

“To determine what types of emergencies your community faces, do what emergency planners do.”

To determine what types of emergencies your community faces, do what emergency planners do. Most counties and large and small towns across the United States have emergency plans that have been written and implemented. These plans are put together typically by a person designated as the local government’s emergency management coordinator. Sometimes this position is a full-time job, and other times it may be carried out by someone who functions in another role, such as the mayor, fire chief or police chief.

Before drawing up the emergency plans for your community or county, the emergency management coordinator was required to assess what types of emergencies the area had the most potential to experience. For instance, if an interstate highway traverses your area, there might be nuclear waste that travels on the highway on a regular basis. Perhaps there is a path in the sky over your town that commercial aircraft fly over many times each day. There may be a factory or business that has hazardous materials on site. A river or stream may lead to possible flooding after heavy rains. If you sit down and think about it, you probably could draw up a hazard assessment for your own community. The emergency management plan for your community is a public document and you may want to trot off to the town hall or county courthouse in search of the guide to review to learn of other potential hazards, too.

After you determine the hazards you face in the area in which you live, think about the frequencies that might become active. For instance, you probably already have all the local police and other emergency services frequencies programmed into your scanner, so you’re safe there. However, if a factory deals in hazardous materials, perhaps there is a security frequency that might become active in an emergency. Most day-to-day
communications would prove routine and uninteresting. But when there’s an emergency, having the frequency programmed in may mean the difference of being in the know and depending on the local news media to keep you informed.

If there is the potential for an aeronautical disaster in your town, you should have programmed frequencies that might be used at local airports, as well as the Civil Air Patrol (122.9, 123.1, 148.15 MHz for starters). If you have access to frequency lists that show what might be used by investigators, such as the National Transportation Safety Board, punch those in as well, as they would become active when the agency’s “go team” arrives on site.

Plug in news media channels, particularly those used by reporters and photographers. You can easily fill up a bank of 20 to 40 channels with frequencies that you don’t want to listen to on a daily basis, but they will prove the most exciting listening when something happens. Keep in mind, too, that what you are hearing is raw information. You don’t want to cause any unnecessary panic by misinterpreting the communications you overhear. Remember, having a scanner or communications receiver is a right and using one’s head goes with the freedom. And don’t forget to tell us hear at Pop’Comm after such an incident so we can pass on your listening tips.

**Rail Radio**

Brett Benson of Baltimore, Maryland, says he wants to know all the frequencies that are used by railroads. He’s heard that railroads have both short-distance and long-distance communications.

Railroads usually use remote transmitters along rail lines to keep in touch with trains while they are traveling in certain areas. These remote transmitters usually operate on designated road channels and can be activated by dispatchers either by microwave or telephone lines. This allows rail crews to have constant contact with their dispatchers no matter where they are. Some railroad communications, such as those in a rail yard, are short distance by their very nature, and don’t need to transmit over a wide area. In many

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**THE MONITORING MAGAZINE**

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areas of the United States, railroads will operate private telephone systems on dedicated frequencies so rail crews can make telephone calls over their radios.

To find railroad communications, search in 15-kHz steps in the following range: 160.215 to 161.565. There are also some 12.5-kHz channels on UHF from 452.3125 to 452.4875 and 452.7625 to 452.9625. Likewise, the accompanying “input” frequencies 5 MHz higher also may be used for inputs or mobile communications. In fact, on UHF you’ll probably find data tones as trains pass by. These tones are transmitted by radio boxes installed on the last car of a train to receive in 15-kHz steps in the following frequencies can be used by auto clubs providing emergency road service for members: 150.905, 150.920, 150.935, 150.950, 150.965, 452.525, 452.550, 452.575 and 452.600. The four UHF frequencies are simplex only—without repeaters—meaning the base stations and mobiles operate on the same frequency, which is unlike most wide-area UHF radio services. Tow operators also are eligible for automobile emergency frequencies in the 851–866 and 935–940 MHz bands.

The place you’ll find most tow trucks isn’t generally on automobile emergency radio service frequencies. Most use business band frequencies because it’s easier for radio shops to set up their customers this way. Because any profit making enterprise can use business radio service frequencies, tow operators are included in this group. While some tow trucks may take advantage of frequencies in the VHF low band range between 30 and 50 MHz, as well as those frequencies available for businesses in the 151 and 154 MHz ranges, many simply operate on wide-area repeater systems in the 461–465 MHz band. In larger metro areas, you also will see tow trucks using the 470–512 MHz T band, the 851–856 repeater band, the 856–866 MHz trunked band, or the 935–940 MHz trunked band.

A towing firm may require wide-area coverage that a repeater offers; however, the automobile emergency radio service does not allow repeaters on UHF. Because the business radio service does allow repeaters on UHF, that may prove a viable alternative for a tow operator. Also, it may prove cheaper for a tow operator to operate on a community repeater on UHF that is owned by a radio shop and which is rented to various firms that all use the same repeater. It certainly is a lot more expensive for a firm to put its own repeater on the air, so community repeaters with monthly user fees usually prove more palatable to the checkbook. It is the same reason you may see newspapers using community repeaters for news and circulation activities, instead of putting their own repeaters on the air in the two available frequencies at 452.975 and 453.000. It also should be noted that there are a handful of frequencies available to tow operators for low-power (2-watt) operation. These frequencies — 452.5125, 452.5375, 452.5625, 452.5875 and 452.6125 — technically could be used for on-scene use, but might be more practically employed for mobile repeater use. For instance, the tow truck driver would carry a UHF handheld while outside his truck and transmit to the truck on UHF while a repeater in the truck retransmits the signal onto the VHF channel with much more power output, allowing the driver to maintain contact with his or her dispatcher while outside the tow truck. As a general rule, these frequencies just aren’t used, but don’t be surprised to find something pop up!

Write In

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips that might be 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>.

On Her Tows

A reader inquired via e-mail to say she likes to listen to tow trucks, especially during bad weather, but thinks she hears only about half the tow trucks in her area. She says she has punched into her scanner all the frequencies allocated to the automobile emergency radio service, but knows there are other operators in her area that must not be using frequencies reserved for tow trucks.

First, let’s take a look at the frequencies reserved for privately operated tow trucks: 150.815, 150.830, 150.845, 150.860, 150.875, 150.890, 150.910, 150.935, 150.950, 150.965, 452.525, 452.550, 452.575 and 452.600. The four UHF frequencies are simplex only—without repeaters—meaning the base stations and mobiles operate on the same frequency, which is unlike most wide-area UHF radio services. Tow operators also are eligible for automobile emergency frequencies in the 851–866 and 935–940 MHz bands.

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Product Spotlight

POP’COMM REVIEWS PRODUCTS OF INTEREST

Alinco DJ-X10 Multi-Mode Handheld Receiver

Editor’s Note: This device has not been approved by the FCC. This device is not, and may not be offered for sale or lease, or sold or leased until the approval of the FCC has been obtained.

One of the neat things about living in Southern California is our proximity to some of the major communications importers. And when you think of an import facility, you might envision a bunch of boxes from Japan coming in one door, and going out another door non-stop to the distant radio dealers. Not so. Radio giants like Kenwood, Yaesu, ADI, Maha, Ranger, Magellan, and Alinco are all within a few miles of each other. Radio accessory manufacturers like Communications Specialties, Inc., Astron, Diamond, and Comet are also just around the corner, and this gives me a good opportunity to pull some surprise visits to see what’s new on their full-facility test benches. Almost all importers have service technicians on premise, and have plenty of equipment to check out their new radio products coming in from overseas.

Looks Like Dual-Band Ham Handheld!

When I stopped in at Alinco, technicians were playing with a handheld radio that I mistook for the popular Alinco amateur radio dual-band VHF/UHF, 5-watt transceiver, Model DJ-G5TH. Everything looked almost identical except what was showing on the LCD display and the inscription “Wideband Communications Receiver X10.” There it was; a brand new handheld communications receiver being prepared for the ultimate test, an outside antenna system near a major metropolis. But because every country has its own “band plan” for its broadcast services, don’t expect that the automatic mode selection is always going to be right for a specific frequency that you have dialed up. You may look down and find yourself on wideband FM, when you’re really tuning in a narrowband FM frequency just below the normal USA FM band. So consider the automatic mode a feature, but it doesn’t guess the right mode every time.

1200 Memories!

The DJ-X10 can store up to 1200 channels into a non-volatile EEPROM memory, and the memories will hold any automatic or user-selected mode of your choice. The memory channels then break down into 30 different groups, so you can organize what type of services you may want to scan or what type of areas you may be scanning in as you move around your local city.

Once I loaded up the receiver’s memories, I then had to select what type of scanning I wanted:

* Programmed scan up to 10 groups
* Programmed memory scan
* Any memory scan
* Mode scan (not a common scanning feature)
* VFO search
* Dual VFO search
* Band excursion scan
* Priority scan
* Any channel skip scan

I also found the automatic memory write useful where an active frequency automatically loads into the memory for later scanning. Because there are so many signals and errant whistles and tones, I really didn’t need this feature on the outside antenna. But for local monitoring, it has value.

Just as I was getting into the neat LCD display with its channel scope graph readout, the radio suddenly turned off. Sure
enough, a clock function with auto-timer on and auto-timer off came into play, so I had to learn about this before I was back on the air. If you’re new to multi-mode, all-frequency monitoring, you can call up the USER LEVEL menu and select “beginner” instead of “expert.” In the “beginner” mode, some functions that are selectable, become automatic:

* Auto mode
* Auto step
* Auto attenuate on certain frequencies

In the “expert” mode, you can customize these “automatic” functions to best suit how you plan to zoom through the frequencies. To get started in any mode, you adjust the volume by a push-key that steps the volume up or down. Same thing with squelch—it’s a little rocker button on the side of the unit, and you can push it up for a tighter squelch, or down in order to go into open squelch. You can also open the squelch by pushing the “moni” button which is in the exact spot where you would normally find a two-way transceiver push-to-talk (PTT) button.

In the same push-to-talk button area, above the “moni” button, is an “F” key serving as a function key in order to enable sub-function items on the keyboard. There is also a button to quickly search frequencies, and the very bottom button allows you to momentarily turn on the lamp, or by pushing “function” and the lamp button, you cause the lamp to stay on continuously. I recommend leaving the lamp on in the momentary push mode so as to not accidentally run down your batteries while using your unit during the day with the light “on.”

You can set a desired frequency by using the keypad, or by using up-and-down buttons, or by using the big top knob. If I knew exactly where I wanted to go, I would set a frequency by the numeric keys, and then go over to the mode button and select the proper mode in case it didn’t automatically get pre-selected. If I just want to look up or down from the specific frequency, I would use the top knob on the set.

The Alinco DJ-X10 has twin-running, variable-frequency oscillators that allow you to listen to one frequency while inputting another frequency. You can then quickly jump from one VFO to another in case you may be monitoring a duplex conversation or are trying to track a trunked radio system.

The Channel Scope and More

The channel scope will display either a wide band of 40 discrete frequencies or a narrow band of seven discrete frequencies. The vertical length of each indicator illustrates signal strength. In the 40 frequency search mode, the little vertical bars are relatively thin, but in the seven channel search mode, they are thick enough to let you see what’s happening a few kilohertz above and below your operating frequency. Unfortunately, during the channel scope search, your receiver is dedicated to sampling the channels, not to receiving when you first hit the channel scope button. This means that your unit will mute every few seconds as it does a quick look at what’s above and below you when it comes to activity. Even the ham radio handheld channel scopes are identical to this, giving you an interruption during the search process. Unfortunately, there is no way around this, so the best way to use the channel scope is when you’re not really tuned into anything, and you just want to look for activity above or below.

While listening to different frequencies, I sometimes found it necessary to turn on the ATT (attenuator) which gave a good 15 dB reduction of receiver sensitivity. I was curious as to whether or not the attenuator mode on a specific memorized channel could be retained in memory for just that channel, or would it affect all channels? I’m happy to report that you can tag specific memorized channels for 15 dB attenuation.

In the scanning mode, you get all the usual options like stop-on signal, stop-on open channel, stop and pause, and scan up or scan down. In the pause mode, the scanning stops for five seconds, and then moves on.

I discovered one nice scan setting, and that was the ability to set a scan signal level. You call up the signal strength level, then set the scan S-level between sensitive and insensitive, and then press the enter key. Would I be able to tag each memorized channel with how I wanted it to scan by level? Unfortunately, no.

The receiver also has all of those neat priority and search modes, too, but do note that I call it a receiver rather than a scanner. There is something about copyright laws on scanning techniques, so let’s just call it an agile receiver while you and I really know it’s a great scanner, too.

You can copy memory channels from one DJ-X10 to another by using a simple cloning cable and the clone mode built into each set. This tells me that soon there may be an interface between this equipment and a computer, much like what ICOM has been doing lately with their own computer set-up as well as ICOM and...
Opoelectronics. I imagine Opto will be looking at this unit very carefully to see what neat things they can put together.

Something else I discovered with the DJ-X10 was the ability to name memory channels. This involves turning the dial to select the right character you want, and then developing the word that will identify each channel. Once you get into the swing of things, it takes just a few seconds to tag each memorized channel with a channel name.

But most important, how does the unit actually work on the airwaves? We compared it to our favorite ICOM handheld wideband receiver, and I’m pleased to report that this unit is also an admirable performer. The little rubber antenna is an adequate performer on VHF and HF frequencies, but like any rubber antenna below the FM broadcast band, it doesn’t hear much of anything. If you want to hear any medium-strength or weak-signal activity down on the low bands, it’s best to switch the little rubber antenna for a baseline-loaded telescopic whip, or better yet, an outside mobile or base whip. But a big base station antenna doesn’t necessarily mean everything is going to work just right with this new unit. Anytime you attach a little pocket receiver to a big outside base antenna, you are sure to overload the front-end, yielding squeaks and squawks from local paging frequencies that really aren’t what you’ve actually tuned in. Hearing two signals at the same time is a classic example of front-end overload, mixing, and intermodulation, and about the only way around this would be to go with some sort of variable band-pass filtering. With my favorite choice as the excellent portable band-pass adjustable filters available from Opoelectronics. The same band-pass filtering they use on their counters and wide-band receivers can also be used quite nicely on portable scanning receivers.

Down on the shortwave bands, a good outside antenna is a must. I didn’t find any problems with front-end overload down on the high-frequency ham bands from 160 to 10 meters, and this little receiver was picking up some foreign DX just about as well as my big $4000 base station ham set, although my big ham set on single-sideband had a lot more selectivity than what this set was able to do on HF SSB, but it worked quite well in letting me tune into my favorite 40 and 20-meter SSB amateur radio nets when I was working out of a hotel room on a recent ham radio convention.

Audio output was judged good; however, adding an external speaker when you are running this unit off an external power supply really improves the fidelity. But you can still hear the calls when this unit is hanging on your belt. Alinco has always done a good job of giving you plenty of good audio output from their oversized internal speakers.

Like any new full-functioned radio receiver, you may only discover one-half of all the neat features during your first month of operation. It might be a year or so later that you find out even more things that the unit can do as you begin to work with it on a daily basis. Even the engineers and technicians at Alinco were still discovering neat things that this set would do as they continued to play with it on their best bench in Torrance, California.

At the time of this product test, Alinco was still transmitting to Japan final small improvements to make the unit even better when it finally receives type-acceptance and becomes available about the time you read this. There was no indicated retail price, but I imagine it will be available for about the same amount of money as the ICOM and AOR portable scanning receivers. It’s hard to top what’s already available, but this new unit will certainly be one to watch and listen to before making your buying decision. Additional information on the Alinco DJ-X10 can be obtained by contacting Alinco at 438 Amapola Avenue, Suite 130, Torrance, CA 90501 or phone 310-618-8616 or check out their Web site at <http://www.alinco.com/>.
Death of CB Predicted

Warning! The end is near! The end of CB, that is. Sure, I know, we've heard this before. This time, however, could there be some solid reasons to think that the predictions might actually come true?

Fueling the current round of speculation about the demise of CB is S.608, a bill now before Congress introduced by Wisconsin's Senator Russell Feingold. The goal of Feingold's bill is to help reduce interference to home electronic entertainment equipment (TVI/RFI), caused by CB radios. A goal, that if achieved, would be good news for everyone. Feingold's method of achieving this goal, however, could bring about the end of CB radio, at least that is the view held by some, including Bill Pasternak, editor of the Amateur Radio Newsline. "This bill, if passed," says Pasternak, "could give power to states and cities to literally legislate 1 meter Class D CB radio out of existence on a city-by-city basis."

Pasternak is not alone. Originally, the bill would have allowed localities to pursue complaints of interference caused by any radio service. When the amateur radio community got wind of it, however, they saw it as a threat. They not only managed to get themselves exempted from the bill, but limited its powers specifically to CB. Gee, thanks!

The problems cited by the Senator are all too familiar to members of the CB community. Perhaps you've been there. You've got a problem operator in your neighborhood. You know who they are, and you know where they are. You know what they are doing. In short, you've got a good case against a bad apple. So, off you go to the FCC and lodge a complaint. At best, they give you a sob story about how they get over 30,000 complaints each year about interference caused by CB. Then they explain that, due to budget cuts and staff reductions, they don't (or at least rarely) handle these types of complaints anymore. Finally, they give you a packet of suggestions on how to resolve the situation yourself. Those suggestions include installing filters and talking to the folks who are causing the problem. The latter of which, usually generates several more suggestions on where you can go and what you can do when you get there.

When these suggestions prove ineffective or unsatisfactory, you appeal to your state or local authorities for relief. Though sympathetic, they tell you that they can't do a damn thing for you. Why? Because, the Communications Act of 1934 provides exclusive authority to the federal government for the regulation of radio. But S.608, if passed, would remove that restriction.

Is This Good News?

It could be. At last, conscientious members of the CB community might have access to an effective means of wresting control of our airways from the "low and the loud." Now there's a refreshing thought! But wait a minute. Could fears that the bill goes too far be justified? Well, maybe.

The bill would allow the enforcement of "a regulation that prohibits the unauthorized operation of citizens band radio equipment on a frequency between 24 MHz and 35 MHz." Could "unauthorized operation" be construed to include broadcasting net announcements, ignoring the "five minute rule" or talking skip? Could local authorities really use their new powers to totally ban CB?

I asked Senator Feingold's press secretary, Mary Bottari. "S.608," said Bottari, "provides states and localities with the authority to enforce FCC regulations only for unauthorized equipment and frequencies. Communities cannot create their own regulations for CB because they are currently preempted by federal law from doing so and would continue to be preempted under S.608. The bill confers only limited enforcement authority on states and localities and does not allow any additional local regulation of CB radios. S.608 provides absolutely no authority to states and localities to enforce the FCC's rules on allowed length of communication, content of communications, communications with distant citizens band stations, or any other regulation that does not pertain to authorized equipment or frequencies."

My Two Cents

It's refreshing to see someone with the power and prestige of a Senator Feingold finally taking an interest, however indirectly, in the current state of affairs of CB radio. The passage of S.608, even as cur-
S.608

To authorize the enforcement by State and local governments of certain Federal Communications Commission regulations regarding use of citizens band radio equipment.

IN THE SENATE OF THE UNITED STATES

APRIL 17, 1997

Mr. FEINGOLD introduced the following bill, which was read twice and referred to the Committee on Commerce, Science, and Transportation.

A BILL

To authorize the enforcement by State and local governments of certain Federal Communications Commission regulations regarding use of citizens band radio equipment.

SEC. 1. ENFORCEMENT OF REGULATIONS REGARDING CITIZENS BAND RADIO EQUIPMENT.

Section 302 of the Communications Act of 1934 (47 U.S.C. 302) is amended by adding at the end the following:

“(C) The Commission shall make a determination on the grounds that the State or local government, as the case may be, acted outside the authority provided in this subsection.

“(D) If the Commission determines under subparagraph (C) that a State or local government has acted outside its authority in enforcing a regulation, the Commission shall reverse the decision enforcing the regulation.

“(E) The enforcement of a regulation by a State or local government under this subsection.

“(F) Except as provided in paragraph (2), a State or local government may enforce the following regulations of the Commission under this section:

“(A) A regulation that prohibits a use of citizens band radio equipment not authorized by the Commission.

“(B) A regulation that prohibits the unauthorized operation of citizens band radio equipment on a frequency between 24 MHz and 35 MHz.

“(G) The enforcement of a regulation by a State or local government under this subsection.

“(H) Nothing in this subsection shall be construed to diminish or otherwise affect the jurisdiction of the Commission under this section over devices capable of interfering with radio communications.”.

An actual copy of the bill introduced by Mr. Feingold.

THE MONITORING MAGAZINE

September 1997 / POPULAR COMMUNICATIONS / 51
News From:

U.S. Senator
Russ Feingold

Feingold Response to Popular Communications Questions
June 13, 1997

Since the bill is still in Committee and the end of the session is near, is it safe to assume that no action will be taken on the bill this year? If not, what are the chances of it being introduced again next year?

"The 105th session of Congress began in January of this year and will continue through late fall 1998 with a mid-session recess in late 1997. If S.608 does not pass in 1997, it will not have to be reintroduced in 1998."

If it will be introduced again next year, is there still time for the CB community to have any say in it?

"While it will not be necessary to reintroduce the bill next year, I always welcome input from the CB community or any other interested constituent on how to improve the bill."

What in S. 608 would prevent communities from banning CB radio altogether?

"S. 608 provides states and localities with authority to enforce Federal Communications Commission (FCC) regulations only for unauthorized equipment and frequencies. Communities cannot create their own regulations for CB use because they are currently preempted by federal law from doing so and would continue to be preempted under S. 608. The bill confers only limited authority on states and localities and does not allow any additional local regulation of CB radios."

What in S. 6078 would prevent certain groups or individuals from using it to conduct a vendetta against other groups or individual operators?

"Localities would only have authority to enforce FCC regulations in cases in which CB operators are using unauthorized equipment or operating on unauthorized frequencies. If federal regulations in this area are not being violated, localities have no authority to take any action against a CB operator. Anyone operating lawfully is protected from state or local action. Localities are unlikely to use the authority conferred on them by S. 608 in an irresponsible manner because the bill provides any individual affected by a decision of a state or local government with the right to appeal the decision to FCC for a determination that the state or locality acted within their authority. FCC retains the ability to overturn a state or local decision. This means that, in addition to the usual requirements of due process at the state and local level, there will be an additional level of oversight by the FCC to ensure that localities are not improperly enforcing FCC regulations."

How does S. 608 protect users of CB radios and other forms of radio communications from unwanted interference?

"S. 608 does not specifically address radio frequency interference, rather it addresses one of the most egregious and persistent causes of interference — use of unauthorized CB equipment (i.e. not FCC type-accepted) and operation on unauthorized frequencies. S. 608 allows states and localities to enforce FCC regulations on equipment or frequencies regardless of whether the user is interfering with a resident-
izing operation between 27.405 and 29.995 MHz, among other things) must stipulate RFI as the basis for investigation and prosecution; not simply the possession of non-type accepted equipment. Even the most minor modification, such as unlocking the clarifier, will void your radio's type acceptance. So, many if not most (of all but the most casual of) CB operators already own at least one piece of gear that puts them in violation. Therefore, this bill will unintentionally provide certain groups and individuals with a powerful new tool with which to wage personal vendettas, totally unrelated to the problem of RFI, against other groups and individuals. Anyone, who doesn’t see the danger of that happening, hasn’t spent a lot of time on CB.

Should the CB community support this bill? Yes, it is a step in the right direction. Even as currently written it is better than what we have. But this bill should be changed! While well-intentioned, it misses the mark and could be used to harass good and bad operators alike. Can the bill be changed? Yes, it is possible.

Senator Feingold says that he would welcome input from the CB community. Whether or not he can get it is probably the biggest question of all.

As Bill Pasternak points out, “CB has no central core ‘national society’ to lobby for it. Nor does it have the ability to secure a viable national magazine devoted to it that can be its voice.” He is right, you know. The closest we come to the amateur’s ARRL and QST is REACT and this column in Popular Communications. Both of which, in this case, should prove about as efficient as spitting into the wind.

Whether you think S.608 should or shouldn’t become law, the time for action is now. If the bill is to be changed, it will be up to you to do it. Contact Senator Feingold. Let your Congressman and Senators know what you think. For that matter, let me know what you think. If time allows, I’ll try to include some of your comments in a future column. If you, or someone you know has an e-mail address, drop me a note via the Internet and I’ll try to keep you posted on the bills’ progress over the next several months.

Well, that’s it for now. I look forward to hearing from you soon. Please send your comments, questions, suggestions, QSLs, and shack photos to me in care of the magazine. I can also be reached on the Internet where my address is <edbarnat@global2000.net>. Better yet, if you can, catch me on the radio.

73—Ed.
One of the definitions of a myth is “an opinion, belief, or idea that has no basis in truth or fact.” CB radio has had more than its share of them. Some are still with us and are spread as gospel from one CBer to another. As we discuss some of them this month, I’m leaving out many small details or some exceptions in the following explanations. If I tried to cover all conditions, the article would be too lengthy or get too technical. Let’s get on with business.

“...a nine-foot whip antenna is the best CB antenna you can have on your car or truck.”

Trimming the Coax

Trimming the coax to adjust or lower your SWR reading does not change your SWR, only what your meter reads. The SWR is generated at the junction of the coax and the antenna because the antenna is not tuned (resonate) to 27 MHz. Any returned power has peaks and nulls. For the purposes of this discussion, we are ignoring the fact that there are both voltage and current peaks and nulls and that they are not in phase. Your SWR meter is reading the SWR voltage present at the point you placed the meter, but the actual SWR remains the same! Only by adjusting the antenna can you lower the SWR. In fact, you might happen to have a coax length on your present base or mobile that results in a low meter reading when you actually have a high SWR. So, make a reading with the length you are going to use, then insert a 4 to 5 ft jumper with proper connectors and read it again. Use whichever length gives you the poorest reading (highest SWR) while making your antenna adjustments. As long as you can get the reading down to around 1.5 to 1 or better, that’s fine. Then use whichever length you want for everyday operation. Before you get excited and say that 1.3 is better than 1.5, I will agree. However, you could not tell the difference in actual use. Besides, you are making the measurement while the car is sitting still. Reach up and flip the antenna rod where it sways back and forth, and see how the reading changes with the antenna rod moving.

Motor Noise

Connecting the power lead directly to the battery is touted as a way to get rid of motor noise. If one of my employees connects any radio directly to the battery terminal, they know they are subject to immediate termination! Hooking to the battery terminal will result in eventual poor performance due to corrosion. For high-powered radios (25 watt or larger commercial radios), we connect to the starter solenoid, or the power point under the hood some cars provide or a power tap connector attached to the positive cable at least 15 inches away from the battery. For low-powered radios such as a CB, we connect to the under dash fuse box. That takes care of the radio power requirements, now let’s consider any noise. If you have noise when running the engine (volume up and squelch open), remove the antenna from the radio and see if you still have the noise. If the noise goes away when removing the antenna, the noise is coming in through the antenna. Where or how you connect the power lead will not matter. You will have to suppress your engine to get rid of the noise—and that can get interesting. If, on the other hand, you are lucky and the noise remains there with the antenna off, it is easy to get rid of it. You can purchase a CB/Stereo Power line filter from most automotive supply houses or RadioShack and insert it into the power line, thereby correcting the problem. Be sure to follow the instructions and place it fairly close to the CB input.

Twin Antennas

First let’s cover a small amount of antenna theory. Mounted in the same place, a nine-foot whip antenna is the best CB antenna you can have on your car or truck. Anything less (shorter) will not get out as far, regardless of the manufacturers claims. But because you would look silly with a nine-foot antenna mounted on the top of your pick-up cab, we compromise and use an antenna which is physically shorter, but is electrically nine feet long. To get any more range (with any base or mobile antenna) than you get with a good antenna properly mounted can ONLY be obtained by focusing the signal in some manner. Omni-directional base antennas (both 1/2 and 5/8 wave types) do this by taking the signal that was being radiated
about less behind and off to the sides of your vehicle to favor the front? It's a law of physics that says you have to take away from somewhere to gain range elsewhere. So at best you have something like a two-element beam (sort of, due to improper spacing) with a very irregular pattern that is better in some directions and worse in others and even that varies as the wind moves the two antennas around, changing the spacing and angle between each of them. The best mobile antenna you can have (since you don't know which direction you will be talking) is a good antenna mounted in about the center of your vehicle. A good antenna is one that is at least 36 inches long, mounted directly to the car body. Antennas loaded so much that they are real short have very low performance: magnetic-mount antennas are imitating both a nine-foot antenna and the ground plane, so they are typically very poor performers. The worst antenna I ever saw was an 18-inch one with a magnet mount. However, they are easy to sell because they fit our desire for something for nothing. We want performance without any holes to cut, any installation to do, low cost, small and out of the way. But the fact is, they just don't work as well as a 102-inch whip. The idea of twin antennas originated with truckers, but it hurts more than it helps.

Peaking

We are regularly asked to "peak out" a unit for more power. Many CBers have said "don't touch my transmitter because I paid $15 to $35 to have it peaked out to 15, 20 or more watts!" They further say, "I saw it putting out this many watts after he was finished." RIP-OFF! I can adjust my wattmeters to show you any power you want to see, but I cannot adjust your CB to get that power. First, your final would go up in smoke. Most CB units operate at 70 to 80 percent efficiency, so for 15 watts out, you would need to have about 20 watts input power. Old 23 channel and new 40 channel unit finals would melt in 10 seconds or less. Second, for 100 percent modulation, an AM radio must have 50 percent of the transmitter input power available in audio watts, so for 20 watts of RF, you need 10 watts of audio. How did this friendly radio man get this extra audio? Your set was running at five watts of RF and had 2.5 watts of audio and there are no peaking or tuning adjustments in the audio stages. So, if he was able to adjust or peak your transmitter to 20 watts, you would still have 2.5 watts of audio and that would give you 25 percent modulation even if you had two power mics on your unit. If he tried to boost the output of the audio section, your modulation transformer and audio output transistors would join the finals in melting. Last, but not least, I ask the person (claiming his radio was peaked to some high power) what size fuse he is using in the power cord? The general response is two amps, the same size he was using before the "peaking." Where did the power increase come from? If you are not putting more in, how the heck are you getting more power out? If you want more power, which is illegal, the only way is with a linear RF amplifier.

Power Microphones

Most CB radios get a full 100 percent modulation with three or four stages of audio amplification. All so-called power mics does add one more stage and you can get 100 percent with the microphone at arms length. Also, you get the kids arguing in the back seat, any wind noise, the radio or TV audio and anything else that you can hear with your ears, but no increase in range. The CB with its regular microphone held sideways to your lips and AT your lips has the best audio quality and has only your golden voice without all the surrounding sounds. Other than a radio with a bad microphone or internal problem, I have only seen a few sets that would be helped by a power microphone and they are all old, tube-type 1960-70 vintage units.

23 Channel Vs 40 Channel Units

The rules always have said that five watts input power was the limit and 100 percent modulation. That didn't change. They did set a limit on how heavy a final amp could be used, because a few manufacturers were making TUBE units capable of up to 15 watts input power with eight to 12 watts output. These radio came with a warning not to remove or strap a certain resistor as that was legal only outside the USA and would result in exceeding the power limits. We all know what...
To: CITIZENS 27 MC BAND—

IT'S NEW . . . IT'S TESTED . . .

The New L Matching Coil

The performance of the L MATCHING COIL under long and adverse conditions has proven itself to be—

- Practical in size and length.
- Meat and trim in appearance on your car.
- Offers efficient performance with great range.
- Not an inhibition for meat or antenna or radio as the long-ship is a given.
- Fading—Less directional.
- Insists itself with minimum of time.
- Telecoping—from 43” to 63” for long range.
- No large holes to drill into your car.
- Improves car radio performance.
- No more beating and noise and traffic.
- You can use car radio, and CB radio from the same antenna by merely switching from one to the other.

ORDER YOURS TODAY FROM

L-Coil—$4.95
L-Coil with antenna and mounts—$10.95

Special Note: By inserting the L-Coil into your present car radio antenna and then adding a second car radio antenna on the opposite side with an L-Coil you can fix the two together with a standard two-way CB or AM antenna. ENEW IMPROVES TELEGRAPHY AND TRANSMISSIONS TO BEYOND ALL LIMITATIONS.

You do not need two, we only want what can be the ultimate in receiving and transmition. The L-Coil is an example in this area for amateurs and has been tested for months at the home.

Why settle for less when you can have the BEST at a SMALL COST and add another year.

This is not practical, . . . it does the job . . . you don't have to go on a hill or tune the car in a certain direction . . . you just drive along, transmit and copy with the band of them. . . . your friends will be asking if you have a new set.

"When I showed him this brochure, he just about fell out of his chair laughing."

Everyone knows that just because you read an ad for a product doesn't make it true. The best example I know of in CB is the insert promoting the "L-Coil" antenna from many years ago. It goes against all antenna theory and is pure baloney. This ad came out in the early 1960s. The late Mr. Carl Mosely of Mosely Antennas (the premier manufacturer of high-quality amateur antennas) was in place of business one time. When I showed him this brochure, he just about fell out of his chair laughing. However, if you are not knowledgeable in antennas and how they work, you could be suckered into spending your money. The ad sounds reasonable and we are including it only to show how you could be lead to believe that you need this or that wonder item.

In our next column, we're going to "rebuild" a Heathkit GW-10 CB unit. I've needed one for my collection for years and thanks to Mr. Greg Katkowski of Sloatsburg, NY, we now have one. Greg wrote about a Granada CB unit and included a picture of some of his other units. In my reply, I mentioned the Heath in his picture and that I've been trying to find one. He wrote back and said that besides the one in the picture, he also had a complete one which was only missing tubes and one for parts only. He said that I could have them and sent them both. My sincere thanks and he will get to see it rebuilt. Hopefully, I can do it in one column. Now about all I need to find is a Globe 100, and Eico 770, 771 or 772, a General V5-4, an old Philmore Super Regen unit and a Heath CB-1. This will complete my collection.

If you have any questions or comments, just write and enclose an SASE to Don Patrick, 3701 Old Jenny Lind, Fort Smith, AR 72901.

"Til next time, this is the Old Timers saying 73!"
Low-power Canadian Stations Would Offer New DX Opportunities

A couple of low-power stations are in the works in Canada, according to applications filed this spring with the Canadian Radio-television Commission (CRTC). BAF Audio Visual, Inc., in May applied for a license to start a 99 watt station on 1610 kHz in Toronto. The English-language station would broadcast 30-40 hours per week, carrying remote, play-by-play broadcasts of amateur sports events in the area. The proposed setup calls for a mobile studio to provide remote broadcasts.

If approved, BAF’s station would be the second low-power broadcaster in Canada given the go-ahead in recent months. The CRTC in May awarded a license for a low-power radio network to accompany a series of upcoming annual Canada-wide “Marches for Jesus.” The license is limited to broadcasts accompanying the daylong marches, to be held on May 31, 1997; May 30, 1998; May 22, 1999; and June 10, 2000. The network will use as-yet-unspecified and unprotected frequencies.

WJDM Gets New Antenna
Now, New Owner Later

Expanded AM band pioneer WJDM is among the 13 AM stations Radio Aahs syndicator Childrens Broadcasting Co. (CBC) is selling to Global Broadcasting Co. for $72.5 million. The proposed sale comes less than eight months after ABC Radio rolled out its rival Radio Disney format—a debut marred by CBC charges that ABC used confidential information to develop the format aimed at the 12-and-under set. “Although it is CBC’s present intention to continue its mission to create and distribute children’s programming content responsive to today’s kids and families, CBC has been forced to alter its operations because of ABC/Disney’s method of entering the children’s radio market,” said Christopher T. Dahl, CBCs president and CEO.

Included in the sale, subject to shareholder and FCC approval, are Los Angeles’ KPLS, Chicago’s WAUR, Chicago’s WCAR, Detroit’s WCAR, Dallas-Ft. Worth’s KAHT, Minneapolis’ KYCR, Denver’s KKYD, Tulsa’s KMUS, Houston’s KTEK and Milwaukee’s WZER. CBC also will sell its flagship station, Minneapolis’ WWTC, and Phoenix’s KIDR, which it bought the day before the sale was announced.

WJDM, meanwhile, in June moved its antenna to a new site in the New Jersey Meadowlands—a move CBC officials say will allow the 1660 kHz signal to reach an additional five million listeners in New York. From its previous transmitter site, the Elizabeth, NJ, station had a potential audience of nine million. Engineers responsible for the upgrade say the new setup also makes more efficient use of the same power, currently at 10 kW daytime and 1 kW nighttime, both with a non-directional signal. Radio Aahs debuted on WJDM’s 1660 kHz outlet in February 1996, following CBC’s purchase of the station.

The Meadowlands have long been prime real estate for broadcasters, thanks to the marshy soil, which makes for good ground conductivity, and because of its location next door to the New York metropolitan area.

Their Way

In spite of what some may have thought, the Internet hasn’t made pirate radio passe. In fact, unlicensed stations are thriving, sprouting up nationwide on both the AM and FM dials. Part of the reason for the continued boom is the closure of 13 of the FCC’s 14 regional monitoring stations: If no one complains about a pirate station, it now often goes unnoticed. And then there’s a myriad of other reasons, including relatively low cost—less than that of a mid-range PC—and the sheer romance of pirate radio.

For Michael Gonzalez Calderon, going unlicensed was the only way to go. A decade ago, the Kansas City man spent three years and $45,000 bidding for a license to start a Spanish-language station, but lost out to a competing bidder. Now, he runs KCMG, using 107.9 MHz—the only way, he sees it, to fulfill his dream and serve the estimated 60,000 Hispanics in the area. “I did it their way the last time, and I did it my way this time,” he told The Associated Press. “If anybody should be upset with me for...
throwing a signal up in the sky, it should be God, not the FCC."

In the case of radio station KIND, it was neither God nor the FCC who went after operator Joe Ptak. The city of San Marcos, Texas, hauled Ptak as well as two of his fellow operators into municipal court on charges of violating a zoning ordinance prohibiting operation of a business in a residential area. But Ptak counters that the 30-watt station broadcast on 105.9 MHz isn't a business because it runs no commercials and the 50-member staff are all volunteers. Partner Zeal Stefanoff agrees: "We consider it more like a hobby, like Thomas Paine was doing with his pamphlets, just electronically," he said in a San Antonio Express-News article sent in by Jay S. Jackson, WPE5EBZ/KA5SBP, of Nacogdoches, Texas.

What really got KIND in trouble, Ptak claims, is that many of its hosts support a medical marijuana proposition on an upcoming city ballot. Not true, counters the city's attorney, who said that even though the ordinances' definition of a business is a venture conducted "for gain," it isn't restricted only to financial gain.

**All Aboard**

Italy and South Korea are two of the latest countries to commit to digital audio broadcasting (DAB). The Italian Ministry of Post and Telecommunications has allotted a portion of the VHF band for DAB, but is likely to expand that spectrum to include the L band. Plans call for DAB stations to debut by late summer in Turin and Milan, followed by Naples and Rome.

South Korea also announced plans to convert its FM stations to DAB, with the first broadcasts expected by the year 2000. During the phase-in, slated to take place between 2001 and 2010, stations would broadcast in both analog and digital to give listeners time to adopt DAB, which requires new receivers. AM and shortwave stations also would convert to DAB, but when and how are still under consideration by the Ministry of Information and Communication.

**In Brief**

When Alberta's CKUA was forced to shut down March 20 for what threatened to be a permanent hiatus, announcer Chris Martin signed off defiantly, "We'll be back after this." Five weeks later, Martin was behind the mic, signing the province-wide public broadcaster back on with, "None speak louder than those forced to shut up." The station was given a one-month reprieve, starting April 25, thanks to former staffers who volunteered to put Canada's oldest public broadcaster back on the air. Now, they're asking listeners to vote with their checkbooks whether they want to keep the 70-year-old network on the air. A fund drive is underway to raise the $1.4 million needed to keep the station on the air for one year.

Houston's KTRH—the station where CBS anchorman Dan Rather got his broadcast start—will switch its affiliation from CBS to ABC. The change, set to take place Aug. 11, comes on the heels of similar defections to ABC by Miami's WINZ, Austin's KLBJ and St. Louis' WIBV. But CBS did manage to re-sign Washington's WTOP, which last May announced it would end its contract with the network.

Trans World Radio (TWR) is expanding its English-language programming to over 14 hours a day—a change that involves shifting the bulk of that programming from its 500 kW outlet on 800 kHz to a new, 50 kW station on an as-yet-unannounced frequency. The 50 kW station, located in Bonaire, Netherlands Antilles, will beam toward Aruba, Bonaire, Curacao and Venezuela. The change also sets the stage for making the English-language programming available via satellite to about 20 Christian-format stations located in the Caribbean, according to a TWR press release. TWR expects to have that network in place by October. By switching much of the programming to the 50 kW transmitter from the 500 kW unit, TWR will be able to broadcast significantly larger blocks of English programming because it won't have to share airtime with Spanish and Portuguese programming.

Toronto's CHIN-AM has applied for a 22 watt transmitter on 101.3 MHz to supplement its nighttime coverage of outlying suburbs. The 1540 kHz station powers down to 30 kW at night. Saint John, New Brunswick's CHSJ, meanwhile, wants to abandon AM entirely. It's applied for a 50.4 kW outlet on 94.1 MHz, with the 700 kHz station slated to shut down within three months of the FM station's sign-on.

**Thanks**

Your news clippings, bumper stickers, station and shack photos and QSLs are always welcome, as are your questions and comments. Send 'em to "Broadcast DXing" at PopComm's Hicksville address. Until next month, 73.
### Seeking Permits to Construct New FM Stations

<table>
<thead>
<tr>
<th>State</th>
<th>City</th>
<th>Frequency</th>
<th>Power</th>
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<tr>
<td>AL</td>
<td>Thomaston</td>
<td>91.7 MHz</td>
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<tr>
<td>AL</td>
<td>Thomasville</td>
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<td>AL</td>
<td>Tuscaloosa</td>
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<td>Blytheville</td>
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<td>1 kW</td>
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<td>AR</td>
<td>Horseshoe Bend</td>
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<tr>
<td>AR</td>
<td>Mountain Home</td>
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<td>AR</td>
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<td>CA</td>
<td>Foothills Farms</td>
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<tr>
<td>CO</td>
<td>Craig</td>
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<td>CO</td>
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<td>Hiawatha</td>
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<td>IA</td>
<td>Ottumwa</td>
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<tr>
<td>ID</td>
<td>Burley</td>
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<td>ID</td>
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<td>Pocatello</td>
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<td>IL</td>
<td>Earlville</td>
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<td>IL</td>
<td>Fairbury</td>
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<td>IL</td>
<td>Quincy</td>
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<td>Winfield</td>
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<tr>
<td>KY</td>
<td>Drakesboro</td>
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<tr>
<td>KY</td>
<td>Elk Horn City</td>
<td>103.1 MHz</td>
<td>(WPKE-FM booster)</td>
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<tr>
<td>LA</td>
<td>Abbeville</td>
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<tr>
<td>LA</td>
<td>Arcadia</td>
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<tr>
<td>MA</td>
<td>Nantucket</td>
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<td>500 watts</td>
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<tr>
<td>MI</td>
<td>Gladstone</td>
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<tr>
<td>MI</td>
<td>Goodland Twp.</td>
<td>88.1 MHz</td>
<td>500 watts</td>
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<tr>
<td>MI</td>
<td>Muskegon</td>
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<td>1 kW</td>
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<tr>
<td>MN</td>
<td>Grand Marais</td>
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<td>Benton</td>
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<td>St. Joseph</td>
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<tr>
<td>NH</td>
<td>Peterborough</td>
<td>88.1 MHz</td>
<td></td>
</tr>
</tbody>
</table>

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DELTA COMM is available for ICOM IC-R8500 communication receivers. With speed as a design goal DELTA COMM's QUICK LOG function will log signal level, frequency, mode, date, time and optional Global Positioning System (GPS) coordinates at speeds in excess of 2400 channels per minute. Here are a few examples of the many advanced features DELTA COMM has to offer:

- Load 40 channels of information including ALPHA NUMERICS into one of the R8500's memory banks in 3 seconds.
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- Activity log function automatically records and calculates total spectrum usage time.
- Unique search operation stores all frequencies found active and then automatically skips those frequencies during the remaining search cycles. This feature eliminates redundant logging.

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Delta Research

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CIRCLE 67 ON READER SERVICE CARD

September 1997 / POPULAR COMMUNICATIONS / 61
| TX  | Temple     | 88.5 MHz | WCHB | Taylor, MI | 1200 kHz | Seeks to change night power |
| TX  | Waco       | 88.1 MHz | WCHE | W. Chester, PA | 1520 kHz | Seeks increase to 1 kW |
| TX  | Waco       | 88.9 MHz | WOKA | Douglas, GA | 1310 kHz | Seeks increase to 3.9 kW |
| UT  | Blanding   | 92.3 MHz | WRKL | New City, NY | 910 kHz | Seeks to change night power |
| VA  | Deltaville | 92.3 MHz | W5NR | Hartford, NY | 1600 kHz | Seeks to change community |
| VA  | Dilwyn     | 105.3 MHz |     |            |          |                          |
| VA  | Wise       | 905.5 MHz |     |            |          |                          |
| VT  | Bennington | 88.1 MHz |     |            |          |                          |
| VT  | Wallingford| 91.5 MHz |     |            |          |                          |
| WA  | E. Wenatchee| 88.1 MHz |     |            |          |                          |
| WA  | Littell    | 88.9 MHz |     |            |          |                          |
| WI  | Algoma     | 104.1 MHz |     |            |          |                          |
| WI  | Forestville| 102.1 MHz |     |            |          |                          |
| WI  | Nekoosa    | 105.5 MHz |     |            |          |                          |
| WI  | Siren      | 105.7 MHz |     |            |          |                          |
| WI  | Two Rivers | 97.1 MHz |     |            |          |                          |

Seeking Permits to Construct New AM Stations

| AK  | Seward | 1240 kHz | 10 kW |
| NH  | Hanover| 720 kHz  |       |

Granted Permits to Construct New FM Stations

| AR  | Viola  | 94.3 MHz |
| AZ  | Flagstaff | 96.7 MHz | (KVTF booster) |
| MI  | Reed City | 97.3 MHz | 2.85 kW |
| OH  | Marion   | 91.1 MHz | 2 kW  |
| OK  | Woodward | 95.9 MHz |
| TX  | Hereford | 103.5 MHz | 50 kW |
| TX  | Leakey  | 104.3 MHz |

Cancelled or Expired

| KAIN | Vidalia, LA | 1040 kHz |
| KBDY | St. Louis, MO | 89.9 MHz |
| KCLS | Flagstaff, AZ | 690 kHz |
| KDEW | Dewitt, AR | 1470 kHz |
| KFAS | Casa Grande, AZ | 1260 kHz |
| KHAT | Lincoln, NE | 1530 kHz |
| KHUG | Rocky Ford, CO | 95.9 MHz |
| KTYN | Minot, ND | 1430 kHz |
| WAYB | Waynesboro, VA | 1490 kHz |
| WAZE | Dawson, GA | 92.1 MHz |
| WBHQ | Bloomfield, IN | 101.1 MHz |
| WHIA | Dawson, GA | 990 kHz |
| WHRF | Bel Air, MD | 1520 kHz |
| WHSY | Hattiesburg, MS | 1230 kHz |
| WLVN | Brantley, AL | 1080 kHz |
| WMFL | Monticello, FL | 1090 kHz |
| WRHX | Herndon, VA | 1440 kHz |
| WSRR | Washington, NJ | 1580 kHz |
| WTDX | Lincoln, ME | 1450 kHz |
| WRSS | Scranton, PA | 1320 kHz |
| WUWU | Cordele, GA | 1490 kHz |

New FM Call Letters Issued

| KLAY | Lakewood, WA | 1180 kHz | SEEKS DAYTIME INCREASE TO 5 kW |
| KAUJ | Walhalla, ND |
| KAUL | Show Low, AZ |
| KBFN | Big Sky, MT |

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

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

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THE MONITORING MAGAZINE
September 1997 / POPULAR COMMUNICATIONS / 63
You might say it was a bad investment. The Investment Channel, which opened a 24-hour-a-day service broadcasting business and investment news via South Africa's Meyerton transmitter facility has already left the air! As far as we know, no announcement or explanation was given.

World Music Radio has begun testing from Meyerton, initially on the weekends, on 3345 and 6290, signing on at 1800 and running to 2200 close. You can reach them at World Music Radio, P.O. Box 112, DK-8900 Randers, Denmark.

That new shortwave station coming on the air from Georgia won't be operating under the moniker of WEUR after all. The call letters will actually be WWBS. Spare parts from that WWCR transmitter which was damaged in that fire some years ago are being used in building the WWBS transmitter.

The end for Radio Tahiti seems near. The only frequency still active is 15167 (variable) and the power of that transmitter seems to be extremely low. The other two Radio Tahiti shortwave transmitters which, for years, were active in the 49 and 25 meter bands, have already died. Sadly, when 15167 is gone that's gonna be the end as the station does not plan to spend any more money on its shortwave operation. Nineteen meters should still be open a few hours into the evening, so if you haven't heard Radio Tahiti yet we suggest you make a concentrated effort to hear them during the next month or two.

The financial shake-up for Radio Australia means that the station has had to discontinue use of its Darwin transmitting facility. Apparently the Darwin station won't be torn down. We're guessing one or more international broadcasters will lease time for broadcasts via Darwin.

With all the recent news about Zaire (now Democratic Republic of the Congo) lately it's interesting to note that Radio St. Helena sent this QSL card for their 1996 broadcast.
Nationale Congolaise, across the river in Brazzaville has been reactivated. Check 4765 around 0400. The former Zaire government station, now called Voix du Congo or, more officially, RTNC—Radio-television National Congolaise is "more or less" active on slightly variable 15244, but most DXers who find this one report it with quite weak signals. Check for them during late mornings or early afternoons in North America.

HCJB (Ecuador) finds itself in the unhappy position of being under a government order to tear down its Pifo transmitter site because a new international airport is going to be built nearby and all those antennas would be a flight hazard. Getting the job done will take anywhere from three to four years. In the meantime, HCJB has some important decisions to make about its shortwave future.

By now we should be getting excellent reception of the Voice of Greece. The station is due to start 12-hour-per-day relays via VOA transmitters in the U.S. One frequency which may be used is 9590 from Delano, CA.

Deutsche Welle is now operating with four new 500 kW transmitters at its Nauen transmitter site, near where the former East Germany’s Radio Berlin International’s transmitters used to be located. The new DW units are capable of digital broadcasting.

Zambia, too, will soon be speaking with a louder voice. The Zambia National Broadcasting Company is putting two 100 kW transmitters on the air—one for 60 meters one for 49 meters. These will replace the 20 year-old units now ending their days.

The Voice of Charity, a Catholic station based in Lebanon, is now being relayed by Vatican Radio from 0400 to 0500 on 11715.

Don’t forget that your log reports and other items may be received, station photos and photos of you and your shack to include as illustrations. Thanks for your continued support!

Here are this month's logs. All times are UTC, which is five hours ahead of EST; i.e.0000 (midnight) UTC is 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, 4 p.m. PST. Double letter abbreviations such as SS, PP, RR, AA, etc. are for languages (Spanish, Portuguese, Russian, Arabic), etc. The lack of a language mention assumes the broadcast was in English (EE).

**ALBANIA**—Radio Tirana, 7160 at 0143 with IS, ID. frequency info. then Albanian news. (Jeffery, NY)

**ARGENTINA**—RAE, 11710 at 0225 with commentary, news, features, news, Argentine economic news. (Jeffery, NY)

**AUSTRALIA**—Radio Australia, 6080 at 1240 in Chinese. Jammed. Also 9580 at 1235. (Miller, WA) 9580 at 0824. (Foss, AK) 1245 with "Australia Today." Also 17795 at 2334 with a news magazine program. (Jeffery, NY) 9860 at 1321. News at 1332. (Wilden, IN)

**AUSTRIA**—Radio Austria Int'l, 6155 at 11720 heard by woman at 0000 and presumed news. (Northrup, MO)

**BRAZIL**—Radio Nacional Amazonia, 11780 at 2030. (Foss, AK)

**BULGARIA**—Radio Bulgaria, 11720 heard at 0400 with music and voice IDs. "This is Radio Bulgaria calling." News in FF at 0401. (Miller, WA)

**CANADA**—BBC Americas/European program streamed via Sackville, 9515 at 1236. (Jeffery, NY) 9580 at 0824. (Foss, AK) 1210 with news in FF. (Jeffery, NY) 1235 at 1210 with news in FF. (Foss, AK) 2030. (Miller, WA) 9160 at 1220 in CC. (Miller, WA)

**CONGO**—Radio Congo, 4765, reactivated.

**DEUTSCHE WELLE**—Radio Berlin, 11765 at 0334 with classical Chinese music and announcer in SS. (Foss, AK)

**ECUADOR**—Radio Quito, in Ecuador, sent this red, white and blue postcard with IS, ID. (Rausch, NJ)

**FRANCE**—France Inter, 9590 at 0040 in SS with cornet, ID. (Rausch, NJ)

**GERMANY**—Radio Deutschland, 5995 at 0228 with Canadian Forces Radio; 17820 at 2030. (Miller, WA) 11960 at 1220 in CC. (Miller, WA)

**HUNGARY**—Magyar Rádió, 19860 at 1321. News at 1332. (Wilden, IN)

**ITALY**—Radio Italiano, 5995 at 2040 with "Earth Watch" program. (Halinar, Germany) 1210 with news in FF. (Jeffery, NY) 9535 at 0228 with Canadian Forces Radio, 17820 at 2030. (Miller, WA) 11960 at 1220 in CC. 13650 at 1235 with comedy program. (Northrup, MO)

**JAMAICA**—Jamaica Combined Network, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**LATVIA**—National Radio, 9165 at 0228 with classical music and announcer in SS. (Foss, AK)

**MEXICO**—Radio Mexico, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**NATIONAL SPANISH LANGUAGE AND CULTURAL CENTER**—Programs in Spanish via Sackville, 9515 at 1236. (Jeffery, NY) 9580 at 0824. (Foss, AK) 1210 with news in FF. (Jeffery, NY) 1235 at 1210 with news in FF. (Foss, AK) 2030. (Miller, WA) 9160 at 1220 in CC. (Miller, WA)

**NETHERLANDS**—Radio Nederland, 5995 at 2040 with "Earth Watch" program. (Halinar, Germany) 1210 with news in FF. (Jeffery, NY) 9535 at 0228 with Canadian Forces Radio, 17820 at 2030. (Miller, WA) 11960 at 1220 in CC. 13650 at 1235 with comedy program. (Northrup, MO)

**NORWAY**—NRK, 9590 at 0040 in SS with cornet, ID. (Rausch, NJ)

**PERU**—Radio Peru, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**PORTUGAL**—Radio Portugal, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**RUSSIA**—Radio Rossia, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**SWEDEN**—Sveriges Radio, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**SWITZERLAND**—Radio Suisse, 11515, 9590, 5025 in FF at 1230. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**UNITED KINGDOM**—BBC World Service, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**UNITED STATES**—VOA, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**URUGUAY**—Radio Uruguay, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**VIETNAM**—Radio Vietnam, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**ZAMBIA**—Radio Zambia, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)

**ZIMBABWE**—Radio Zimbabwe, 5025 in FF at 0517. Also at 0950. (Jeffery, NY) 2030. (Foss, AK) 9515 at 1236 with comedy program. (Northrup, MO)
Here's the broadcast schedule of Radio Slovakia International, good through (almost) the end of October.

B. Fisher in Michigan got this pennant from the Voice of Vietnam (done in good ol' red, white and blue!).
ICELAND—Icelandic Nat'l Broadcasting, 11402 SSB at 2326 in Icelandic. (Miller, WA)

INDIA—All India Radio, 10330 in Hindi; music of India. 11585 from Bangalore at 1617 in tentative Farsi. Mentions of Iran. Bangladesh. (Miller, WA)

ITALY—RAI, 11800 heard at 0100 with weird musical signal. Nearly unreadable. (Miller, WA)

JAPAN—Radio Japan/NHK on 7230 via England at 0611 with news. (Foss, AK) 9835 at 1701 with news of Japan. (Miller, WA)

KUWAIT—Radio Kuwait, 11675 at 0334 in AA. (Foss, AK) 11765 at 0207 in AA with apparent political discussion. (Miller, WA)

NETHERLANDS—Radio Netherlands, 12090 in unidentified language at 15335, in AA at 2304. (Miller, WA)

MOLDOVA—Voice of Russia via Moldova, 9665 at 2301 with news. ID. (Jeffery, NY)

MOROCCO—RTV Marocaine, tentative. 15335 in AA at 2304. (Miller, WA)

NETHERLANDS—Radio Netherlands, 12090 in unidentified language at 1215. (Northrup, MO)

NEW ZEALAND—Radio New Zealand Int'l, 15115 at 0205 with New Zealand weather forecast. "Cadenza," and "In Touch With New Zealand." (Jeffery, NY) 0404 with commercials, weather, interview. (Wilden, IN)

PAKISTAN—Azad Kashim Radio, 4790.4 heard at 0040 in unidentified language. Man and woman with music duet with drums. Two plus one time pips to ID by man at 0100. (Rausch, NJ)

PAPUA NEW GUINEA—NBC Port Moresby, 4890 heard at 0855. (Foss, AK) 1314. (Miller, WA)

PARAGUAY—Radio Encarnacion, 11939.25 heard at 0240 in SS with pop and folk, ID at 0300 and off. (Rausch, NJ)

PERU—Radio Huamare, 5385.2 in SS at 0135 with huaynos to ID. (Rausch, NJ)

PHILIPPINES—Far East Broadcasting Corporation, 9405 heard at 1539 in CC. (Miller, WA)

ROMANIA—Radio Romania Int'l, 9510 at 2258 with IS, ID. news. (Jeffery, NY) 0418. (Miller, WA) Here and parallel 11940 at 2310 to 0000. (Silvi, OH) 11940 at 1800 sign off with news in GG. (Halinar, Germany) 0301 and 0404. (Wilden, IN)

RUSSIA—Voice of Russia on 9810 at 1837. (Halinar, Germany) 11840 heard at 0331 in RU. (Foss, AK)

SAUDI ARABIA—BSKSA, 11870 at 0348 in AA. (Foss, AK) 11910 at 1630 in AA. (Moser, IL)

SEYCHELLE ISLANDS—Far East Broadcasting Association, 9810 at 1413 in unidentified language and "What a Friend We Have in Jesus" interval signal. (Miller, WA)

SINGAPORE—Radio Singapore Int'l, 6135 at 1251 in Indonesian. (Miller, WA)

SLOVAKIA—Adventist World Radio 9455 via Rimavská Sabota site heard at 1541. (Miller, WA)

SOLOMON ISLANDS—SIBC, 5020 at 0845 with announcements about flight changes for Solomons Islands. (Foss, AK)

SOUTH AFRICA—The Investment Channel, 7190 at 0404 with business news and IDs. (Jeffery, NY) This has left the air already! Editor.

SOUTH KOREA—Radio Korea, 9570 at 0850 with a detailed rundown of the North's military build-up over the last few years. (Foss, AK)

SPAIN—Radio Exterior de Espana, 15110 at 2053 in SS. (Miller, WA)

SWAZILAND—Trans World Radio, 4765 at 0423 in unidentified language. 4775 at 0423 in German. (Miller, WA)

SWEDEN—Radio Sweden, 7290 at 0129 with ID, news. (Jeffery, NY) 15240 at 1139. (Moser, IL)

SWITZERLAND—Swiss Radio Int'l, 9905 at 0115. (Wilden, IN) 0219. (Miller, WA)

TURKMENISTAN—Turkmen Radio on 11939.25 heard at 0135 in unidentified language with Mixendi-influenced string music. 3 gongs at 0200. ID by man woman in RR. (Rausch, NJ)

UKRAINE—Radio Ukraine Int'l, 7150 at 0253 to 0330 in EE with talk, music, ID. address, "Ukraine Today." (Paszkiewicz, WI) 7150/9550 at 0000-0100. (Silvi, OH) 9550 at 0237. (Moser, WA) 12050 at 1703 in possible Ukrainian. (Wilden, IN)

VIETNAM—Voice of Vietnam, heard to closing at 0125. (Moser, IL) (This is via Russia. Editor) 7250

ZAMBIA—Presumed Christian Voice. 6065 at 0547 in unidentified language. Music, talk, including a prayer, more music. No ID. (Jeffery, NY)

A whopping big thank you to the following this month: Howard J. Moser, Lincolnshire, IL; Chris Halinar, U.S. Army; Mark Northrup, Gladstone, MO; Sue Wilden, Columbus, IN; Michael J. Miller, Issaquah, WA; Dave Jeffery, Niagra Falls, NY; Sheryl Paszkiewicz, Manitowoc, WI; Marty Foss, Taltakeena, AK; Ed Rausch, Garden Grove, NJ; Elmer Wallesen, LaGrange Park, IL and Lee Silvi, Mentor, OH. Thanks to each one of you.

Until next month, good listening!!
Readers have sent in a great number of questions regarding the QSLing of utility stations. It has been an enjoyable part of the hobby for me for many years. Properly done, you can have very good results. My lifetime average for some 1,500 requests sent, is about a 68 percent return rate. I have known others who have hit an 80 percent return rate. Utility station QSLing is completely different from broadcast station QSLing. I always start my letter and introduce myself, explain a little bit about my hobby, and my interest in their station. By their very nature, most utility station transmissions are not intended for the general public to hear. Therefore, it requires some skill in providing information for the station to confirm it was their transmission, without the paragraphs of detailed information that may be offensive to them, similar to that required in QSLing a broadcast station. In fact, what was heard normally should not be quoted. Exceptions include weather and marine information broadcasts. I have found that simply indicating who the station was in contact with, at what time (in UTC) and on what day, works best. For example if I'm sending a request to a cruise ship, it might go like... "This was concluding radiotelephone traffic with AT&T station WOM at 2115 UTC on August 5, 1997." This way, you avoid quoting anything that was said. I also always include a "PFC" or Prepared Form Card. A PFC is a QSL you make up and send along for the station to fill out and mail back. These can be as simple as a file card with the information penned in, or an elaborate computer-generated version. A very small percentage of utility stations have their own QSL cards. For stations within the United States or ships flying the U.S. flag (including U.S. Navy Coast Guard, Army Transportation Corps and NOAA ships) I always include a No. 10 SASE. A SASE is a Self-Addressed Stamped Envelope. The No. 10 envelope is also called "business letter size." For stations outside the U.S., I send mint stamps purchased from a stamp dealer. There are a few dealers that specialize in selling other countries stamps that equal the air mail postage rate to SWLs. Prices vary depending on the country. I also sometimes include a postcard from my area. Others, like Ary Boender in the Netherlands, have their own SWL QSL cards they include. I then place my letter, PFC, SASE or postage, and postcard in a 6" × 9" clasp manila envelope for mailing. The point is to make it as easy as possible for the station to respond. Remember, they are doing you a courtesy in replying. Nothing says they "have to" QSL, in fact, it's quite the opposite.

Now we know what to say and what to send, but where to send it? That is the million dollar question. There are several good utility station address books on the market, although they are becoming dated. Publication 65 is the two-volume
LISTENING TO THE SOUNDS OF THE EARTH AND BEYOND...

DATE

UTC

FREQ

KHz (USB/LSB)

ANTENNA

RECEIVER

Ary Boender

The Netherlands

SWL

SWL QSL card used by Ary Boender. The Netherlands.

old DX call letters, spent 30 1/2 years as a traffic controller. Nolan passed on some info regarded logs in the June, 1997 column. In the logs under 6532.0 kHz, he correctly points out the correct name of the Australian airline is Qantas rather than Quantas. The log was correct when it came in, so I'm not sure where it was "mangled." I'll have to watch my spell checker. Qantas is an acronym of the original company name Queensland and North Territories Air Service. Also, Nolan reports the log on 5710.0 was a Lockheed pre-delivery flight test of a new C-130. The number used (5414) is a "Construction Number", or C/N, and 5414 is a valid C-130 C/N. Last, he provided insight as to how the Navy C-9B's ID, such as in "Navy RX 113." The last three digits of the Bureau Number ("tail number") to the USAF are used, along with the tail-code for their home base. So in the example of RX-113, RX is used by VR-57 "Conquistadors" at NAS North Island and 113 is BuNo 159113. My list of Navy tail-codes is dated, evidenced by my listing of VR-62 still being at Selfridge ANGB. As soon as I have an updated list, I'll pass it along here. Table 1 is a listing of known C-9B "Skytrain" bureau numbers and their last known assignments (circa 1995). Interestingly, Nolan has legally used more call letters or callsigns than most I know. In the past he has used the following call signs: USAF: WYWW (CW), Walker Airways, Walker Tower (Walker: AFB, Roswell, NM), Biggs Tower, Biggs DF, McClellan Tower, APH28 (mobile McClellan—on a jeep), Stead Tower, CAA/FAA: KYYWU (CW), Unulakleet Radio (CAA, Alaska), El Paso Center, Isla Grande Tower (P.R.), San Juan Tower (P.R.), OOFH (CW) Air National Guard AC&W, Tucson Tower, Tucson Approach Control (at Davis-Monthan AFB), GRIDIRON (AC&W GCI site on top of 9185' Mt. Lemmon, AZ where he worked the first Civil Air Carrier Turbojet Flight Following program—the first coast-to-coast radar control of high altitude aircraft circa 1957), Edwards Approach Control, NASA ONE (where he controlled NASA's Mach III YF-12s (later SR-71's) and EMERALD, Operation BOLD EAGLE 76 (forerunner of Red Flag), where his Jeep was WARLOCK, and finally "Mojave Race Control" for races there in 1976.

Alan Gale (UK) caught the final message sent by GNI, Niton Radio (UK) at 0000 UTC on June 1st over 500.0 kHz. (International CW Maritime Distress): "CQ CQ CQ GNI GNI as of 2400 UTC Niton Radio/GNI is ceasing watch on 500 kHz stop. We wish all remaining stations good luck for the future = GNI GNI AR VA". The station was then called by OST, Oostende Radio (Belgium), EJK, Valentia (Ireland), and SAA, Karlskrona (Sweden), who all wished them luck, and ended their message with RT AGN. Alan reports Niton also ceased watch on MF channel Uniform 2628/2009 kHz at the same time. Falling traffic levels were blamed for this, along with the approaching GMDSS. Alan also reports another SAR exercise or "major rescue" June 4 on 5680.0 kHz taking place off Norway. Stavanger Radio was in contact with JAG, MAL and UUS for long periods. Interestingly enough throughout this period Kinloss Rescue was telling stations to use 5699 kHz again. Tony Orr (VA) reports the recent addition of even flight levels, as spacing across the Atlantic has gone from 2,000 feet to 1,000 feet vertical on the NAT tracks, most flights taking the evens at F340 and F360.

Craig J. MacKinnon in Halifax, NS, Canada writes about an interesting log he caught. Canada was in the midst of a federal election campaign, and Craig caught the PM’s plane using the callsign Liberal 1 (the PM being a member of the Liberal party there), instead of the usual CanForce 01. Craig thinks this has to do with parliamentary democracy. The PM asks the Governor General (the Queen’s representative and formal executive) to dissolve parliament so he can call an election. Therefore, as “just” a candidate, perhaps the PM can not use the CanForce 01 call. Sounds like a reasonable theory, perhaps another reader can tell us for sure?

Golden Oldie

Recent internet posts Craig and I made about NASA comms that use to be heard on 20186.0 kHz USB, and 20192.0 kHz, LSB, brought an interesting e-mail from Dave Emery (MA). Dave reports this was a four-channel ISB link from Malabar north of the Cape to Ascension in the south Atlantic. The link the other way was on 19 MHz. Usually one channel carried a modem with high speed data on it and sometimes another had VFT RTTY. They ran night freqs around 11 MHz and 7.5 MHz. This circuit dates from the late ‘60s or very early ‘70s, according to Dave, and he used to copy it in the Apollo moon shot era when it often had the tracking network and mission voice circuits on it. These were not available to the public via anything like NASA select at that time. The

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Air Force will combine the Air Weather Service. While we’re on the subject, the NE as part of the USAF Air Weather PR. They are remoted from Offutt AFB, now used at NAS Roosevelt Roads, frequences Anonymous confirming the RTTY frequencies have been attributed to NAS Roosevelt Road among other locations in the past. I was able to confirm the RTTY weather transmissions on 7784.0 kHz as coming from a source of the RTTY weather transmissions. My friend has been able to confirm the transmissions on 7784.0 kHz as coming from a location. The source of these transmissions has been attributed to NAS Roosevelt Road. A portable receiver was used to confirm the operating location already there and to co-locate with the National Climatic Data Center, according to a release by the Air Force News Service.

Dave Wright has picked up some interesting transmissions on 10225.2 kHz. In the SW, ASCII, RTTY and CW. Sent were YR’s and “KXNJ DE NLXB CIP CIP CIP CIP CIP CIP KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKKK KKKK
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Table 1.

5238: The Counting Station pgm fm 4645 at 1700 Mon hrd faintly in background. (CS)
5301: Very fast CW numbers at 2340. seemed to be synchronized w/CW on 9230. (SP) This is OLX, reportedly Czech Intelligence, Prague. Yes, same station as 9320. (Ed.)
5430: Alma Radio. Quebec at 0000 in USB w/ppt's in FF. this is one of their secondary frequencies (TB)
5437: Mosaic lady passes 5FG's heard at 2206. (TY)
5447: French Forces. Mururoa (presumed) at 1105 in ARQ-M2 128.5/85. MNS/MOS running on 5120.9 at the time w/usual format, so suspect this was the return link. Actually on same freq 5447.9 the following day also. unlike Tahiti end of circuit. (AWH)
5535: Speedbird 2224 at 0436 in USB w/kg Speedbird London heater HSI indicator problems. select BD-EH. (TO)
5541: DHL 017 at 0139 in USB w/kg Stockholm R. for select check, BH-PG. (TO)
5747: San Francisco (CEP-5) w/kg United 6002 & Hawthian 2 for pops reports at 0510 in USB. (TY)
6060.5: 6PX rmpg "V ABYZ DE 6PX" (both mid CW sms) at 1014. //3440/6785 kHz. (TY)
6064.5: 4XML rmpg "V 6FR7 DE 4XML" (both mid CW sms) at 1035. (TY)
649: Garder ATC w/kg Shamrock 112. Lot 002. others w/selection calls at 0209 in USB. (RK)
670: Misad ACC w/kg various a/c at 2045 in heavily accented EE. (TY)
6788: Babbler station. Cuba. at 1500 in USB. close to here for about a week. mostly 24/hr day but not since. little tlc during the active period noted. (AWH)
5096: NICS. USS John C. Stennis (CVN-74) at 1928 w/kg MNM, CAMSLANT Chesapeake. passing ETA to area of SAR of 2300L. MNM adv RESCUE 1501 was att comms w/them on 2644.5 no joy. At 2032. NOP "Brooklyn Air", Brooklyn, NY. w/kg RESCUE 6539 re ETA on-scene. At 2229. USS John C. Stennis w/kg RESCUE 1501. adv launching E-2C whose ETA is 1 hr. At 0237. NDUX. USS Santa Barbara (AE-28) w Kg Stennis re search area. BLUEETAIL 601. E-2C from Stennis, at 0245 w/kg USS Santa Barbara (AE-28) re airborne again and is holding them on radar. SAR comms re distressed sailing vessel in USB and why this is always an interesting freq (Ed.) RESCUE 1502 (USCG HC-130) w/kg CAMSLANT Chesapeake re "nighttime search object" at 2256 in USB. (RK) CAMSLANT Chesapeake. VA at 1442 in USB w/kg CG 6001. CG 6014. (TY)
7511: French Forces Tahiti (presumed) at 1125. In ARQ-M2 128.5/85. probably C1. MNS/MOS to Mururoa but off before IDed. This one changes frequency every single day. 5-8 MHz range. (AWH)
7536: Cuba at 1500 in USB. "RST RSB ZIA ZIA" into 5FLG's. weak/buzz tx. sounds like typical Cuban 5 MHz CW operation. (AWH)
757: HB2D0. MFA Berne heard at 0901 in ARQ. (DG)
7564: YL at 2421 in AM on Sat, w/S/LG's in SS. gone at 2423. (SW)
Protector is used in support of Collins-class submarine sea trials. At 1044 next day, HMAS Darwin (FFG-04) wkg Darwin Control. All in USB. (DW)

8139.5: FDE14, FAF Cazeaux. F at 0903 in CW w/marker. (DG)

8271.7: North Korean Embassy, Cuba at 0205 in 50/850 RTTY, 5FGs w/100's grp count subtotals at end of line every 10th line. Msg headers used format "376 24 05100 05100." (AWH)

8303: LOR: Argentina Navy, Puerto Belgrano at 0037 in 75/173 RTTY w/wx in SS. (DW)

8402.5: YLFT: BATM Sergey Eseman 2150 RTTY Latvian -Flagged large autonomous long range/endurance trawler, w/TG listing types/total weight of fish catch transferred to TR Olympus using hull#/ID BATM-6123, also sends fish catch report for BATM-6125. (Ed.)

8464: Lincolnshire Poacher lady passes 5FG's in USB at 2217. (TY)

8465: YL/EE at 1936 in LSB w/5FG's, heavy QRM. (CH) Abnormal Mossad transmission heard, YL opr at 1513 rptng only SYN2 phonetically for more than 30 min in USB. Another day YL opr rptng SYNOK2 phonetically at 1531. First time I've ever encountered such a curious Mossad call sign. Able to hear SYN Mossad best in USB 1449. (TY)

8503.9: NMG, New Orleans USCG at 2010 in 120/576 WxFax for Gulf of Mexico. (SW)

8528.5: EBA, Spanish Navy, Madrid at 1400 in CW w/wx tfc on Mediterranean Sea, w/QRM. (CH)

8531: WLO, Mobile Radio at 1609 w/CW wheel. (SW)

8685: IRM, CIRM, Rome, Italy w/"Free Radio Medical service and AMVER Service on 8/16 Mhz common K" in CW at 1103. (CH)

8788: Gdynia Radio, Poland at 0258 in USB running pp's for several vessels. one was for '3FR'. (TB)

8828: 'Honolulu Radio' in USB w/VOLMET at 0437. (TS)

8894: Swissair 265 at 0044 in USB AG-EQ wkg Algiers for selcal check, AG-EQ. MD I reg. HB-IWK. (TO)

8903: VP-BJA at 2339 in USB clg Niamey here twice no joy. (TO)

8906: Speedbird 9684 at 2344 in USB wkg New York for selcal check DH-CL. (TO)

8930: Austrian 514 at 2354 in USB wkg Stockholm R. w/pp to Ops in GR. (TO)

8965.5: L6R clg NAWS (spelled phonetically), IF answers, L6R then ann 'Smart Bravo Smart Bravo' and reports 3 Foxes fired, hrd 2044 in USB. (RK) (may have been the term "Fox 3", which means a Phoenix (AIM54) missile fired. Fox 1 is the Sidewinder, Fox 2 is the Sparrow, and Fox 4 is the Amraam—Ed.)

8968: TOEIHOLD clg McClellan at 1412 in USB, no joy. (RK)

8970: Stockholm Radio at 0222 in USB wkg an unid a/c who was just ending a PIREP. (TB)

8971: BLUESTAR at 1835 passing QSL time to RED LANCER 713, RL 712 req comms w/the watch officer (WO). (MF) FIGHTING
TIGER 720 wkg Hotel 4 Rome, ea having a hard time hearing ea other. HAF later called BLUESTAR (?) and had them call 720. (FT 720 is probably a P-3C-115 of VP-8 "Tigers" at NAS Brunswick, while BLUESTAR is reportedly the P-3 Patrol Sqd Duty Office at NAS Roosevelt Road. PR-Ed.) FIGHTING TIGER 725 at 1745 wkg TIGER OPS re inflight emergency of bird strike on canopy. All in USB. (RK)

9075.5: As Paul Harvey would say: "Here's a strange!"—Hrd the word 'tiger' spelled out eucated (like "Digital" for D). (CS)

9253: At 0025, OM/SS in USB at 1838 in USB to 1850, then Gander Radio to 1900, then back to NY. (MF2)

10125: VLB2 Mossad best in USB hrd at 1645. (TY)

10225:2: Various Tactical calls: at 1600 in FEC w/Rys & tfe, down at 1611. At 1613, into RTTY 45/161 with same msg format but different calls. Do at 1619. At 0621, ITA-5 (ASCII) 57/161 w/same format but also different calls. Down at 1633. At 1635, up w/CW (16wpm) w/same format tfe, but different calls. Down at 1648. Back into FEC at 1651. (DW)

10411: Unid at 1930 in ARQ, unknown language (Russian?). (BOZ)

10493.9: RT'IJ, FF Dakar at 1716 in ARQ-E3 48/400 w/"CdeV" on C.I. "JF". (RH) (RT'IJFF Port Bouet, 'to'-Dakar.-Ed.)

10952: HBD20, MFA Berne heard at 1351 in ARQ. (DG)

10991.7: RFFVAY, Sarajevo, Bosnia at 0257 in ARQ-MZ 200-400, cb running METAR w/ekt ID FBW, (Dah.)

11119: KAWN 75 bd RTTY at 1526 w/METAR reports. (SW) (AFS, Offutt AFB, Ne.-Ed.)

11175: MacDill at 1752 wkg VIPER 01 w/pp Keelser Base Ops. (MF) Offutt at 1730 wkg BADGER 11 w/pp re transportation when they arrived & parking configuration. Bear 23 also being worked. (SW) ISRAELI 005 wkg McClellan GHS w/pp Seymour Johnson AFB. CASEY 01 (KC-135 55th Wing, Offutt AFB, Ne.) wkg Andrews for FAX #5, then w/pp Langley AFB meteo & CP, hrd at 1352. (RK) (Commander-in-Chief of Strategic Commands a/c-Ed.) All in USB.

11232: CANFORCE 3475 wkg Trenton Military for wx at KHDK (Albuquerque) hrd at 0209 in USB. (RK)

11244: TRANSFIX wkg Thule for 'drop points, when asked for PI-REP, replied that it would be a compromise?", hrd 0227 in USB. (RK) (Pirep is a Pilots Report, must have been a pp to a meteo stn. To give the aircraft type required in a Pirep app would have compromised the ID of TRANSFIX, which is a tactical callsign.-Ed.)

11306: American 097 at 0431 in USB wkg Flight Support Lima LDCO. Peru. w/ARPN LRL. FL. 330. (TO)

11455: KKN50 at 1700 in CW w/"QRA QRA DE KKN50 KKN50 QSNX 8/10/12/15 K". (CS)

11526: CIA Counting stn at 2100 in ARQ, this is app a Wednesday blet's as it wasn't there on Thur. YL/EE w/1 to 0 count for 10 mins, then 5FG's to 2145. (CY)

12186: Jamahirian News Agency (JANA) heard at 1842 in 57/100 RTTY w/"nx on Egypt. (CY)

12359: Herb, HLX498 at 2122 in USB wkg various vssl w/maritime wx net, vssls in Caribbean area. (TY)

12490.5: MN Oceantramp in ARQ at 2129 wkg shore stn w/msg in unid lang, re to a pump. (TS) (this may have been Polish vssl sending TG to Oceantramp. Szczecin, Poland.-Ed.)

12505.5: ESGI, ML Kusatsu at 1640 in ARQ w/admin rpt to Tallinn from master KM Vilson. (RH)

12569: UDUR, Russian-flagged stern ramped super trawler/freezer RTMS Admiral Sirakor at 2135 in 50/170 RTTY w/msg TG's to Murmansk BVTs Sevryba using hul/#ID MA-1812 from master, KMD Pavlov. (Ed.)

12876: VAL, CCG Vancouver at 1653 in CW w/call tape. (DW)

12917: KLB, Seattle R. at 1650 in CW w/call tape. (DW)

12952.5: VIP, Perth Radio, Australia, w/CQ/CW mkr at 1050. (TY)

13043: FUV, French Forces, Djibouti Naval heard at 1512 in 75/850 RTTY w/"x"/ID & Testing 1234 etc. off freq, normally 13024.5 kHz. (RH)

13089: MNM, CAMSLANT Chesapeake in USB at 2223 w/computer-generated voice giving wx. (TS)

13113: YL ship-to-shore operator in USB at 1405 re OM on board unid vssl. She didn't believe that he was the real holder of callsign 3ERY. (TS)

13270: New York Volmet at 2302 in USB w/aviation wx. (TJ)

13376.5: RETXX, Guardia Civil, Madrid, Spain at 1017 in ARQ 100/400 w/tfe. (DG)

13505: AAAAUSA, U.S. Army MARS Central Gateway, San Antonio, Texas at 1530 in PACKET 30/bdd w/callups and tfe to various U.S. Army MARS nets. (DW)

13533: EZZI Mosaic best in USB at 1532. (TY)

13541: UNID at 1543 in ARQ idling, also w/set/call's NCTI & NCXT. K-Fuss lists ICR on this freq. (DW) (U.S. Navy/ Marine Corps MARS.-Ed.)

13369: CLP165, Cuban embassy Managua in 75/425 RTTY at 1900, CLP1 on 12250. (JR)

13790: CLP12, Cuban embassy Lima in 75/425 RTTY at 1900 clg CLPI (MFA). (MA)

14437: Navy MARS stn NNOXIAO at 1610 w/msg NNONNHK (undt stn) in USB w/pp's. (TS) (most NNNONxx calls are deployed units or military shore stns, no ID on this one-Ed.)

14487: Lincolnshire Poacher w/5FG's in USB at 1001, also //16084, //15682 Hz. (TY)

14531: Air Force MARS stn AFA2FK wkg AFA2ZS in 300 baud packet at 1932. (TS)

14901.7: MFA Cairo, Egypt in ARQ at 1141 .(DG)

14912: DZFG, Belgrad, Yugoslavia, in 75/400 RTTY at 1430. (TS)

15016: MacDill GHS at 1806 w/pp for AEROVAC622 (C-141) to Kelly AFB meteo. (ME) OXIDATION wkg Croughton GHS (UK) w/pp to "GRAND FOX" at 1942. Changed freqs to 13200 then 11115. (RK) Both in USB.
This month's contributors: (AG) Alan Gale, UK; (AWH) Albert W. Hussein, FL; (BOZ) Richard in Iceland; (CH) Chris Halinar, Germany; (CS) Chris Smolinski, MD; (DB) Dean Burgess, MA; (DG) Dave Gentile, UK; (DW) Dave Wright, TX; (JR) Joe Richards, FL; (KL) Kenny Love, SC; (MF) Mike Fink, FL; (MF2) Michael Fleming, AL; (RH) Robert Hall, Capetown, RSA; (RK) Richard Klingman, NY; (SP) Scott Pastor, MI; (SW) Sue Wilden, IN; (TB) Tim Braun, VA; (TJ) Terry Jones, SD; (TO) Tony Orr, VA; (TS) Tom Severt, KS; (TY) Takashi Yamaguchi, Japan; (WT) Wade Taylor, CA; and (Ed.) ye editor in Ohio. Thanks to all.

**Pirates Den (from page 38)**

**Radio Free London**, tentative, 6399.5

heard at 2248 with English-accented announcer. (Pearce)

**Radio Marabu, 6950.85**

heard at 1520, including P.O. Box 1166, 49187 Belm, Germany. (Pearce) 6950.9 heard at 1509 sign on to close at 1547, DJ "Lord Litter." (Layden)

**Radio USA, 6950.6**

at 1400 to past 2000 with Mr. Blue Sky, sounded like a number of programs broadcast one after the other. (Pearce) 0131 on 6950. (Silvi)

**Cherokee Radio, 6955 USB** at 0257. The announcer said be patient; will QSL logs in the ACE. (Silvi)

**Radio Eclipse, 6955 USB**, briefly to 0116 close. (Silvi)

**Radio Free Speech, 6975** at 2350 to 2312. Other logs at 0016, 1354. (Silvi)

**Radio Atlantica, 6955 USB** at 0157 with initial test broadcast, "Fishhead the DJ" a.k.a. "Dr. Fishhead" and "Grandpa." No drop yet. (Silvi)

**Radio City, 6975** heard at 2350, many IDs. (Silvi)

**Up Your Radio, 6975** at 2242. Republican Bellyache edition. (Silvi)

**Rocket 99**, tentative ID. 6955 USB at 1910. Might have been "Brocket" mentioned during program but the "B" sound not heard in the IDs. Funny ads for Brocket Funeral Home, news and weather bits. (Pearce)

**WSRR, 6955 LSB** at 1439 very weak, some gospel-sounding music and 1-800-809-1101. (Pearce)

**WMFQ, 6955 USB** at 1650. Also noted at 0136, 0236. (Silvi)

**WLIS, 6955 USB** at 1704 sign on with 7th anniversary show. (Layden)

**Radio KAOS, 6955 USB** at 0018 sign on with farewell show. (Layden)

**KIWI, 7475 USB** at 0717. Radio Northsea, then Cougar Radio, then KIWI for 14 minutes at end. (Silvi)

**WPRR, 6955** heard at 1648. Broadcasting an old radio program "The Unknown World Of..." (Silvi)

Wow! First rate! Keep it up, folks! Another batch of loggings coming your way next month.

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**Tuning In (from page 4)**

know what to expect, they emulate the one thing that they have had more public exposure to—CB. Most of these newcomers will learn fairly quickly that amateur radio has its own "lingo" which does not typically include "10-4" or "What’s your 20?" but rather "roger" or "affirmative" (and several other choices) and "QTH" or perhaps even more simply, "location." That writer asserted that there is more CB lingo on 2-meters than "out of band." I haven’t bothered to count; but I don’t think that such comparisons have much validity in light of my comments about new ops who simply need to learn "ham lingo."

As a further point about freebanders who gives them a very considerable black eye amongst hams is the freebander who decides to drop in on the 10-meter amateur band, quite uninvited. I have had to put up with these types before—so have quite a few other hams. It is exactly this kind of attention that causes freebanders to become a target of scorn. To those freebanders who otherwise run a clean operation, I challenge them to go legal and get a ham ticket. There’s plenty of spectrum that’s even better than the 11-meter area for the use of those operators who will simply get legally licensed. All of us radio hobbyists should run a clean, legal operation. While the FCC may be short some enforcement funding currently, you would be foolish to bet that they will never get it back. And if you get caught operating an unlicensed transmitter in an out-of-band area without an awfully good reason, you may NEVER be able to legally operate again. Why take that chance? C’mon people, you don’t really have a good excuse for what you’re doing. Get legal. STAY legal. And most of all, when you do so, HAVE FUN. That’s the whole point of having a hobby, even though some people forget that now and then. And yes, you CAN have fun without freebanding and breaking the law.

Consider that an open invitation from one ham to go legal, operate legal and STAY legal and ENJOY your right to operate in the radio spectrum that has been set aside for "hobby" use. The amateur radio offers a tremendous variety of techniques; but there is also room for just what I hear most freebanders doing—simple ragchewing.

You don’t need to be out of band, you don’t need to cuss and swear, you don’t need a kilowatt and you don’t need to splatter over half the spectrum. C’mon in and learn how to do it legally, effectively, and enjoyably. Find an Elmer and just do it!
GETTING STARTED AS A RADIO AMATEUR

Build It Yourself!

Back in the "good old days," communications superstores hadn't been invented, there were no toll-free "800" numbers and the compact, do-everything transceiver was an outright impossibility! Hams who wanted radios—receivers, transmitters, whatever—usually built them from scratch after scrounging up the parts (which, they say, was half of the fun).

Today, of course, our rigs have every modern convenience, and then some. Digital displays track our operating frequencies to the nearest Hertz, powerful DSP chips—supercomputers in their own right—filter and massage our receiver audio, and a multitude of gadgets and handy "RF tweaking" controls are never more than a moment away.

Yet for many hams, despite the compelling performance of modern radios, the mystique and satisfaction that accompany building and using radio gear you've built yourself is in a class by itself. Believe me, when you make a contact—any contact—with a low-power transmitter or simple transceiver you've assembled from raw parts, you'll feel just like you did when you made your first contact. And unlike your ham radio progenitors, you won't have to go it alone and build everything from "scratch and schematics." Quality amateur radio kits ranging from simple station accessories to powerful multiband transceivers are more plentiful than ever before—including during the "good old days."

In the '50s and '60s, for example, the electronic kit-building industry was ruled by Heath and a scattering of smaller companies. Tens of thousands of hams and soon-to-be hams assembled their kit-built stations, guided by impressively detailed, step-by-step assembly manuals. And while the giants of kit-building's glory years are long gone, more than a dozen modern companies have stepped in to fill the void. Their products are nothing short of amazing and, collectively, the variety of radio-related kits is impressive.

Reflecting the changing face of kit-building, today's kits include QRP rigs, CW filters, antenna tuners, station accessories, test equipment, and even a few VHF/UHF transceivers and an occasional multiband CW rig. Many magazine construction projects are available in kit form from one or more kit vendors.

Doing It Yourself

What about tools? Most kits can be built using a soldering iron, wire cutter/stripper, pliers, a screwdriver or two and some solder. If you don't have a well-stocked toolkit, chances are good that one or more of your ham friends does. So don't be shy—building kits isn't as difficult as it might seem. Be patient, study the assembly guide and go through assembly steps one at a time and you'll have few problems, if any.

Regardless of your kit and its manufacturer, the first step in building any kit is to lay everything out on a clean, uncluttered surface and check each part against the parts list. Make sure nothing's missing and be sure the part values are correct! One trick used by veteran kit builders is to write each part's value on a small piece of masking tape (remember to stick the tape to each part!). Spending a little extra time at this early stage can save headaches later.

Once you've made sure everything's OK, it's time to dive in and get started! Here are a few tips to help make your kit-building process successful.

✓ Check off each step as you complete it. That way you won't duplicate any of your efforts.
✓ Keep your soldering iron tip clean and bright. Wipe it with a wet sponge to clean off the crud. Your solder joints will be consistently good. (According to kit manufacturers, poor solder joints are the main cause of non-functional kits.)
✓ Always bend component leads away from foil pads and circuit traces on the underside of the printed circuit boards, and also make sure to trim the leads of soldered components as close to the circuit board as possible. This will greatly reduce the incidence of those nasty solder bridges.
✓ When attaching wires, tin each lead with a bit of solder. This keeps wires from fraying and helps make a strong mechanical connection.
✓ Although you may never need to use it, owning a "solder sucker," a small spring-loaded device to help you unsolder components, can make correcting bugaboos a snap. RadioShack and
Get Your Kits Here

This short list of kit suppliers, although by no means exhaustive, will get you started on the right kit-building track. If you have access to the worldwide web, then point your browser to <http://pw2.netcom.com/~ac6v/pageay.html> or <http://www.arrl.org/kits/info/kits.html> for a comprehensive list of amateur radio kit suppliers.

Ten-Tec
1185 Dolly Parton Pkwy
Sevierville, TN 37862
800-833-7373
<http://www.tentec.com/>

Ramsey Electronics, Inc.
793 Canning Parkway
Victor, NY 14564
716-924-4560
<http://www.ramseyelectronics.com/>

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<http://www.clais.net/farcir/>

Oak Hills Research
20879 Madison Street
Big Rapids, MI 49307
616-796-0920
<http://www.ohr.com>

S & S Engineering
14102 Brown Rd
Smithsburg, MD 21783
301-416-0661
<http://www.xmetric.com/sseng/>

many parts jobbers sell these and other de-soldering tools for only a few dollars.

✓ Before powering up your new creation, double check the assembly instructions, look for bad solder joints and solder bridges, make sure there aren’t any “left-over” parts sitting around and confirm the polarity of power supply wiring, etc.

✓ After inspecting your new kit, carefully apply power and follow any alignment and setup instructions.

✓ If your kit doesn’t work after you’ve double-checked everything, ask a friend to take a look. I’ve been embarrassed a time or two when someone else instantly spotted a problem that had left me scratching my head!

Oh, What a Feeling!

Now that your kit is working it’s time for a hearty congratulations! Not only do you have a fine piece of ham radio gear that you made yourself, you’re a little bit closer to experiencing the original magic of amateur radio—with a modern twist!

Your suggestions, letters—and QSL cards—are always welcome. Write to me at ARRL HQ, Department PCN, 225 Main St, Newington, CT 06111. See you on the bands!

Loose Connection (from page 80)

the letter. Sorry you won’t be getting free satellite TV, but you can replace those two missing forks at a thrift shop.

Dear Editor:

Me and my friend Tommy are experimenting with microwave communications. When no one’s home, we take our microwave ovens out on our back porches, open the doors and aim them at each other (Tommy lives a block away—we have “line of sight” between our houses, except when trucks pass by between us. How can I hook up a microphone to the microwave? How can we make them transmit with the doors open?

Your pal,

Jimmy R. Age 10

Whoa there, buckaroo! Guess this is the first time I’ve been glad for interlocks. Anyway, you’ve got the wrong kind of “microwaves.” You’d never be able to hook up a microphone to them, and besides, a pair of $9.95 walkie-talkies will out-do most appliance communication—except “porch-light morse-code,” but that’s only good at night—and it wears out the switch. When I was a lad, we used semaphore, which is Greek for “two”—it comes from semi, meaning “half,” and phore, meaning “4.” Half of 4 = 2. Have you thought of yelling? Are there free local phone calls where you live?

And finally, from Elephant Butt—no, that’s Butte—Elephant Butte, New Mexico, Ms. Fannie Toukas writes:

Dear Editor:

I’ve studied a few home electronics courses and bought a schematic for my color TV. I know that I need to fix it, but I just can’t seem to get any cooperation from our local parts store. I need an R101, and when I ask for it, the guy at the store says he needs a value. I tell him it can’t be more than a dollar, and he shakes his head and goes into the back room. After fifteen minutes, I give up and go home. Do I need some sort of professional designation to buy parts?

Dear Fannie:

Not at all—you’re just being victimized by the last remaining member of the “good-old-boy” parts network. Of course he has an R101. He’s got a whole box full of them. You just need to give the secret password. To prevent others from hearing the password, you must get in really close—almost nose to nose, and whisper, sort-of like Clint Eastwood, “Get the part, punk—or do you feel lucky?” I know it sounds crazy, but once the parts guy knows you know the password, he’ll stop what he’s doing every time you walk into the store. Trust me, Fannie.
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 Bill Finds Some "Unusual" Mail

We have several mailbags here at Pop'Comm world headquarters. Our editor, Harold ("National Bureau of Standards") Ort gets to deal with all the normal mail—the ones that read, "Love your magazine—could you please include more articles on frabistan-tuning the Hallicrafters S-38D?", or "I think your take on that Gingrich-scanner business is all wet!"

It's not just Harold's corner office and big paycheck that has me envious—it's that he gets to read all the good mail—and write all those cute replies. Well—once again, Mr. "Hold my calls—I'm going to Hawaii" has left Ms. Barry in charge of the mailroom key, and she's just powerless against chocolate eclairs. Anyway, I've found a few letters on a back shelf that look as if Harold never got around to answering them—so while he's dipping his toes into a Pina-Colada, we'll now go to Upper Sandusky, where a Mrs. A.D. writes:

Mrs. D:

Do they make a digital signal processor that my dentist can install into one of my fillings? I keep hearing these voices in my head, and it wouldn't be so bad if the one didn't come in right on top of the other. It seems that every time I'm about to get the lottery number or the winner of the seventh at Canton Downs, this other voice blasts in calling me "Skeeter," and telling me to check the meat and rice in my belly—and I don't even eat rice!

Mrs. D:

Whatever you do, don't act on those voices! I called a scanner club in your area and they told me that the lottery and racing information you're receiving is not divinely inspired, but is coming from a mis-aligned satellite uplink in your neighborhood. Don't bet on the numbers you hear, because by the time you hear them, they've already won! With regard to that other voice—the one calling you "Skeeter"—it took us a while, but we found it's a supermarket at the end of your street, calling a "skater" to zip down the aisle and check the meat price in the deli—so again—don't act upon that voice either. Your dentist should be able to eliminate the problem by installing a .01mfd capacitor across the wide part of the offending filling. If the filling's on top of a molar, have him use a surface-mount chip-cap, so you can chew on it.

And Mrs. H.J., from Heber City, UT writes this letter:

Last year, we got one of those electronic fences for our dog. Whenever he gets near the edge of our property, his collar gives him a little electric shock, which gets stronger as he gets nearer the buried "fence." How hard would it be to wire my husband's shirt collars like that, and could I install some of that electronic fence near his favorite bar without the owner finding out?

Oh my—these situations do get sticky, don't they?

My Dear Mrs. J.:

Yes, you could wire your husband's collars like that, however he'd probably notice the 9-volt battery in his pocket, unless of course he's really as dull as your picture makes him out to be. You might get away with installing an electronic fence outside a country saloon, but I'm afraid the jackhammering and fresh concrete by the doorway would tip your hand to all but the most sluggish bartender. Perhaps a better arrangement would be to get him a filling from that dentist in Upper Sandusky. Once you found the right frequency, you could talk directly into his head, and within a week or two, you would probably have him stopping at the grocery store instead of his favorite hangout. The possibilities are endless.

Here's one with a picture enclosed:

Dear Editor:

I found this in my attic—it's painted avocado green. Is it some kind of microwave antenna or a small satellite dish? I've been afraid to plug it in for fear of radiation.

Mr. J.M.D.,
Tallahassee, FL

No need to fear, Mr. D., what you've got there is a fondue-pot. At first those two forks fooled me too—looked just like rabbit-ears, but the picture was sideways when you glued it to

(Continued on page 77)
The world’s smallest HT with all the high-tech features you’d want in the world!

The ultra-compact size of the VX-1R Dual-Band is the first thing you notice as you cradle it in your palm. But the high-tech features make this radio one you must have now! Simple combinations, using seven buttons and one knob, control this marvel of engineering. One soft key touch, and wide receive VHF/UHF 76-999 MHz RX (except cellular); 144-148, 430-450 MHz TX, or AM/FM Broadcast, Aircraft, Police, Fire—even TV, spring to life! Touch again for Yaesu-exclusives, SmartSearchTM and ARTSTM, or Priority Channel Alarm. Built-in CTCSS and DCS Encode/Decode for 2m/440 amateur bands, CTCSS/DCS Tone Search, and Dual Watch, are included along with 291 Memory Channels in 9 banks with 500 mW power output. Backlit LCD Display shows 6-character alphanumeric capability; backlit keypad makes operation easy in dim light. And, although the VX-1R is the world’s smallest dual-band HT, you get over 19 hours of use with just a 1 hour recharge from its long-lasting lithium ion battery! Big features, small size—the most satisfying combination in the world!

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