Will Your Cell Phone Work When You Need It Most? Page 74

POPULAR COMMUNICATIONS

SEPTEMBER 1999

Solar Power For The Millennium

A guide to surviving Y2K brownouts with your own solar power station

- Crisis In Kosovo: Broadcasts You Can Hear (page 44)
- CB's Super-Power Bad Boys Or Organized Chaos? (page 66)
- How Important Is F-A-S-T Scanning? (page 50)
- Pinpoint VHF Signals With Your Scanner (page 24)

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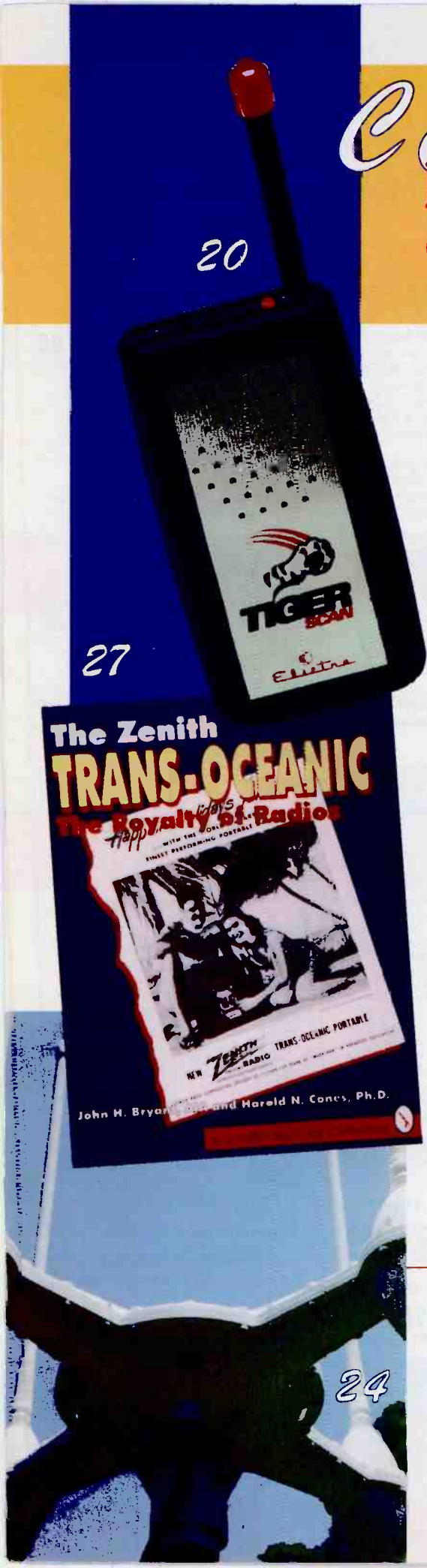

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On The Cover

Harness the energy! It's free and it's yours for a few hours work. With the Millennium just around the corner, now's the time to get prepared. Check out "Solar Power For Your Radios — It's Easier Than You Think" on page 8 to learn how to be ready.

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Tuning In

AN EDITORIAL

BY HAROLD ORT, N2RLL, SSB-596

Preparing For The Millennium

The clock is ticking. And our massive government complex — along with all Nation's electric utilities, banks, airlines, private companies, and public safety agencies — are still scrambling to become Y2K Compliant. If you don't know it by now, here's the news flash: Come January 1 — a few short months away — computer systems and electronic devices that were programmed to recognize only the last two digits in a given year may read the year 2000 as 1900. To say this could cause systems to shut down or operate sporadically is an understatement!

Sure, Uncle Sam and private companies are hoping to have their systems reprogrammed — or at least "fixed" and appropriately "tested" so dates after December 31, 1999 are read correctly. Hundreds of thousands of Y2K teams are using their expertise (too bad the computer gurus didn't do *that* in the first place!) to ensure your money will be accessible on New Year's Day, that you'll be able to use it or your credit card to visit Aunt Minna in Tacoma, and that your flight there won't be in jeopardy, and that you'll have hot water to shave and shower so Aunt Minna recognizes you without the stench and stubble.

APCO, the Association of Public Safety Communications Officials, Inc. has even implemented "a major effort during the past two years to ready the Nation's 9-1-1 emergency dispatch centers for Y2K." Their news release said that APCO is working "rather than worrying" to avoid problems come December 31. Well, an early Happy New Year to them and all the other agencies — public and private — because from what I'm hearing (now hold onto your mouse!) for many, it may already be too late. Why? Simple. Many started too late in the Y2K game. Preparations for Y2K *should have* begun in earnest three or four years ago. Talk of Y2K compliance shouldn't be a news item, but as sure as our ozone layer is in trouble, there will be problems come January 1, 2000, and as we approach December, you'll be hearing more and more about stocking up on batteries, water, and staples — just in case.

In the past, I've been criticized for being apocalyptic and over-prepared. You know, the Chicken Little syndrome — only to be reminded the world's politicians and multi-billion dollar companies have managed (so far, thankfully) to save us all from nuclear annihilation or worse yet, having to go a few days without shaving or blow-drying our hair because the country's power grid went down. Need a few examples of how vulnerable we are to problems that have *everything to do* with computers — *and* electricity? When were you in the supermarket or mall, trying to pay at the register when — zap, zingo — the computer-operated everything went dark. Every time this happens, I stand there helpless, money in hand, ready to pay the cashier, while remembering a time when the old-fashioned manually-operated cash register would clunk and jingle. In minutes, you were out of the store and on the road. Remember? The worst would be the cashier's problem when the cash drawer wouldn't close tightly and kept banging him in the belly. Or when a swift rap with his fist would open a stuck drawer. But you could still pay, and hit the road with your purchase.

What about the recent rash of 9-1-1 failures around the country? While many failures were computer-related, still others have been traced to electrical distribution problems and simple power outages. Once again, back not-so-many-years ago, "old-timers" remember calling on a wired phone directly to the police station for help.(I still do this; it seems on 9-1-1 you're giving your life's history before a cop or ambulance begins to roll your way!!)

APCO President Jack Keating recently said a mouthful when talking about Y2K. He said, "Preparedness is certainly the key." Here's where you come in. Call it over-prepared or whatever you like, but be Y2K prepared for the same reason you buy insurance: It's there if you

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POPULAR COMMUNICATIONS

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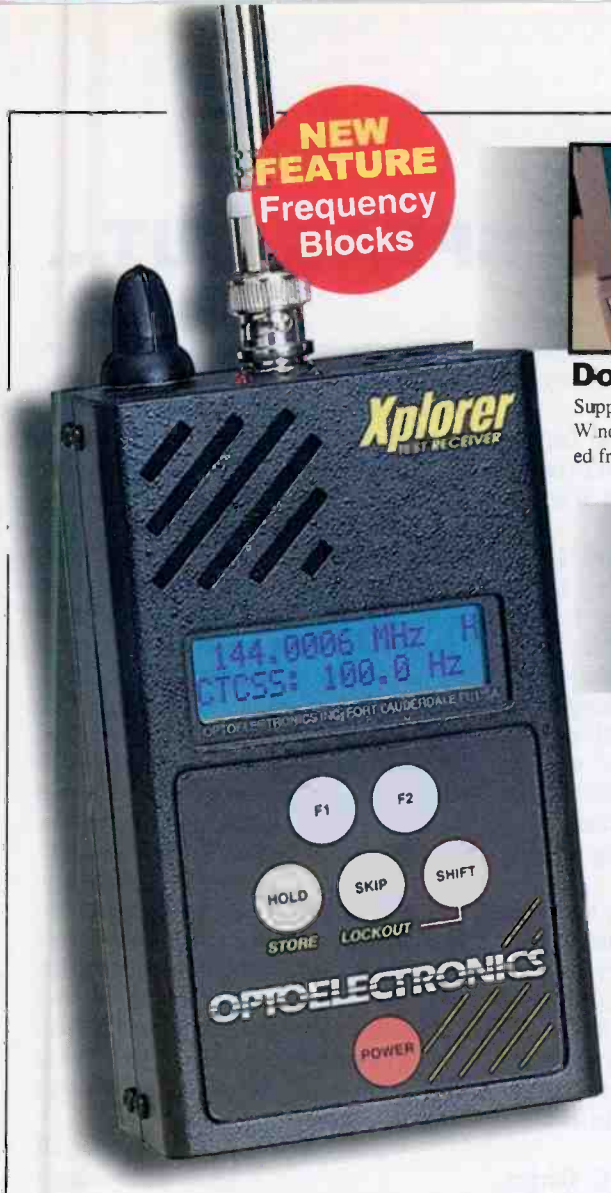

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Biggest Rookie?

Dear Editor:

I'm a 15-year old communications buff. Unfortunately, I have very primitive equipment, namely a scanner and an old 23-channel CB. I'm saving up for an amateur radio. I'm also the biggest communications rookie in the universe.

I would greatly appreciate anything you can send me on amateur, commercial, CB, or any other radio info you can. I mean we are talking major rookie. I would greatly, greatly appreciate it if you could send me what ham terms mean and all this other stuff that is above my head.

Thank you,
Adam
Franklin, Tennessee

Dear Adam:

I've put together and mailed a small package of information for you this morning. But please don't consider yourself a "major rookie." You already most certainly know more about radio than most Congressional reps and their staffs — and they get paid to know these things.

Socking It To Washington

Dear Editor:

Here's a copy of what I've sent to the Senators regarding H.R. 514.

I am opposed to H.R. 514, for the following reasons:

1) After all the bells, buzzers, and whistles, a cell phone is just a small broadcast station, not unlike what you listen to for your favorite drive time D.J in your car.

2) As a citizen, I want to keep up with what the police, fire, and Emergency Medical Services are doing with my tax dollars as they do their jobs.

3) As an Emergency Medical Technician, I want to know if my services might be needed in my neighborhood, if something happens.

4) As a driver, I want to know if I need to reroute around anything in my neighborhood, to save me time and fuel by idling my engine in a traffic tie-up.

5) The cellular telephone industry lied to our elected legislators, resulting in the Electronic Communications Privacy Act (1986) to "Insure the Privacy" of their clients, which is unenforceable, and has resulted in the loss of my freedom to listen to any radio signal coming through my walls.

6) The industry has the ability to scramble a radio signal, for a fee they would pocket, but don't offer that service.

If you have a vote regarding this issue, don't support it, don't vote for it. The last time the right to listen to a radio was taken away was under Hitler, and under Communism. You don't want to be associated with them!

Richard C. Berger,
Belle Harbor, NY 11694-1247

Lou Weighs In With His Two Cents

Dear Editor:

I've got a few comments on areas of the present controversy. CW — the most reliable method? It's a big joke with satellites. But what if the satellite stations get destroyed? My favorite tale is about a missionary ham in the Congo in the early '60s. The rebels took over the mission station, confiscated the mike, but did not damage the transmitter. The ham broke a cathode lead somewhere and tapped wires together for CW — easily received CW. The rebels figured out they were getting information out and searched the area very thoroughly, and unsuccessfully for the hidden mike. So, it's needed for big emergencies. Also a lot of people just have fun using CW.

However, most hams do not use CW and the probability of the special emergency requiring CW is of very low priority. CW is not forbidden. Let's just stop requiring it and give them a section of the band, if the band is not too crowded.

I've been around the game for quite a while. I was a research physicist engineer in semiconductors in the late '50s, magnetic recording in the early '60s, and taught undergrad electronics physics until the early '80s. My interest is strictly technician level. I never communicated, just looked at propagation and antennas. I retired in the mid-'90s and someone suggested I get a Technician license. I had little interest in CW. I was somewhat scared, as I hardly knew how to describe a phased lock loop, much less design one, as well as other modern improvements.

I got West's Technician license study manual and WOW — you hardly had to know Ohm's law to pass the test. Fine for the Novice to get slightly knowledgeable people interested and learn more. But Technician — an insult to the first degree. I have heard that the Technician license is just an easier, no-code novice. Looks so to me.

Lou Fay III
Georgia

Dear Lou:

Not the brightest rebels, were they?

Needs A Panasonic Manual

Dear Editor:

During my recent visit to your country, I bought a second-hand radio, a Panasonic RF 1150, six-band with SW and a BFO, probably made in the '70s by Matsushita Elec. Company.

Unfortunately, it had no manual. I contacted Panasonic, who informed me that it's no longer available. I write asking if you could advise me where I might get one or if any of your readers could supply me with a copy. It would be very much appreciated. I thank you in advance for your help.

Joe Maitland
"Home Field"
55 Hartwell Road
Hanslope, Milton Keynes
MK19 7BY
England

(Continued on page 72)

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*Cellular frequencies blocked in compliance with USA regulations. Continuous coverage model available for authorized users/agencies, documentation required. AOR engages in ongoing efforts to improve its products. As such, design and performance parameters may change without notice or obligation on the part of the manufacturer and/or distributor(s).

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SOLAR POWER

For Your Radios — It's Easier Than You Think!

How YOU Can Be Ready When The Power Goes Out . . .

By Harold Ort, N2RLL, Editor

Have you ever imagined yourself free from the clutches of your power company? Or operating your radios and shack independent of your home's electricity? You can. And it's not as difficult or time-consuming as you might think. From the time the panels and batteries arrived, it took me a couple of weekends to gather the materials (wood, nuts, bolts, etc. from Home Depot) to complete the project. Now, I operate any (or all, if I want) of my scanners, CB, and even dual-band ham radio directly from a 12-volt socket in my shack.

Many of you will remember the energy crisis of the '70s, when there was a sense of urgency to find alternative energy sources. Many people did. They found solar power. And with a considerable tax credit to boot. But by the '80s, oil had become less than $10 per barrel (from the $40 only a few years earlier), and the "search" for alternative energy subsided. But the seed was planted. This new awareness and desire for a clean, safe form of energy remains with us today. And best of all, you don't have to mortgage your home or take out a loan to use solar power on a small scale!

With the help of several manufacturers and dealers of solar energy products, we were able to construct a small, yet "efficient" solar-powered station capable of operating a modest monitoring post — including a 12-Vdc mobile CB and amateur station.

Let's get right down to the basics. Your small stand-alone solar power station will be comprised of one or more large solar panels, one or more 12 Vdc deep cycle-type batteries, and a charge-controller. The process is actually quite simple: The sun's energy strikes the panels, is converted to free electrons, which make their way from the panels, through your controller and batteries, and back to the panels. The system's energy is regulated by the small charge-controller. The incoming electricity charges the batteries during sunlight hours, which, in turn, powers your station.

Here's a close-up of the bed frame footing where it's bolted to the weatherproof wood.

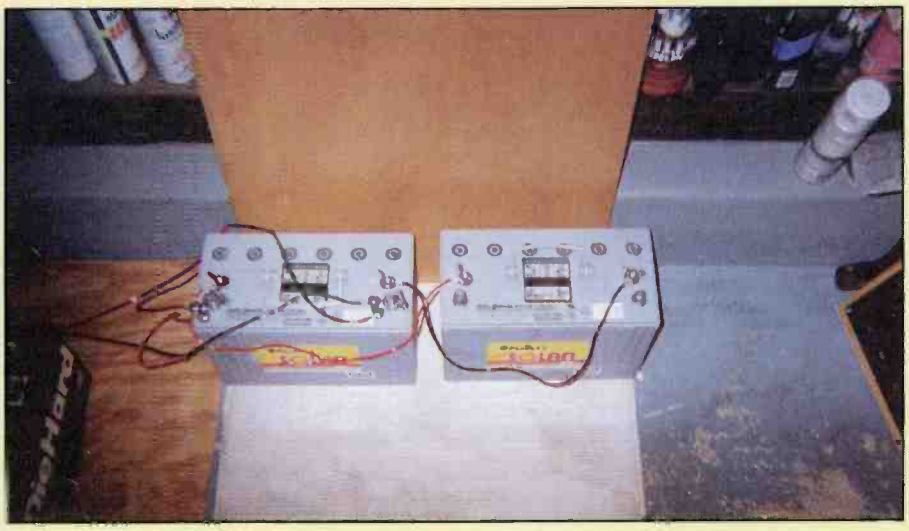
One important point: A lot of folks starting out believe the radio can be hooked *directly* to the solar panel. Wrong! First, the voltage is unregulated and too high, and second, because of fluctuations in the current, and changes in the sun's intensity and amount of light striking the panels at a given time, this should never be done. Remember: Your load: lights, radios, or whatever — is always connected to the *batteries*, (or the controller) NOT the panels.

If you decide to mount a panel in the ground, be sure the buried cement wall is large enough to withstand the stress of your pole-mounted panel.

Solar Power Basics

First, keep in mind that what you might need to power *your* station is going to be

The two panels mounted on the fencepost are inserted into the hole.



These two Deka batteries are sealed gel cell models and are maintenance-free. Notice the heavy-duty wiring that connects the batteries in parallel.

vastly different from your friend in Arizona or Maine. This isn't due so much to the difference in the sun's relative strength or the season, but rather to the type of equipment you intend to operate from the power stored in the batteries. For this reason, let's focus for a moment on the solar-power system itself, explaining what this thing called "photovoltaics" is all about and how it can benefit you.

I'd like to point out at the onset, that through the generosity of the good folks at Solarex, Alternative Energy Engineering, and Siemens Solar, we obtained the panels used to collect the sun's energy. What initially started as a small project — and short "review" article — quickly grew into a major article with lots of illustrations and pieces of equipment from panels and controllers to batteries and hook-up wire. So, a special thanks to all these folks (and the others that we'll mention later on) for making this project and article possible.

I'm also not going to pretend to be an engineer with years of experience in photovoltaics. Like you, I've got a basic knowledge of electricity and electronics — enough to be dangerous — but it's my hope after you read this article and check out the photos, you'll be able to call yourself a weekend solar power warrior. By doing this project, I learned by doing — and by my mistakes — making several trips to the hardware store before finally "getting it all together." (And to think: I even had a list, but kept adding to the list and modifying my original plans). It's recommended you adhere to a concise list of parts and add to your power station down the road after you've gained experience using solar power.

You've probably seen solar panels somewhere; on those highway callboxes, on the roofs of homes where owners are completely self-sufficient and free from electric utility bills, and on spacecraft. That's not you or me; we'll only be using a couple of panels that are about 4–5 feet tall and about two-feet wide. Of course, they do come in smaller sizes with varying power output, but to sufficiently charge your lead-acid batteries, do the right thing: Get a size that suits your needs and will adequately charge your system.

When light hits the solar cells that comprise your solar panels, a photovoltaic process begins whereby electrons are freed within the silicon crystals of the cells. These free electrons move on through an external circuit, charge your batteries, and return to the solar cells. While this is certainly a simple version of what happens in a solar-power setup, it's perhaps most important to know that there is no pollution, no moving parts, and no material is released into the atmosphere.

Solar panels, are, for the most part, maintenance-free. Except for an occasional cleaning with a non-abrasive cleaner (or just plain water and a cloth), once they're installed, that's it. The only

The two Sears DieHard Marine Starting And Deep Cycle batteries and Deka's two high quality state-of-the-art sealed valve regulated (SVR) batteries will provide years of trouble-free service in any small stand-alone solar system.

A panel's junction box showing a short outdoor extension cable going to another panel, and the other cable to the charge controller.

"maintenance" you'll need to perform is on the batteries — *unless* you get the sealed 12 Vdc gel cells like those from East Penn Manufacturing Co., Inc., P.O. Box 147, Deka Road, Lyon Station, PA 19536-0147 (Phone 610-682-4231). Like Alternative Energy Engineering's fine tech support, the support folks at East Penn are equally knowledgeable and eager to help you make the right purchase. And their batteries are also readily available from reputable battery supply stores around the country. More about these and other batteries later. In the meantime, I'd recommend one (or more) of their 8G31DT batteries, which each retail from $168 to $224. A little expensive maybe, but well worth the money if you plan on being ready as we move into the Millennium! They have a complete line of gel cell batteries with one or more that's right for your installation.

You *can* use a regular automotive-type 12 Vdc battery, but I don't recommend doing so. It's much better to use a marine deep cycle battery, such as what's available at your nearby Sears: their DieHard Marine Starting And Deep Cycle battery (a couple of models are available) which typically costs from about $67 to $92. It, like the Deka battery, isn't as affected by deep discharges and subsequent charges. Remember, you won't regret spending your money on a quality battery. East Penn also offers a full line of flooded marine starting and deep cycle batteries under the Deka Marine Master brand name.

Your Needs And The Basics

Let's suppose you want to operate a 50-watt FM ham rig and your tabletop scanner on your system. Here we go with some basic math. Your new FM mobile uses 13 volts at one amp on receive and 8 amps on transmit; and from your scanner's manual, you learn that your scanner uses 13 volts at .8 amp. Let's estimate that you want to talk on the FM rig for 2 hours daily and have your scanner running the same amount of time.

You need to find the total amp hours your hypothetical station uses. To do so, multiply the amps (50 percent duty cycle, receive and transmit) by the hours of intended use. So your ham rig's total *receive* amp hours would be (1 amp x 1 hour) 1 amp hour. Your one hour of *transmit* time would equal (8 amps x 1) 8 amp hours. During a one-day period, you're using a total of 9 amp hours from the battery for the ham rig.

And your total receive amp hours on the scanner would be 1.6 amp hours (.8 amp x 2 hours). Therefore, you've got 10.6 amp hours *total daily consumption* from the battery.

Let's assume you're using a 100-amp hour deep cycle marine or gel cell battery. Using 10.6 amp hours daily, for five days, for example, using just one good battery like we've described, you'd be able to use your station with these specs for nearly nine days! Your mileage may vary. And of course, never discharge any battery to the point of no return. Common sense will give your system years of good performance!

A **charge controller** placed in your system is a must. It regulates voltage supplied from the panels to your batteries and protects your battery from becoming overcharged. For Deka 12 volt gel battery, the charge voltage should be limited to 14.1 volts. They typically include a blocking diode to prevent your battery from *discharging* back through the panels at night or on cloudy days. Again, assess your situation before purchasing a charge controller (they range in price from $28 to $100). Our controller, an ASC model, easily handles the two large Solarex solar panels connected together in parallel. (Open the plastic junction box cover of each solar panel and, using heavy-duty wire, follow the instructions in the panel's instruction manual for a *12-volt system wired in parallel.* And from *one* panel's positive and negative terminals run a cable to your controller). The Solarex MSX-83 panels, for example, are each rated at 4.85 peak power amps. To effectively regulate the energy from these panels hooked in parallel, you'd need a charge controller

A side view of the large Siemens panel mounted on the homebrewed wooden frame.

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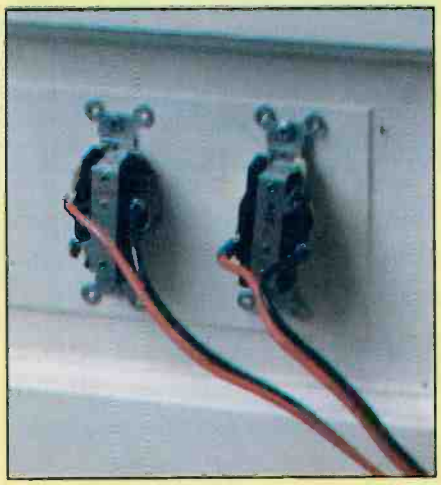
All four panels in the yard.

capable of handling nearly 10 peak power amps. Specialty Concepts, Inc., 8954 Mason Avenue, Chatsworth, CA 91311, phone 818-998-5238, manufactures a complete line of quality controllers from 1 to 16 amps that are weatherproof, built like a tank, and include lightning protection.

Hooking Up Your Panels

One of the best sources for alternative energy products from A to Z is Alternative Energy Engineering, P.O. Box 339, Redway, CA 95560, phone 800-777-6609 or on the Web at <http://www.alt-energy.com>. They were extremely helpful in providing setup information and will help you assess your needs for any size system, whether it's a small stand-alone system or a full-house cover-the-roof system costing big bucks. They provided our Solec solar panel and lots of technical help. They'll give you the same courteous, professional technical assistance. Before you think that's a commercial, it isn't. I've found that in the radio hobby arena, everyone's got a different way of doing things, from antennas to on-air operating procedure. But while everyone's alternative energy needs differ, there's only one way to size up your requirements, one way to hook up the batteries, and one way to get the system operating at peak efficiency: **The right way**. If you've got questions, the experts at Alternative Energy Engineering, who have been in the business for years, will be glad to help you.



The two, 220 Vac plug receptacles on an inside garage wall. Outside, the cable from the panels plug safely into these receptacles. There's no possibility someone will mistakenly "plug" a panel into an outdoor 110 Vac outlet because the plugs are different.

After you've determined how large (or small) a system you need and have ordered the panels, controllers, and picked up the batteries, and necessary cable, it's time to mount the panel or panels. Since I was fortunate enough to work with a total of four panels (two separate sources of 12 Vdc power), I decided, for purposes of this article, to mount each panel (or set) a bit differently.

Every spring, it's garage cleaning time at the Ort house. I've never really figured out how so much stuff gets tucked away or where it all comes from, but sooner or later, it's got to go. I had been itching to get rid of an old metal bed frame, still in the box, and suddenly it came to me: Here's a perfect frame for the Solec International, Inc. 45 watt panel (under $300 — contact Alternative Energy Engineering).

The right-angles of the bed frame fit perfectly on the frame of one panel. All I needed to do was drill holes in the frame to match the pre-drilled ones in the panel. Piece of cake. I bent the frame down and hammered what was the end (where it would normally bolt into a headboard) to a flat shape and bolted it to piece of weatherproof wood from Home Depot. A word of caution here: Use galvanized nuts, bolts, and screws or stainless steel (more expensive) to avoid rust. The top part of the bed frame was welded to the "leg," which was also bolted securely to another board. Not wanting the assembly to rest flat on my lawn, I attached two caster-type wheel assemblies to the front, and two to the back board, so wheeling the panels around the sunny part of the yard was a snap.

I've angled my panels at about 50 degrees. The tilt angle is based on your latitude. Example: If your latitude is from 21–45 degrees, add 10 degrees to your latitude. If it's 45–65 degrees, add 15 degrees. If you're near Miami, Florida (latitude 26 degrees), the tilt angle should be about 36 degrees from horizontal, facing the panel due south. The only way my panels can be oriented is south-southwest because of a nearby tree and house. They get full sun most of the day from about 11 a.m.

Another panel — a larger Siemens SP75 (under $500 from Alternative Energy Engineering) — is mounted on an assortment of weatherproof wood, using galvanized metal braces for footings. Casters are also bolted under this setup. Sizing and cutting the wood only took me an hour or so; less if you've got a better workbench and are a good wood worker. (I also made the mistake of spray-painting the treated wood. This aluminum-color paint is now beginning to weather away because of the deep-coating of chemical used to treat the wood). The bottom line: It probably didn't need painting in the first place!

The two Solarex panels are bolted together using two, two-foot strips of galvanized metal cut from a five-foot section available at Sears Hardware (about $5). For this mounting situation, holes needed to be carefully drilled in the top and bottom of the panel's metal frames. Be very careful: Accidentally slipping and gouging the back of the glass panel could ruin your weekend!

Then, using an assortment of metal strips and galvanized one-inch angle braces, I bolted the *sides* of the panels (using the existing holes) to a standard-size weatherproof wooden fencepost. This cumbersome, heavy assembly literally begged for help maneuvering it into

a pre-dug two-foot hole that had been neatly formed into shape the previous weekend using a few bags of inexpensive concrete mix. A wooden "template form" was pulled out of the nearly-set cement a few days prior to sliding the post into the dry cement hole. When we've got company, we lift the assembly out of the hole and I place a large 10-inch square piece of weatherproof wood securely over the hole. Of course, getting the sod or grass leveled just right takes some practice — and some refreshment, especially on a hot summer day!

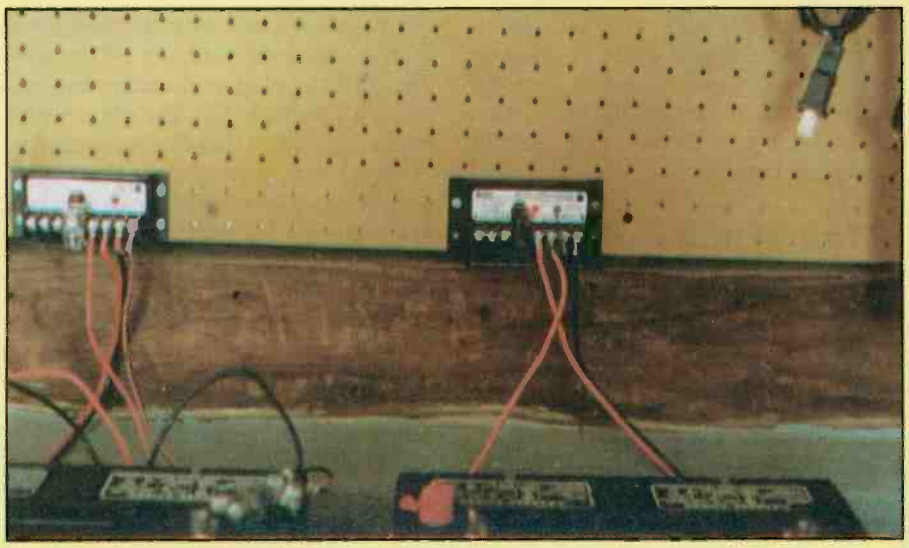
A Typical Setup

Figure 1 shows a typical solar panel setup; the solar panel converts the sun's light into electrical energy, which is sent through the charge controller to the battery. Remember series and parallel wiring? I decided to hook the two batteries in parallel, like in Fig. 1. This still provides the needed 12 Vdc, but will double the battery's available *capacity*. Use a heavy-duty, 10 or 12 gauge wire to connect the batteries together and to the appropriate terminals on the charge controller. Using a wing nut-type Universal Terminal for *post* terminal batteries (top-mounted) adapter available at your Sears store made the battery connections easy. I tinned the wires and used large crimp-on ring connectors. (Don't just wrap the wire around the terminal). If you're connecting two panels together in parallel (positive to positive and negative to negative), the short cable you use should be a good, flexible heavy-duty cable (such as Sears Tuf-Flex, No. 83592) that you thread through a half-inch water tight connector that's tightened down after insertion into the panel's junction box. This, along with the cover on the J-box, makes a weather-tight seal on the panels.

The run from the panels to the controller can challenge your brain cells. It took me a while to finally decide how I was going to make it happen. If you're lucky enough to have a garage or patio roof that gets direct sunlight year-round, you're all set. But most of us aren't so fortunate.

Since we use our yard when family and friends come over, I decided against burying any cable and having a permanent electric box post or two sticking up in the yard. Talk about a trip hazard! I bought some good, heavy-duty highly visible *yellow and blue* outdoor extension cable — the kind you'd use to operate hedge trimmers or the handy weed whacker. A lot more planning was needed to route the cables from the panels to the controller because I wanted to keep the run as short as possible (about 25 feet) to the garage, where the batteries are located, and be able to move the outdoor setup when my family wanted to use the yard.

After cutting the female plug from the cable and connecting it to the positive and negative terminals of the solar panel, the simple solution was to run the cable about 20 feet across the yard, cut off the standard 110 Vac plug on the other end, and replace it with a 220-Vac plug, which would plug into a 220-Vac receptacle on the lower wall of the garage. This type of plug prevents anyone from "unplugging" the panels and plugging the cord into an outdoor *110 Vac* outlet; the plugs are dissimilar and simply don't match. I did this for each two-panel set. One was connect-



The ASC charge controllers mounted on the inside garage wall in close proximity to the batteries.

Inside the shack, the meter measures DC voltage and below is one receptacle providing free 12 Vdc power!

ed to the Sears DieHards and the other to the Deka batteries. You should also wear safety glasses when working around batteries! If overcharged, they give off hydrogen gas, which is explosive.

These two separate 12 Vdc cable runs; one to my shack, the other to the basement, work unbelievably well! A real die hard (pun intended) ham or electronics technician will frown at my 35-foot run of Romex outdoor cable to my radio shack. I'll admit, it's a bit long, but since I'm not using an inverter at the other end to convert the 12-Vdc to 110 Vac, it's just fine. The flat Romex cable was fused, carefully routed, tacked to the house, and run in the window. Two safety notes here: I wore eye protection goggles during this process, and recommend you do the same. Out-of-the-box-Romex cable tends to have a mind all its own, flopping around as you unroll it and tack it to the wall. And *always* place an appropriate size fuse in line between your load and the batteries — just in case! An ounce of prevention . . .

Inside the shack a simple cigarette lighter receptacle and RadioShack DC voltmeter (RadioShack No. 22-410 for $12.99) are attached to the side of my desk. During the day, as the controller/panel assembly charges the batteries, the meter fluctuates slowly from about 13 to nearly 15 volts. At night, it sits right at about 14 volts. Perfect. The system is operating correctly.

Using The Radios

I'll admit that it's quite a kick using free solar power. Sure, you can buy a noisy generator and be ready for the Millennium or you can *hope* for the best, but there's nothing like being prepared. Silently and completely. And for me, this

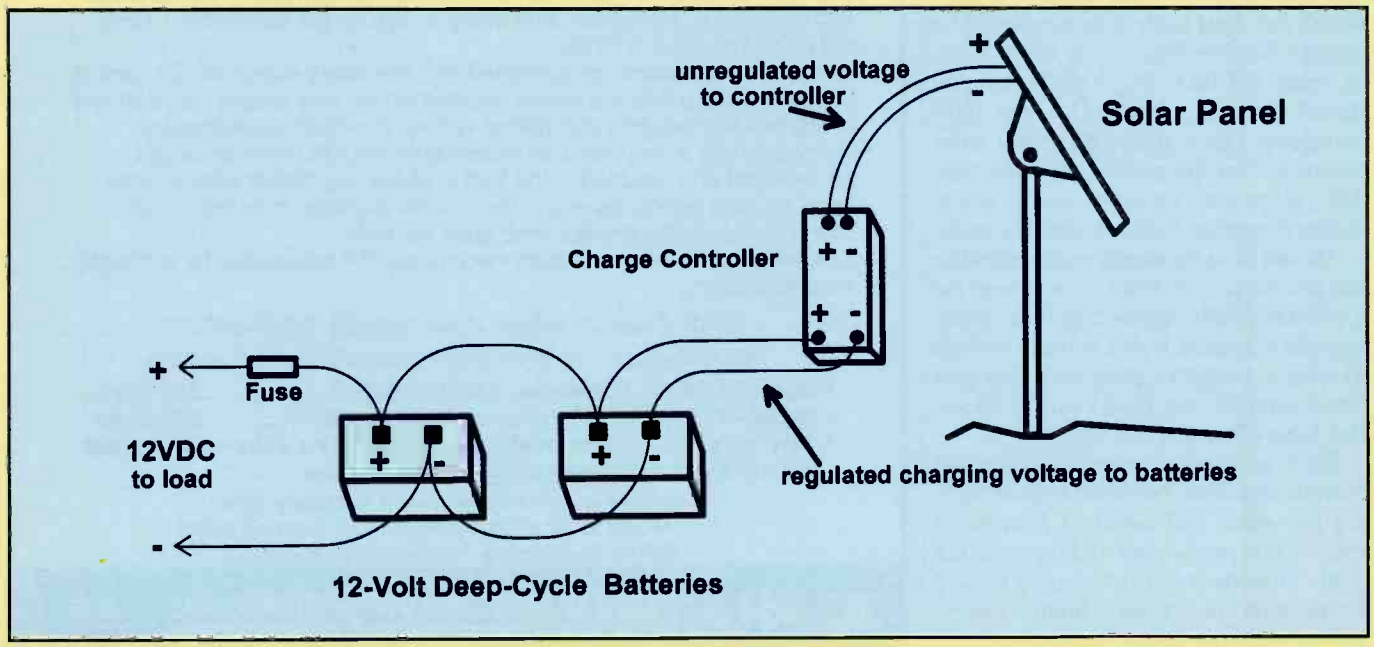


Figure 1: Diagram of a small stand-alone solar energy system that you can build.

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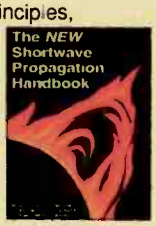

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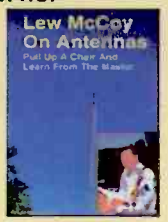

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CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801/516-681-2922; Fax 516-681-2926

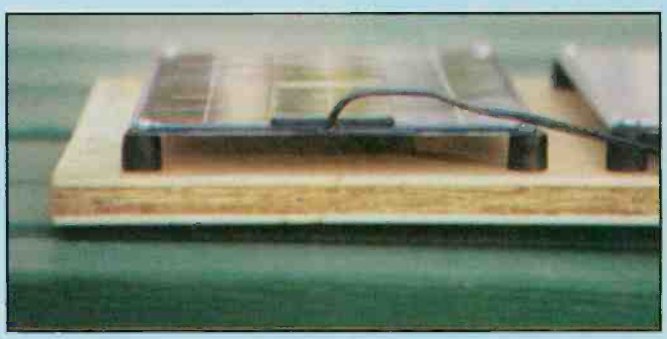
A Small Solar System With BIG Potential!

Talk about versatility! Patrick Technologies, Inc. SolarVerter's Model U9600 is something most of us can't do without. The 9 oz., 9 V/600mA panel measures 13" x 6 1/2" x 3/8" and can be a Godsend in an power emergency — or just plain fun anytime.

The folks at SolarVerter supplied us with not one, but THREE of these 9600 panels (we hooked them in parallel with the supplied cords), so we could operate a RadioShack HTX-202 (or 404) handheld ham rig from solar power. The good news is that it works well. I was able to transmit on the rig's low power setting using the panels as my only power source. Listening was a breeze, even with just one panel connected to the HTX-202 (and my Cherokee handheld CB) because any of our handheld rigs draw very little power on receive. The flip side of the coin is that we still don't recommend running expensive, sensitive electronic gear *directly* from solar panels because of fluctuations in the voltage. I've done it with these panels and it works well, but please remember that with passing clouds comes lower operating voltage!

The SolarVerter panels, wired in parallel, mounted on a piece of 24" x 15" wood and connected to the BayGen Freeplay radio.

Initially, I tried charging the radio's battery pack with SolarVerter DC jack adapter. (Each SolarVerter 9600 panel comes with a power cord, DC jack adapter, and assortment of six adapter tips — one of which should fit your battery pack or radio). The LED light indicated it was taking the charge, however after a couple of days in bright sunlight, the pack still wasn't sufficiently charged. Hard to admit, but I hadn't wired the panels correctly. The next day, I put the panels back outside, correctly wired and stretched the long cord to the NiCd pack placed on a table in the shade (not wanting to place my NiCd pack in the hot sun). That evening the pack worked much better than the day before, indicating that another few hours the next day would bring it to near full-capacity. (Remember, your NiCd packs are charged regularly on 110 Vac — typically overnight — to reach full charge, so a couple of days charging from the SolarVerter panels would be expected.)



A side view of one of the SolarVerter panels showing the mounting grommets obtained at a local hamfest. The small, efficient panels are waterproof and can be mounted outdoors.

If you're looking for a panel to operate your small HT, BayGen radio, CD, or cassette player, look no further. A single U9600 panel easily replaces 4 "AA" batteries (or up to 6 "D" cells), and can safely recharge 4 "AA" batteries in a few hours.

I mounted the panels on a piece of 24" x 15" wood using small rubber grommets obtained at a local hamfest. This elevates the panel off the mounting board about a half-inch or so, allowing air to circulate under the panel. You could easily configure the board to mount on your porch or shed roof, or on a pole using readily-available hardware and a little ingenuity. To avoid the wind blowing the long, small diameter 12-foot cord around (and having the outer insulation wear off), use cable ties or your choice of wire tacks to fasten the cable down, being careful not to damage the cord as you hammer the tacks. You could also cover much of the wire with plastic or metal conduit available at your local hardware store. Since beginning this article, I've mounted the board on the porch roof, which gets about five hours of sun daily.

The uses for the SolarVerter panels (the company makes a complete line of panels for virtually any use) is limited only by your imagination; camping, emergency radio power, parades, special events, or charging your NiCds with free power from the sun! These small panels have a solid look and feel and are super easy-to-use and store. They're available directly from SolarVerter for $109.99 or from dealers nationwide, including RadioShack through their RSU catalog (No. 12101200).

Be sure to check out their Website at <http://www.solarverter.com> or contact Patrick Technologies, Inc., 1970 University Lane, Lisle, IL 60532, phone 888-858-2801, 630-719-9020 or FAX 630-719-1982. You can also E-mail any questions on their solar products to <info@patricktechnologies.com>. Be sure to tell them you read about the SolarVerter U9600 in *Popular Communications*.

was a fun way to learn about solar energy and power the shack at the same time.

Fact is, if we experience brownouts this winter, we'll have radios and even light. Right now, while you've got power, search the Web for solar energy products. You'll find plenty, including Holly Solar products. They've been making neat solar-powered things since 1974. I bought their Nova light that uses six white LEDs and consumes only 60 milliamps of power at 12 Vdc! Also in the shack is their Cabin Lite (CL-3) with three white LEDs ,which is a great reading light. It draws only *30 milliamps* and can be turned 360 degrees on its plastic base. These inexpensive shack accessories are an absolute necessity *anytime,* but especially because you-know-what's happening on January 1, they could make your life a lot more comfortable. Holly Solar is at P.O. Box 864,

1340 Industrial Drive, Suite D, Petaluma, CA 94952, phone 707-763-6173 or 800-622-6716 or FAX them at 707-763-8755 or visit them on the Web at <http://www.hollysolar.com>.

Part of my shack has some basic radio equipment; a dual-band handheld, CB walkie-talkies, a dual-band mobile, a couple of scanners, and a shortwave receiver. With a little more effort and a minimal expenditure, I could buy a dual or triple outlet cigarette lighter adapter and run two or three scanners or receivers simultaneously. The PRO-2006 worked flawlessly on the 12-Vdc from the Deka and Sears batteries.

I use the Deka battery line exclusively for the higher amp hour equipment, including my dual-band Alinco mobile. The Deka batteries hooked in parallel deliver more than adequate amp hours for my mobile on high power! Using the radio on low power, I was able to talk for a couple of hours (more, had I not needed to get up the next morning!) noticing only a slight drop in voltage on my in-shack meter. The next day the batteries charged up and I was ready to go again.

Now you know darned well that if you're able to transmit for that long, you can use a scanner or receiver for an eternity and, if properly installed, you won't notice any voltage drop on the meter.

Is there a limit to what you can do? Of course. You can't blow-dry your hair without a proper size power inverter that converts the DC to 110 Vac. Same for watching TV or running a VCR. You'll need an inverter. For that, keep your cable run much shorter than mine and shop around for a good inverter. (Again, Alternative Energy Engineering is a great source).

Your setup, if it's like mine, is what's known as a small stand-alone array; one or two panels (in this case connected in parallel) running a few radios or DC lights. For a lot more money, you can cover your roof with panels, and a utility bill will be as foreign to you as a scanner is to Billy Tauzin. But for most of us, the basic equipment I've discussed here; a panel or two, charge controller, a couple of good high-quality batteries, some cable, and hardware, will give you years of dependable environmentally-friendly power for your shack.

If you're using an alternative energy source, we'd like to hear from you. Write us at Popular Communications, 25 Newbridge Road, Hicksville, New York 11801 or E-mail me at <popularcom@aol.com>. We'll publish the most interesting stories and photos! ■

BY KEN REISS
<Armadillo1@aol.com>

product spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

Electra's New Tiger Scan

Electra Corporation has introduced a unique new receiver called the Tiger Scan model TSA. This is a two-channel, plus weather, VHF High band-only receiver operating off of a 9 Volt battery with a built-in antenna. You may remember Electra Corporation as the inventor of the scanning receiver. It's the same company, but a son of the original owner has revived the company to make radios again. The Tiger Scan represents their first product back into the marketplace after a long absence.

When you first see the Tiger Scan, it looks kind of like an oversized pager with an antenna attached — an older oversized pager at that. After the obligatory "what is it" questions are asked, you'll begin to notice that it's got very few buttons. You don't need many controls for a two-channel scanner, and if you want it to sell for $59.95, you probably don't have the luxury of adding too much either.

There are three buttons. The first is a power switch used for turning the unit on and off, obviously. The second is the volume control, which allows you to set the desired listening volume to any of the 64 levels available. Pressing and holding the volume will increase it up to the maximum. If you release and then press and hold it again, it will reverse direction. It takes a bit of getting used to, but it's manageable. And the audio from the little unit can pack quite a punch.

The third and final button is for selecting the desired mode of operation (manual, or scan, or weather, not AM/FM sort of thing), and for programming the two memory locations. When you first power the unit on, you'll get the weather (NOAA channel) that's active in your area. For some folks, that might be handy all by itself.

Pressing the third button once will move you to the manual mode on channel one. Pressing it again will move to manual mode on channel two, and pressing it a third time will initiate the scan function between the two channels.

So how do you program frequencies into a scanner with just one button? That, as they say, is pretty slick. Pressing and holding the channel select button for more than two seconds will put the unit into program mode on the selected channel (make sure you're in the right spot with the manual mode mentioned above). This is announced by a long beep. You then proceed to enter the digits of the frequency one by one by counting the number of button presses. So to enter 154.845, for instance, you'd put the unit into program mode, and then press the program button one time.

After a brief pause, the unit will emit a high-low tone letting you know that it took that pause as the end of the data for that digit. Then you press the button five times for the 5 in 154.845. After the high-low tone, four presses will enter the next digit and so forth, until the sequence is programmed. At the end of the process, the unit plays back the frequency as a series of beeps to let you know that it's been programmed correctly. Piece of cake.

The unit will generate an error if you take too long between digits. Likewise, if you try to enter a frequency out of the receive range of the unit (140–174MHz), it will error out. In either case, it exits the program mode and you have to start over, but there's no harm done.

The Tiger Scan represents a very interesting, but simple scanner. Easily portable and quick to reprogram, it makes for a versatile monitor in the VHF High band.

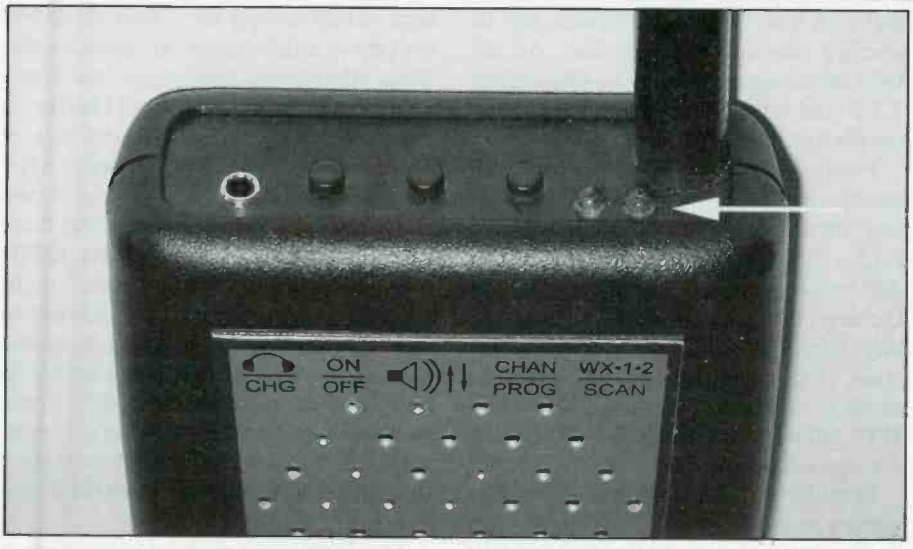
So What Can You Do With A Two-Channel Scanner?

It's easy to imagine several scenarios where the Tiger Scan might come in handy. If you don't want to carry your good, mega-channel radio to an event that's on VHF, for instance, having a Tiger Scan might be handy. Or in an emergency situation, where you need a lot of people to monitor a particular frequency or two for updates.

One immediate use that comes to mind might be for outdoors types who don't necessarily want to carry a scanner, but might need weather info if things take a turn for the worse. NOAA weather, combined with the local Skywarn frequency and police dispatch, could be a lifesaver in many rural areas where VHF is common.

It might also be a good starter radio for someone getting interested in scanning but not sure how committed they want to be. A $59 radio might be a good way to find out if it's worthwhile going further (assuming that VHF frequencies will work in the area). It would certainly force you to learn which frequencies were worth listening to, and at the same time, by concentrating on only two, you'd get very familiar with the traffic on those channels.

I wound up putting local fire channels into it. They aren't terribly active, but usually interesting when they are busy. The battery life is claimed to give approx-

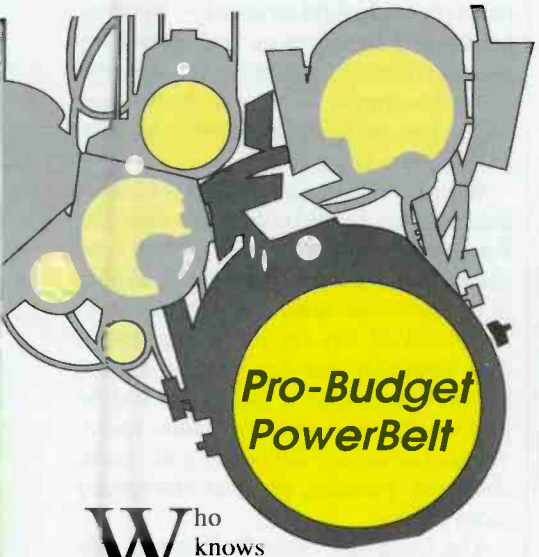


There are very few controls on the Tiger Scan. On/Off, volume, and Channel select/Program are the three buttons. The arrow points to the channel indicator lights — both of them.

imately 24 hours of operation, and I'd bet that's pretty close. It makes for an excellent fire monitor, when I didn't want to have other radios running.

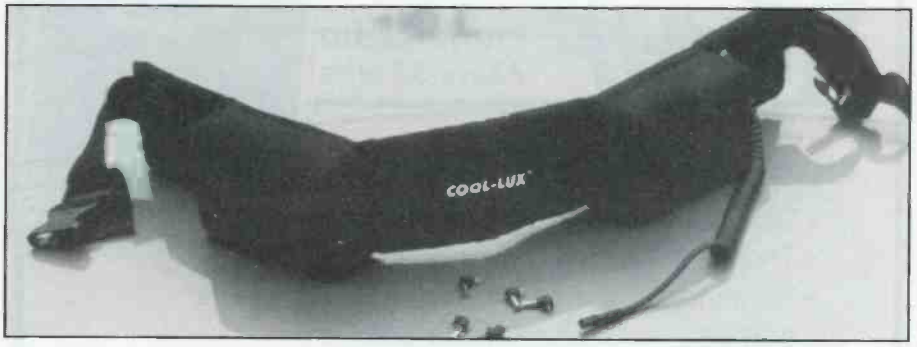
Further Developments

Electra is very candid about their future plans. They have plans for a UHF version, and possibly a version for 800-MHz with more channels. But they have to walk before they can run. I wish them all the success with this new venture, so that eventually we'll see the innovative and top-of-the-line receivers that Electra was so well-known for in its heyday. You can contact them at 317-894-3229, or on the Web at <http://www.electracorp.com>. Be sure to tell them you read about their Tiger Scan in *Pop'Comm.* ■



Pro-Budget PowerBelt By Cool-Lux

BY HAROLD ORT N2RLL, EDITOR



This Pro-Budget PowerBelt by Cool-Lux has a specially-made end connector for radio enthusiasts. Simply plug one of the adapters onto the end, and into your radio's DC receptacle and you're in business!

Who knows a radio enthusiast who wouldn't want a nearly indestructible power source that will run a handheld portable scanner or HT for hours on end? The Pro-Budget PowerBelt is such a battery pack. And believe me, it's worth every penny!

Enclosed in a tightly woven heavy-duty double-sewn Cordura (the same stuff used to make luggage), the 12-Vdc, 10 amp hour battery pack is a hefty belt. Our review unit, the L-10, is the larger capacity belt and it weighs in at about 9 pounds — enough to help me lose some weight while using my radios. (Let's face it, how else can you lose a couple of pounds and use your radios at the same time? Certainly not sitting at a desk!)

We spoke with the folks at Cool-Lux after receiving their initial news release, and it wasn't long before they graciously agreed to re-do the end connector (see the photo) and provide a handful of typical plugs that will fit most amateur radios, scanners, and CB walkie-talkies. Certainly, one of the provided plugs should fit your radio; it works on my Alinco DJ-G5T, Cherokee AH-100 AM/SSB walkie-talkie, and RadioShack HTX-202/404, as well as both of my handheld scanners. Be sure to check the polarity of your radio *before* connecting the belt to avoid doing serious damage to your equipment. The PRO-43's center pin, for example, is negative!

A professional-looking approximately two-foot coiled power cord attaches to your radio. It stretches to nearly three feet, so if a friend at the next table or walking with you needs the radio for a moment, you can hand it over without hanging yourself in the process!

You've probably already seen these belts. These PowerBelts are specially-made for professional videographers and photographers; the folks that depend on portable power on a minute's notice — and it can't fail when they're filming that once-in-a-lifetime event! These are professional top-quality lead-acid cells with heavy 16-gauge wiring contained in that indestructible Cordura material. The belt is fully adjustable to fit waistlines from 34–56 inches and the belt strap clips tightly with a heavy-duty buckle similar to those worn by hunters, soldiers, and outdoor enthusiasts. (I recently saw a similar strap/buckle belt assembly made

for carrying extra ammo in the camping/hunting section of a leading department store chain.) The belt is easily removed using one hand to squeeze the buckle and the other to catch the belt.

Charging And Operation

Charging the PowerBelt is easy: simply plug in the 110-Vac wall adapter to the belt overnight. The easy-to-read manual provided with the belt states that the average charging time is about 9.5 hours and that actual charge times "are subject to actual level of discharge and may vary." Nothing you already didn't know, but I'd recommend not keeping the belt on the charger for days on end. The manual recommends topping-off the battery pack once a month and says that "peak performance will be reached after three-four cycles." All the belts are shipped charged — and a short 1 1/2 hour charge is recommended to top off the battery pack.

I've used the PowerBelt for a couple of months and so far it hasn't experienced any "memory effect." Initially, it was used for *four hours* with my RadioShack HTX-202 before I decided to call it a day and recharge the belt overnight. A couple of days later, I went for my usual downtown walk (who can resist a mid-morning snack?) and using my new Alinco DJ-G5T, talked with George, WA2MNV, on 2-meters simplex.

Frankly, I've got a knack for either forgetting to recharge my radio's battery or beginning a conversation thinking I've got a fully-charged NiCd. Typically, it's been sitting around for a week or so and isn't up to a full charge. Of course, after about 20 minutes, 'ol George didn't pass up the opportunity to ask me if I had actually *remembered* to recharge my battery pack. Gotchya, this time, George! After describing this newly-discovered PowerBelt, he quickly learned that there would be no more five-minute QSOs before my pack went dead. There's nothing more embarrassing than starting to talk and either suddenly fading away into radio nevernever land or being unable to even *finish* the conversation and ID, *or* not having enough battery power to give your radio the power it needs to put out a good signal. I'm not concerned about these scenarios any longer.

The PowerBelt manual states that it will run a 2 amp camcorder or recorder for five hours. I can say with certainty that's probably right on target — it ran my handheld 2-meter rig on high power for several hours before I decided to recharge the belt overnight. Mind you, the belt was *still* in top condition, but even I can only talk so long, you know.

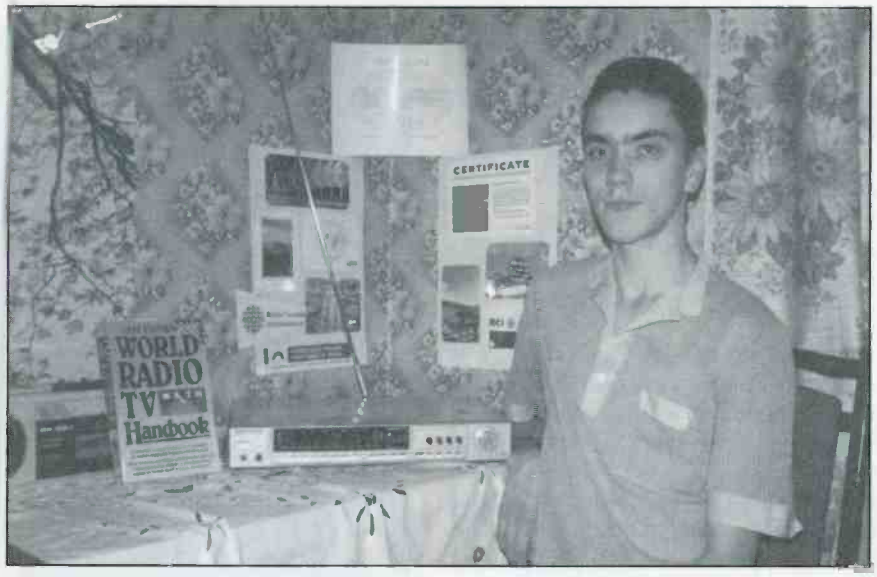
With my RadioShack PRO-43 handheld scanner, I could only guess when the PowerBelt would quit! With the belt connected to the scanner, (remember, a radio in *receive* mode draws *very little* power) it worked all day for *three* consecutive days (typically four-five hours at a time) before I recharged it overnight. It'd be perfect for any outdoor radio event, whether or not it's clipped to your waist; airshows, parades, or even emergency radio drills.

The Cool-Lux PowerBelt lineup runs from ***(list price)*** $190 to $370 from professional videography and photography and audio dealers nationwide, including Location Sound, KP Pro Video, and Showcase. You can also contact Cool-Lux at 805-482-4820 or write them at 412 Calle San Pablo #20, Camarillo, CA 93012. Each PowerBelt is guaranteed for one year, and replacement cells are covered for one year. It also carries a lifetime warranty against defective materials, parts, and construction.

Frankly, in my opinion — and I've used dozens of batteries and battery pack assemblies for years — this is *the* pack of choice. While it's a bit heavy and may take some getting used to, especially on those long walks, you get what you pay for — in this case, quality portable DC power that won't quit when you need it the most! Be sure to tell the folks at Cool-Lux you read about it in *Popular Communications*. ■

How I Got Started

Congratulations To Yura Morgunov Of Latvia!



Yura Morgunov at his monitoring post in Latvia.

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

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

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications.* Address all entries to: "How I Got Started," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or E-mail your entry to <popularcom@aol.com>, letting us know if you're sending photos.

Our September Winner

Pop'Comm reader, Yura Morgunov of Kraslava, Latvia, writes, "I'm 19 years old and have been a radio amateur/DXer for eight years. My favorite languages are English and Spanish, but I don't know them very well. When I switched on my first radio receiver, a Ural-112, which had all bands, I only listened to FM stations, but later, LW, MW, and shortwave stations. I have QSL cards and letters from Radio Canada International, HCJB, Radio Budapest, Radio Japan, Deutsche Welle, and others.

I am also involved in repairing equipment, such as radio and TV receivers, and tape recorders. I can also make pocket radios, mini transmitters, and other interesting things. I have one character trait. If I buy an electric item, I always want to dismantle it and see what it has inside, because it is very interesting. Sometimes, I even get inside my receiver. One day something strange had happened. One portion of the AM bands worked, but another didn't. Frightened, I tried to look for the problem. In an electronic book, I discovered the problem was in a variable capacitor, which I repaired and the receiver worked normally.

I'm mainly occupied with radio listening because it allows me to associate with people from all over the world." ■

BY GORDON WEST, WB6NOA

Radio Resources

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Marine Automatic Direction Finders Work Great With Scanners!

Tracking down signals on VHF or UHF is an important part of our radio career. If you're a member of a rescue squad, it might be up to *your* group to try to find a lost skier that may be yelling Mayday over his little UHF Family Radio Service transceiver. The little handheld loop antenna on the ADF can really help in tracking down the general direction of the incoming signal.

If you're using a VHF or UHF base station and a rotatable Yagi antenna system, you already have the capabilities of direction finding. Simply rotate the antenna for the strongest signal, double-check that you might not be picking up the strong signal from a nearby mountain reflection, and join in on direction finding.

There are national and international "T-hunts," where you can watch ham radio operators and VHF/UHF enthusiasts running around with three-element beams, tracking down the hidden transmitter. I have seen these T-hunts in action, and I must say, it is quite an exciting sport. (But I caution you to always wear protective eyeglasses!) The reason I say this is many avid T-hunters build their own little three-element, direction-finding beams out of coat hangers or welding rods, and often pay little attention to eye safety when zipping around with these somewhat-lethal weapons.

I always enjoy watching the really *good* T-hunters in action with the loop antennas on their vehicles, and hopping out of a car with a handheld, removing the antenna, holding it close to their gut, and doing the "T-hunt spin" as they listen for the least amount of incoming signal that is most likely coming in from the rear. And they are usually right on target!

Q. What frequency is the marine VHF band on?

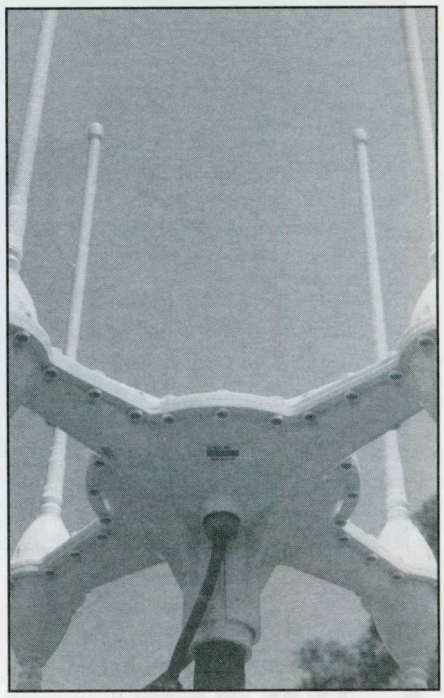
A. 2 MHz
B. 400 MHz
C. 156 MHz
D. 40 MHz

A. The marine VHF band is on 156 MHz, making marine VHF direction-finding equipment perfect for scanning from 130 to 170 MHz. In fact, many marine VHF automatic direction finders can actually tune all the way down to 120 MHz with superb accuracy.

Q. What do they call that strange ADF antenna?

A. Folded dipoles
B. Adcock Array
C. Hairpin loop
D. A collinear array

A. That strange-looking marine VHF ADF antenna system is called an Adcock Array. Incoming VHF signals will be induced in the four vertical elements with a slight phase difference. The signals are fed down a multi-conductor coaxial feedline to the accessory indicator, which contains a Doppler antenna analyzing circuit. By electronically spinning the four elements and looking at the induced wave forms, the marine VHF indicator will show a single incoming relative direction. This is usually on an LCD or on an LED 360-degree panel.



A look at a marine ADF antenna array.

Remember Regency Electronics?

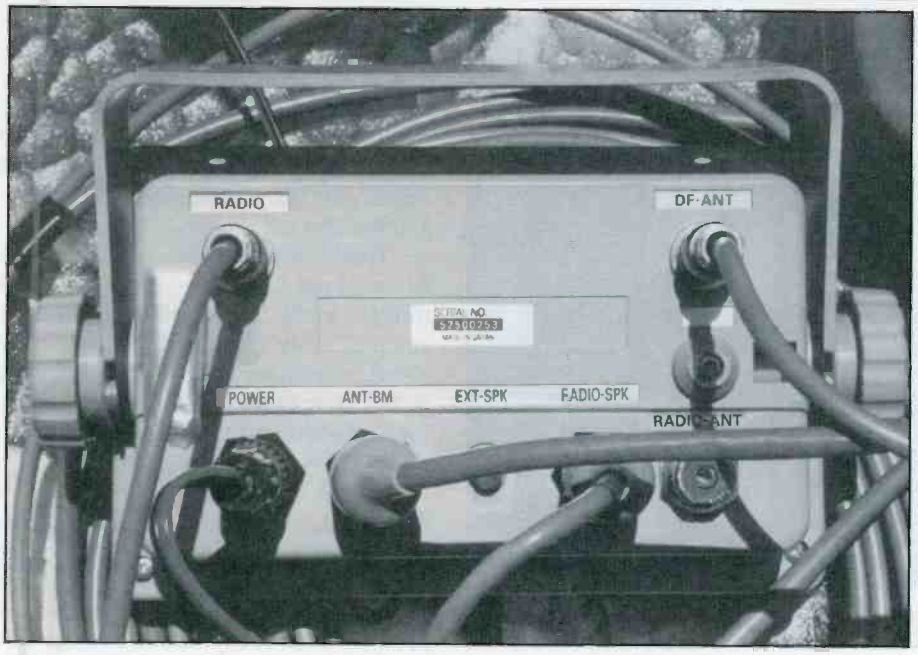
The most popular marine VHF automatic direction finder was produced by well-known scanner manufacturer Regency Electronics. It was called the Regency Polaris, and was a VHF 25-watt marine transceiver, along with its built-in automatic direction-finding capabilities. It was one nice, neat unit, along with some long antenna cables that went up to the white Adcock Array.

But after a few years around the water, the aluminum elements began to fail, and landing seagulls would break them off. When Regency stopped producing this equipment, the aluminum elements became scarce, and many Regency Polaris VHF automatic direction finders hit the scrap heap.

When the marine industry saw the global positioning system (GPS) as a terrific way of position-finding, even more automatic direction finders were pulled off the boat, replaced with GPS equipment.

When the marine industry adopted the Global Maritime Distress Safety System (GMDSS), even *more* automatic direction finders were pulled off the boat in place of a VHF set that would send and receive positions on digital selective calling VHF Channel 70 (156.525 MHz). And during this period, most manufacturers of VHF automatic direction finders for fixed and mobile use were discounting their products, or letting them go at bargain prices. The latest equipment, from a marine electronics company called Si-Tex, was much sought after by radio enthusiasts because it was a VHF automatic direction finder system that simply plugged into the speaker output of any VHF receiver.

Recently, the Si-Tex Model 525 automatic direction finder add-on box has been a popular system among radio enthusiasts because of its sturdy construction of the four-bay Adcock antenna to resist element break-offs, its easy con-



The rear panel on an ADF rig.

nection to any kind of VHF receiver, and its capabilities to be run in vehicles, at home, aboard boats, and with an accessory battery pack, even portable!

I was able to find one of the Si-Tex VHF direction finders at a local marine electronics store, and tried its performance on several VHF two-way radios, plus several portable AOR scanner receivers. Was I ever impressed! You simply plug the indicator unit into the scanner miniature speaker jack, hook up the antenna to the display unit, and add less than 1 amp at 12 volts, which starts the little LED spinning. Orient the antenna elements so the arrow is pointing north, and then look for signals to break the squelch. As soon as they do — even for a second — this little ADF add-on box instantly reads out the direction, and holds that readout, even though the signal may have quickly gone off the air.

I tried it down on the aircraft band with my AOR 8200 portable scanner, and it worked great. I then tried it on VHF high-band frequencies from 130 MHz to 175 MHz, and again it worked great. I even took it to a local VHF direction-finding hunt, and I could quickly see the incoming signal directions when everybody else was widely swinging their homebrew VHF beams dangerously close to everyone's eyes, or doing the handheld body twist. I'll admit that their system was a lot more portable than mine, but it was fun to see where they were all going to end up a few minutes later.

Q. What is one *disadvantage* of an Adcock VHF ADF system?

A. Too much battery current is required

B. Strong signals may overload

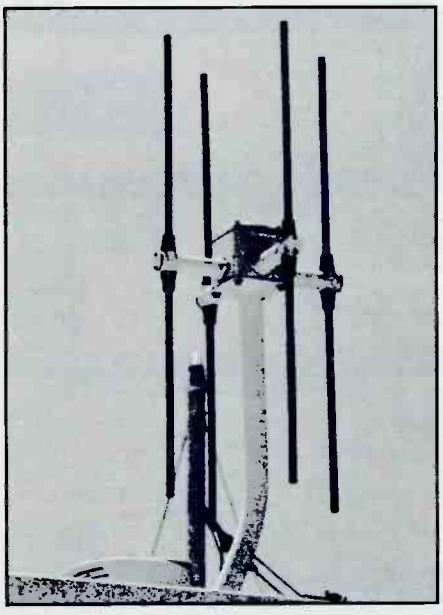
C. Signal reflections

D. Signal strength

Found it! The pointer finds the transmitter at the 12 o'clock position.

A. Two answers here: Signal reflections are a big problem with any fixed-mount ADF system, and incoming signal strength will always be a lot less on the unity gain Adcock antenna than on a powerful collinear antenna or beam.

Signal reflections on VHF are quite common. You might get a stronger bounce off of a local mountain or a big building nearby than what you might receive as a direct wave from the transmitting station. The modern Si-Tex VHF ADF unit will do a quick comparison of all indicated signal strengths, and will pick the *strongest* incoming signal for its indication. The strongest signal is not *necessarily* the direct wave, and could be a bounce. Keep this in mind.



The four-element Adcock array.

You might also hear a weak signal on a high big collinear vertical antenna. But when you switch on the ADF, you won't receive any signal strength at all for direction finding. This is because the Adcock antenna is unity gain and doesn't have the capabilities of the beam or the big collinear. In this case, the big beam on a rotator would be a much better direction finding antenna than the little Adcock Array.

When I operated the Si-Tex equipment in a vehicle, I found that I could get more reliable, accurate bearings when the vehicle was moving, than stopped in traffic. When you stop, you may get an incorrect reflected signal, which puts the incoming signal in an area where it really isn't coming from. Always try to be moving until you get relatively close to the source.

Contrary to popular belief, the marine VHF automatic direction finder is not just designed for a marine VHF 75-channel, 25-watt set. The ADF Doppler equipment can work with virtually any type of scanner receiver — portable or fixed — that has speaker audio output. The internal Doppler electronics work off of the recovered audio from the transmitting signal, and computes the phase relationships from the audio out of your receiver. When it does this, you hear a faint tone that rides along with the signal. Some ADF companies do a nice job of filtering this tone out of the accessory speaker, and the latest Si-Tex unit masks the tone relatively well.

And what happens if you accidentally transmit on your two-way radio into the VHF ADF magic box? If you wired everything up as directed, the transmitted signal goes to your regular VHF whip, and not into the sensitive Adcock antenna. Transmitting into the Adcock antenna could easily damage the active electronics inside the four-bay Adcock antenna array. Make SURE you have wired everything correctly as indicated on the back of the box. Even if you lose the instruction manual, most ADF boxes will show you the correct hook-up.

This fall look for mariners wanting to ditch their ADF equipment for the new GPS technology. Go to marine swap meets, or if you spot someone selling a boat with the tell-tale Adcock antenna on it, offer them $100 for the entire ADF setup. Chances are they will jump at the opportunity to get this strange-looking antenna off their boat, and chances are the new owner wouldn't know what to do with the equipment anyway.

If you find an old Regency Polaris ADF, minus the antenna rods, any 18-inch aluminum tube will work quite nicely. Take it to a machine shop and have them put on the proper threads, and you are all set. Make absolutely sure you score the matching wiring harnesses. Without the exact wiring harness between the ADF readout and the Adcock antenna, your system won't be the least bit accurate! You MUST use the exact wiring harness as supplied by the manufacturer. So don't just take the Adcock antenna and the electronics and plan to make up your wiring harness. Without precise specs, it's tough to get it right. But grab the wires, no matter how weather-beaten they look, and chances are you can figure everything out once you get it home and on the workbench.

The marine ADFs are popping up everywhere. If you can't wait for a used one, you may wish to call the manufacturers and see who might have some demo units at low cost.

Resources

Si-Tex Marine Electronics, St. Petersburg, Florida, Phone 727-576-5734. Visit them on the Web at <http://www.si-tex.com>.

AOR for ADF-compatible mobile and portable scanning receivers, Torrance, California; 310-787-8615 and on the Web at <http://www.aorusa.com> ■

The Radio Connection

A LOOK BEHIND THE DIALS

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

Headphone Impedance For Our "Boy's First Receiver," And A Rare Look Inside "The Radio Connection's" World HQ

Last month pretty well wrapped up our "Boy's First Receiver" project. I am working on adding an audio amplifier stage and a simple AC supply to give the receiver some gain. Both projects are still on the workbench. The audio stage is progressing nicely, but I am still debating what would be the best route for the AC supply to operate the receiver. Cost and simplicity are foremost concerns. My first two efforts were overly complex for the task at hand, and I am searching for a cheap source of power transformers. Look for these two receiver accessories in the next column or so.

The Playthings of Past address and phone number shown in the July issue are incorrect. Thanks to several sharp-eyed readers for pointing this out! Mike Neary advises that reprints of Alfred Morgan's "The Boy Electrician" are available from Lindsay Publications. Lindsay's address and ordering information are shown later, along with the correct Playthings of Past address and phone number. Reader Bob Lewis penned these notes: "Peter, come on with the projects — all too long with no hands-on electronics . . . looking forward to some down-to-earth projects!"

Bob, we'll do our best! Projects are time consuming — just making sure the parts are readily available for a simple project can be frustrating. We do have several nifty projects in mind, and we will do construction projects as time permits.

Reader Leo Zucker, K2LZ, raised several concerns. Leo correctly noted that my saying the 1H4 and 1G4 are electrically identical may have lead to some confusion. Hopefully, the August issue clarified the differences in filament voltage requirements for both tubes. My experience is that *either* tube will work fine at 1.5 volts, but the 1G4 should never be run at the 2-volt 1H4 filament rating. Leo had built a similar receiver many years ago using a 1H4 with a 1.5 filament supply, and had better results when using the 1G4 tube at its rated 1.5 volt filament voltage.

Headphone Impedance

Leo also questioned using 2000-ohm headphones, since the receiver output is actually closer to a 10,000-ohms impedance. He suggested using a matching transformer with the headphones.

It's a good question, as I've always assumed a headset's impedance was near the DC resistance. After some investigating, I learned I was wrong — 2000-ohm headphones have an impedance that is considerably *higher* than their DC resistance. At 1000-Hz, most 2000-ohm headphones will measure at about 10,000-ohms impedance, a good match for the receiver.

Two final comments from Leo concerned the operating voltage and headphone safety. Many vintage headsets have exposed terminals on each ear-piece. This presents a possible shock hazard, so please be careful when using headphones with exposed terminals. The danger is minimized by using relatively low-voltage battery supplies (under 45 volts), but you still can get a nasty shock if you're not careful. I use vintage Baldwin headsets with my one-tube receivers or crystal sets. The Baldwin's feature mica diaphragms and have outstanding sensitivity, and also have no exposed terminals. Most other brands do have exposed terminals.

Make sure your workbench is big enough to handle any size project you may encounter.

Visiting The Radio Connection

Are you curious about other folk's workshops and monitoring stations? I mentioned some time ago that my "hobby room" was a small and overcrowded spare bedroom. In a weak moment, my wife suggested adding a larger addition — and without hesitation, I began construction. I couldn't afford a contractor, so I did most of the work myself with assistance from my 16-year old son, Tom. The new room has over 250 square feet of floor space. Harold suggested I run some photos of the new "Radio Connection" World Headquarters, so I am pleased to give you a quick tour of my handiwork. (Normally, I would be too modest to do so, but I am desperate for column fodder this month!)

Roll-around Husky mechanics' tool cabinet keeps tools organized and within reach. The revolving plastic drawer storage system holds a large assortment of replacement parts in a small area.

Two early crystal sets and a Zenith M660A communications receiver serve as bookends. The author's ham station is at right. Gear is early JRC equipment.

I like a large workbench that can handle one or two projects at a time. As you can see, the new eight-foot workbench has plenty of work area and shelving space for test equipment! That's Midnite's bed under the workbench, not mine. Most of the more elaborate test gear is used for evaluating product review equipment specifications, and design and repair work. To the left of the workbench, is the tool cabinet; having good tools neatly stored makes any job go easier. My spectrum analyzer, Cushman CSM-50A service monitor, and Boonton 103F signal generator occupy the top of the tool cabinet. Finding room for my stock of replacement parts was solved by the revolving parts cabinet system shown in the corner.

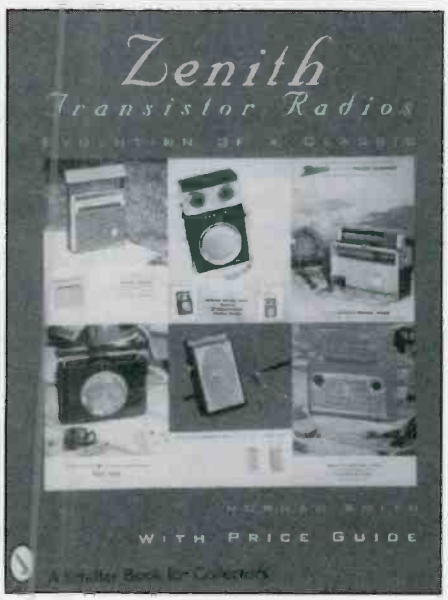
To the right of the workbench is my SWL and ham station. The HF gear is a JRC NRD-515 and NSD-515 receiver and transmitter; a Yaesu 726R provides VHF/UHF coverage. Outside, two towers support HF monoband beams and wire antennas, and an assortment of VHF yagis. Two early crystal sets and a Zenith M660A receiver serve as bookends.

The computer work area is the center of activity! Here is where "The Radio Connection" and other magazine articles are created. The computer also handles my drafting and technical editing chores for one of *Pop'Comm's* sister publications, *Communications Quarterly Magazine*. If you look real close, you can see my Ten-Tec RX-320 and Yaesu 9600, which I use for listening in on the HF and VHF bands while I'm working.

Wherever I found open wall spaces, I installed shelving. Note the numerous radios displayed above the windows. No wasted space here. The bulk of my larger sets are displayed on shelves along one wall of the room. Seventeen vintage tombstones and cathedrals, in various stages of restoration, are representative of sets made by Zenith, GE, Silvertone, Atwater Kent, RCA, American Bosch, and Philco. These are the bulk of my collection of large table top sets. I also collect vintage communications receivers, and since the photos were taken, a pair of Hallicrafters SX-28 receivers, a Hallicrafters SX-42 receiver, and a

The computer work area is the center of activity most evenings.

Rows of vintage tombstones and cathedrals await restoration. These are the larger chassis sets in the author's collection.



Zenith Transistor Radios.

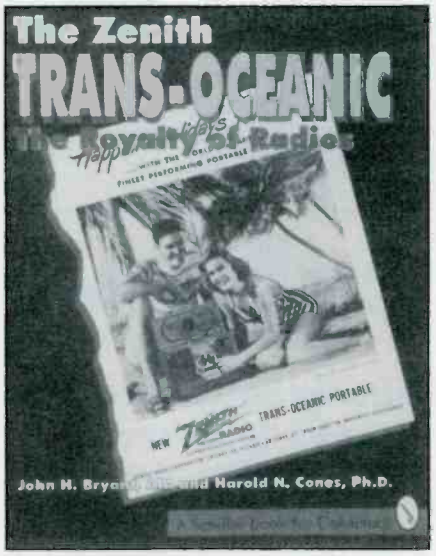
Hammarlund HQ-145XC have also joined the collection. (Don't ask how, but there is always room for "one more"). Two questions that always arise: "Is it always that neat?" Yes, you bet. I can't stand clutter or messy work areas. Next question is: "Why aren't you in the photos?" Heck, I'm uglier than Harold! We'd lose readers.

Zenith Reviews

The folks at Schiffer Publishing were kind enough to send samples of their latest radio collector books for review. All three books are about Zenith Radio.

First, let's take a look at *Zenith Radio, the Early Years 1919–1935* by Harold Cones and John Bryant. The book features exquisite color photos of many early and rare Zenith radio products. As usual, the photography is superb, and is expertly reproduced by the publisher. Great pains were taken to select sets that accurately represent the radios as they were originally manufactured. A compendium of Zenith products is given in the back of book, covering Zenith radios made from 1922 to 1935. The first half of the book (Section 1) spans the history of Zenith Radio from its beginning throughout the Depression years. Many historical photos are featured, including those of early Zenith manufacturing facilities, and photos taken during Donald MacMillan's various expeditions. Section 2 features color portraits of Zenith and Chicago Radio Laboratory (CRL) products. Illustrated catalogs for

Zenith Radio, the Early Years.



The Zenith Trans-Oceanic, the Royalty of Radios.

CRL (1919–1924) and Zenith Radio Corporation (1922–1935) products are also reproduced in the book. A model index and rarity guide, and product database highlights Section 3.

There has been some debate concerning the historical accuracy of some material presented in the book, but I feel *Zenith Radio, the Early Years* is a classic reference work. The photographs may be as close as many of us will ever come to seeing some of the rarer sets. The book also gives us a fascinating look into Zenith Radio's earliest years. A must-have for any serious Zenith radio fan. On a scale of 1 to 5, I rate this book a solid 5. A second book is being planned to continue from 1935 forward. Hopefully, it will be a short wait!

Harold Cones and John Bryant are the authors of Schiffer Publishing's *The Zenith Trans-Oceanic, the Royalty of Radios.* I can't imagine any collector not having the wonderful experience of owning at least one of these fine radios. From the first 1941 pre-war 7G605 until the solid-state Royal 7000 series in the early 1980s, for over 40 years, Zenith's Trans-Oceanics represented the ultimate in portable radios. They traveled the world, carried by native porters into the darkest African jungles and in caravans over remote Asian deserts. This book covers the history and design of these popular radios; and provides information, hints, and resources for restoring tube and solid-state models. The historical data is extensive and embellished with examples of advertisement literature. Photos of Trans-Oceanic models from private collections are reproduced in full-color plates. As with *Zenith Radio, the Early Years,* this book was obviously a labor of love for the authors, and was professionally executed by Schiffer Publishing. Again, a must-have for any collector's library. Another 5-star recommendation.

While my collecting interest lies with early tube sets, I was captivated by Schiffer's *Zenith Transistor Radios.* Written by Norman Smith, the book is profusely illustrated with color plates of Zenith transistor portables, beginning with the original Zenith Royal 500, released in 1955. A chapter is devoted to each model year from 1956 until 1965. Paging through the book reveals early advertisements, store displays, and even a section showing early Zenith patent drawings. A price guide is included to assist collectors in assessing the value of their latest tagsale find. The later solid-state Trans-Oceanic models are also covered.

Many thanks to the fine folks at Schiffer for making review copies available. See you next month. And keep those cards and letters coming! ■

Vintage Resources

For reprints of "The Boy Electrician"
Book no. 21648
$19.95 plus $1.25 shipping/handling

Lindsay Publications, Inc.
P.O. Box 538
Bradley, IL 60915-0538
Phone: (815) 935-5353
FAX: (815) 935-5477
Web: <http://www.lindsaybks.com>

For vintage radio parts:
Playthings of Past
3552 West 105th St.
Cleveland, OH 44111
(216) 251-3714

Mail order:
Gary B. Schneider
9511 Sunrise Blvd. #J23
Cleveland, OH 44133

Schiffer Publishing, Ltd.
4880 Lower Valley Rd.
Atglen, PA 19310
(610) 593-1773

Zenith Radio, the Early Years
by Harold Cones and John Bryant
ISBN 0-7643-0367-8

The Zenith Trans-Oceanic, the Royalty of Radios
by Harold Cones and John Bryant
ISBN 0-88740-708-0

Zenith Transistor Radios
by Norman Smith
ISBN 0-7643-0015-6

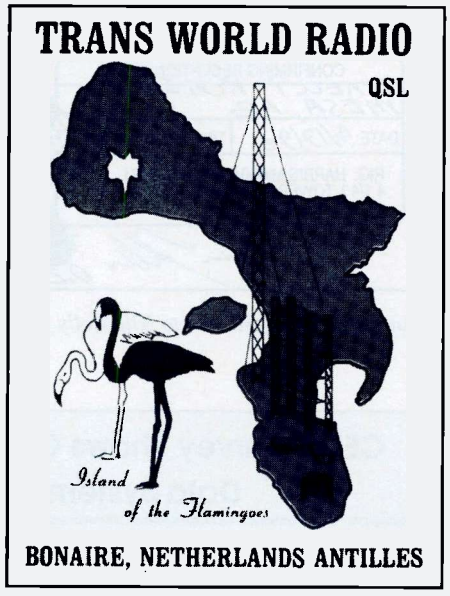
Broadcast DXing

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

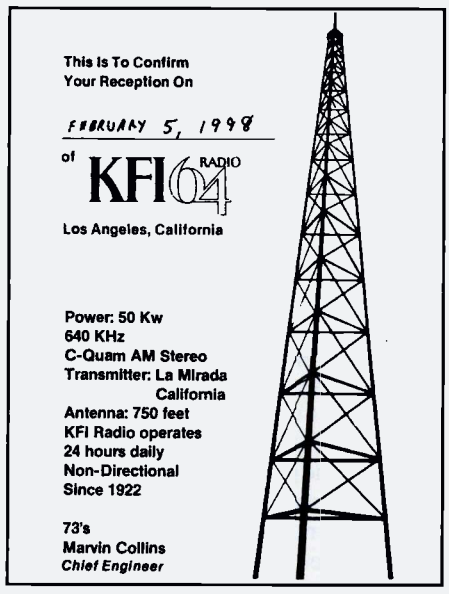
BY BRUCE CONTI
<BAConti@aol.com>

DXers Face New Challenge Logging Netherlands Antilles

A favorite mediumwave country is about to become a much more difficult catch. PJB Bonaire, Netherlands Antilles, the TransWorld Radio outlet at 800 kHz, will be reducing power from 500 to 100 kW, via a four-tower directional array. The new antenna pattern will serve TWR's primary target audiences in Cuba, the Dominican Republic, Venezuela, and the Amazon region. Unfortunately, this will leave many North American DXers in the dark. Bill Damick, Assistant Director of Broadcaster Relations at TransWorld Radio writes, "We will be decommissioning the 500-kilowatt mediumwave transmitter sometime later this year and replacing it with a 100-kilowatt solid-state transmitter which will also operate on 800 kHz. TWR began transmitting on MW from Bonaire in 1964 with a Continental 500 kW transmitter, replaced in 1986 with the current Brown-Boveri transmitter. The principal reasons for the change are financial. The new transmitter/antenna combination will cover our intended target areas, as well as the 500-kW does now. I realize this will probably disappoint a number of MW DXers in the States and beyond who like to get QSLs from Bonaire, but economy dictates the change for us. For the last couple of years, we've actually had two MW transmitters on Bonaire; the 500-kW for nighttime and early morning broadcasts in English, Portuguese, Spanish, and one or more smaller languages, and a 50-kilowatt transmitter for daytime English broadcasts in the A-B-C Islands (Aruba, Curacao, Bonaire). Both operate on 800 kHz. In addition, this year we inaugurated satellite services to local Christian radio stations throughout the English-speaking Caribbean, giving them the opportunity to increase and improve their program line-up, and to have exposure to the fine Bible teachers and Christian music from all over the Caribbean, as well as selected broadcasts that come from North America. The development of the Caribbean Gospel Network also played into the decision to deactivate the 500-kW transmitter. As you probably know, we ceased shortwave broadcasting from Bonaire several years ago, and began a cooperative project with HCJB Quito, Ecuador, to deliver Spanish-language programs via satellite to local independent Christian stations all over Latin America. We've been very pleased with the results of this effort, as there are some 70 stations presently taking programs, extending all the way from the Southern U.S. to the tip of Chile."



A QSL card from PJB Bonaire, Netherlands Antilles.



Nile Kelly received this QSL from KFI Radio 64, Los Angeles.

CBC Becomes More Challenging To Hear

By the time you read this, CBL is expected to be off the air, completing the move of CBC Radio One from 740 kHz to 99.1 MHz CBL-FM in Toronto. Earlier this year, 690 and 940 kHz were vacated by the CBC in Montreal, leaving those two clear channel frequencies open for DXers in the northeast. For distant listeners of CBC Radio One, it's another disappointment as the CBC continues its transition from AM to FM and digital broadcasting. However, the sign-off of CBL represents an excellent opportunity for mid-America DXers to log Newfoundland. CHCM Marystown, Newfoundland, relays VOCM on 740, and should be an easy target, although a directional antenna might be necessary to null KRMG Tulsa, Oklahoma. Other potential targets include Radio Caroni-Venezuela and Radio Progreso-Cuba. The unique beautiful music sound of WJIB Cambridge-Boston, Massachusetts, might also be worth a shot for Atlantic coast DXers without interference from CBL, as they cover the eastern shores of New England well. Long distance CBC listeners in the midwest and east may still be able to tune in Radio One on CBE Windsor, Ontario, at 1550 kHz, and CBA Moncton, New Brunswick, at 1070 kHz.

Meanwhile, 690 and 940 won't be dark for long. Although unconfirmed, it appears that CIQC Montreal is preparing to move from 600 to 690. CIQC will likely use two of its four towers at the present 600 kHz antenna site for 690, rather than relocate to the former CBF facilities. And French-language CKVL Verdun, Quebec, has been granted approval to move from 850 to 940, using the former CBM

facilities. No word yet on what will happen to 600 and 850 kHz.

Power Increase In Cleveland

WRMR Cleveland, Ohio, on 850 kHz should be an easier catch, not only because of the departure of CKVL, but also due to recent site improvements. According to Ted Alexander, Chief Engineer at WRMR/DOK, they have been in the process of rebuilding the entire transmitting site, after the FCC granted a construction permit for a daytime power increase to 50,000 watts. Six new towers were constructed and a new ground system was installed. "We also installed two new solid state Harris transmitters, a DX-50 for days at 50 kW, and a DX-10 for nights," says Alexander. "Tests were completed this spring and on Friday, May 28, WRMR was granted its license for a daytime power increase to 50,000 watts. The day signal is radiated from four of the towers, with the primary radiation lobe directed to the south, and a secondary major lobe to the northwest. The 0.5 mv/m interference-free contour encompasses Ohio cities such as Akron, Canton, Marietta, Columbus, and Toledo. It also extends to include the entire Detroit, Michigan, area. In this day and age, what with the existing congestion of the AM broadcast band, it is not often that an AM signal, especially in a major market, can be improved to this extent. The WRMR night signal remains essentially the same as it has been since 1942, using 5,000 watts into 4 towers (two are common towers for day and night), with the major lobe directed north. We have had several reports that WRMR was being received very well in North Carolina just before switching to the night power and pattern, as the night skip was settling in. I invite DXers who are able to hear our new signal to send in a report and, if it's accurate, I will gladly send a QSL letter back to them."

Ted suggests that the best time to hear WRMR might be during the "transition" hours just after sunrise and just before sunset. Send reports with return postage to Ted Alexander, WRMR/WDOK-FM, One Radio Lane, Cleveland, OH 44114.

The station of the Great Lakes, WJR Detroit at 760 kHz, is facing some stiff competition in the Motor City ratings race, as they dropped to third place overall for the first time in recent history. Urban contemporary WJLB 97.9 FM is holding the lead with WNIC 100.3 in sec-

An interesting QSL sent to Nile Kelly from KRVN, 880 Farm Radio in Lexington, Nebraska.

CEMA Survey Shows Growing Acceptance For Radio Data System Among Broadcasters

By The Consumer Electronics Manufacturers Association

According to a survey conducted by CEMA, FM broadcasters are demonstrating a growing acceptance of the radio data system (RDS). About 20 percent of the FM stations surveyed can broadcast in RDS, and another 23 percent hope to join the RDS bandwagon during the next year.

RDS, a digitally encoded stream of information that FM broadcasters "piggyback" on their normal radio signals, enables a wide range of new data capabilities for conventional home and car radios. RDS can display station call letters and programming formats on the radio face. Other RDS features include displaying song titles and artists, emergency alerts, weather forecasts, commercial messages, and other text messages.

Presently, about one in five of the radio stations responding to the survey have the necessary hardware to broadcast an RDS signal. Stations with equipment tend to be privately-owned (28 percent) and capable of transmitting a more powerful signal (28 percent transmit 76 to 100 watts).

The outlook for the next 12 months suggests RDS may be gaining momentum. Among stations not transmitting an RDS signal, 23 percent are at least somewhat likely to begin RDS transmissions in the next 12 months. The stations most likely to begin RDS transmissions broadcast in the 76 to 100 watt range and are privately-owned.

Among stations that currently have RDS equipment, 81 percent have broadcast an RDS signal at some point. Alternatively, almost one-fifth of those with equipment have never used it to transmit an RDS signal. Seventy percent of stations with RDS equipment are presently transmitting an RDS signal.

The majority of stations (70 percent) are transmitting their call letters. Other RDS capabilities in use include program type, clock time, program search, song title and artist display, and paging information.

CEMA is a sector of the Electronic Industries Alliance (EIA), the 75-year-old Arlington, Virginia-based trade organization representing all facets of electronics manufacturing. CEMA represents more than 500 U.S. manufacturers of audio, video, accessories, mobile electronics, communications, information, and multimedia products that are sold through consumer channels.

Seeking Permits To Construct New FM Stations

AK	Anchorage	88.5 MHz
AL	Heflin	89.1 MHz
AL	Oxford	89.1 MHz
AR	Arkadelphia	91.9 MHz
AZ	Drake	89.5 MHz
CA	Yucca Valley	88.1 MHz
CO	Trinidad	91.7 MHz
CT	Norwalk	89.3 MHz
GA	Sparta	88.7 MHz
IL	Effingham	89.5 MHz
IL	Morris	90.7 MHz
IN	Danville	88.1 MHz
IN	Linton	90.1 MHz
IN	New Whiteland	88.3 MHz
IN	Trafalgar	88.3 MHz
KS	Hays	89.7 MHz
MA	Newburyport	91.7 MHz
MI	Big Rapids	91.5 MHz
MI	Caro	91.3 MHz
MI	Clarklake	90.1 MHz
MI	Oakley	88.5 MHz
MI	Woodhull Twp.	89.7 MHz
MN	Willmar	90.9 MHz
MN	Windom	90.9 MHz
MO	Anderson	88.9 MHz
MS	Columbus	88.5 MHz
MS	Hickory	90.9 MHz
MS	Meridian	90.9 MHz
NC	Wilmington	89.7 MHz
NJ	Dover	89.3 MHz
NM	Espanola	91.1 MHz
NM	Hobbs	91.7 MHz
NY	Houghton	91.1 MHz
NY	Montauk	88.7 MHz
NY	Skaneatles	90.3 MHz
OH	Lexington	89.5 MHz
PA	Altoona	88.1 MHz
TN	Rockwood	90.1 MHz
TX	Bastrop	88.9 MHz
TX	Beaumont	88.5 MHz
TX	Big Spring	88.3 MHz
TX	Brownfield	90.7 MHz
TX	Casper	88.3 MHz
TX	Dripping Spgs.	91.9 MHz
TX	Markham	91.3 MHz
TX	Stanton	88.1 MHz
TX	Sterling City	88.5 MHz
TX	Vidor	88.5 MHz
WI	Abbotsford	90.1 MHz
WY	Jackson	91.1 MHz
WY	Laramie	88.3 MHz
WY	Laramie	88.5 MHz
WY	Pinedale	90.9 MHz

Seeking Permit To Construct New AM Station

OH	Cincinnati	540 kHz (Exper, digital)

Granted Permits To Construct New FM Stations

AR	Blytheville	88.1 MHz	225 watts
GA	Americus	89.3 MHz	
GA	Folkston	89.3 MHz	
GA	Helen	89.9 MHz	
GA	Jessup	90.5 MHz	
ID	Homedale	106.3 MHz	
IL	East St. Louis	89.7 MHz	
MO	Hannibal	91.7 MHz	
MO	High Point	89.9 MHz	
MS	Oxford	91.5 MHz	2 kW
MS	Tupelo	91.7 MHz	
TX	Odessa	89.5 MHz	

Canceled

KADQ-FM	Rexburg, ID	94.3 MHz
KGLP	Gallup, NM	91.7 MHz
KIGO	St. Anthony, ID	1400 kHz
KJQN	Stockton, CA	89.5 MHz
KLOM	Lompoc, CA	1330 kHz
KMLA	El Rio, CA	103.7 MHz
KRSM	Dallas, TX	93.3 MHz
KUTA	Blanding, UT	790 kHz
KVCE	Fallon, NV	91.9 MHz
KTMP	Heber City, UT	1340 kHz
KWMC	Del Rio, TX	1490 kHz
KZAL	Desert Center, CA	102.3 MHz

Seeking Permits To Modify AM Facilities

KCMN	Colorado Spgs., CO	1530 kHz	Seeks to add night service
WCJW	Warsaw, NY	1140 kHz	Seeks to change day power
WEHH	Elmira, NY	1590 kHz	Seeks reduced night power

Changed AM Facilities

WTZQ	Hendersonville, NC	1600 kHz	Reduced power
WZUM	Carnegie, PA	1590 kHz	Reduced day power

Seeking FM Facility Changes

KBIO	Natchitoches, LA	89.3 MHz	Seeks changed frequency
KDET-FM	Center, TX	102.3 MHz	Seeks changed frequency
KLAW	Lawton, OK	101.5 MHz	Seeks changed frequency

Changed FM Facilities

KAFW	Turrell, AR	103.7 MHz	Changed community
KZST-FM2	Rohnert Park, CA	100.1 MHz	Booster relocated
WPAL-FM	Walterboro, SC	100.9 MHz	Moved to Ridgeville
WXKZ-FM	Prestonburg, KY	105.5 MHz	Changed to 105.3 MHz

Pending AM Call Letter Changes

New	Old	
WDBE	WJBW	Jupiter, FL
WDLS	WNNS	Wisconsin Dells, WI
WGSR	WYHI	Fernandina Beach, FL

New AM Call Letters Issued

KBLO	Sauk Rapids, MN

Changed AM Call Letters

New	Old	
KBEE	KCNR	Salt Lake City, UT
KCKK	KYGO	Lakewood, CO
KGXL	KKTR	Costa Mesa, CA
KJLL	KMRR	Tucson, AZ
KKOM	KKAL	Arroyo Grande, CA
KLIB	KRCX	Roseville, CA
KQDS	KDDS	Duluth, MN
KQKL	KHTZ	Albuquerque, NM
KRDY	KHUG	Grand Jct., CO
KSGO	KCPX	Centerville, UT
KTFX	KTOW	Sand Springs, OK
WAEY	WPVO	Princeton, WV
WALQ	WVOT	Wilson, NC
WBAE	WPOR	Portland, ME
WCBW	WBDI	Highland, IL
WGMY	WCSY	South Haven, MI
WGVS	WKBZ	Muskegon, MI
WKBZ	WQWQ	Muskegon Hts., MI
WKFN	WTNN	Farrigut, TN
WMEX	WVFC	McConnellsburg, PA
WMNY	WHTT	Buffalo, NY
WNRV	WPSK	Narrows, VA
WRNC	WNML	Warner Robins, GA
WZTK	WKGF	Arcadia, FL

New FM Call Letters Issued

KAFR	Winters, TX
KBMD	Marble Falls, TX
KEGK	Julesburg, CO
KITY	W. Wendover, NV
KHAT	Malin, OR
KPOR	Emporia, KS
KWPS	Lund, NV
WBJU	St. Johnsbury, VT
WMJU	Bude, MS

Pending FM Call Letter Changes

New	Old	
KCVJ	KBUG	Osceola, MO
KZMP-FM	KIKM	Denison, TX

Changed FM Call Letters

New	Old	
KATG	KXXL	Sun Valley, NV
KCKK-FM	KCKK	Longmont, CO
KEJL	KYRK	Eunice, NM
KJCM	KBKF	Snyder, OK
KJMC	KLNQ	Des Moines, IA
KJUN	KTIL-FM	Tilamook, OR
KLEC	KHUG	England, AR
KPEL-FM	KROF-FM	Abbeville, LA
KRTQ	KTFX	Sand Springs, OK
KSHK	KAUI	Kekaha, HI
KTFX-FM	KRQZ-FM	Warner, OK
KTIL-FM	KJUN	Tilamook, OR
KUUU	KMGR	Tooele, UT
KVNT	KAZD	Montrose, CO
KWGL	KURA	Ouray, CO
KYOX	KOXZ	Comanche, TX
WBNJ	WDOX	Wildwood Crest, NJ
WBXW	WNRV-FM	Radford, VA
WCKY-FM	WTTF-FM	Tiffin, OH
WFXX	WWGA	Georgiana, AL
WGVS-FM	WKVZ-FM	Whitehall, MI
WMIJ	WHMQ	N. Baltimore, OH
WMTT	WVAY	Wilmington, VT
WNAK	WGPC-FM	Albany, GA
WNEE	WBCS	Jasper, GA
WNUQ	WKAK	Albany, GA
WOYL-FM	WRJS	Oil City, PA
WQVR	WWFX	La Crosse, FL
WREY	WPPD	Frederiksted, VI
WSCA	WCHY-FM	Savannah, GA
WSTG	WAEY-FM	Princeton, WV
WTJM	WBIX	New York, NY
WTKE	WWSF	Andalusia, AL
WUBB	WXHT	York Center, ME
WWFX	WQVR	Southridge, MA
WXJZ	WRKG	High Springs, FL
WYFU	WLWJ	Masontown, PA
WZBZ	WBNJ	Cape May, NJ

ond. However, the big news is in morning drive time, where WWJ 950 AM pulled ahead of WJR.

QSL Information

1520 KOMA Oklahoma City, Oklahoma, full data QSL, signed Ray Klotz, D.E. Address: P.O. Box 6000, Oklahoma City, OK 73135. (Kelly, CA)

1680 WTTM Princeton, New Jersey, black and white certificate suitable for framing in 30 days for taped report, signed Anthony A. Gervasi Jr., Sr. V.P. Engineering. Address: 619 Alexander Road, Third Floor, Princeton, NJ 08540. (Martin, OR)

1700 WPMD956 Norwalk, California, new TIS/HAR, 10 watts, verification in 5 days. (Jackson, CA) Nice verification letter in 9 days for a taped report, signed Craig Breit-GM. Address: Cerritos College, 11110 Alondra Blvd., Norwalk, CA 90650. (Martin, OR)

Broadcast Loggings

All times are UTC.

612 RTM Sebaa-Aioun, Morocco, good at 2350, African drumming and shouting, then a more Arabic-sounding vocal. This station had been inactive for several months. (Connelly, MA)

693 RDP, Santa Barbara, Azores, at 0102, news in Portuguese at a very low audio level on a very strong carrier, UK and Spain audible in the background, and

at 0141 with guitar jazz, then "Here Comes the Rain Again" by the Eurythmics; excellent. (Connelly, MA) This frequency has been a good transatlantic target for northeast DXers with 690 Montreal silent.

800 PJB Bonaire, Netherlands Antilles, at 0044 "Bonaire . . . Antilles Holandesas, Radio Transmundial" ID in Spanish, then Beethoven's "Ode to Joy" on trumpet; huge, totally dominant. (Connelly, MA)

940 WADV Lebanon, Pennsylvania, good, monitored at 0105 with USA news, quick ID, and Solid Gospel, with CBM off. (Conti, NH)

1040 WHO Des Moines, Iowa, at 0830 an excellent catch on an analog Sony Walkman, heard with commercials, a quickie ID, and talk. (Kelly, CA)

1340 KIKO Globe, Arizona, barely heard at 1500 with adult standards/oldies and "Keeko" ID. (Kelly, CA)

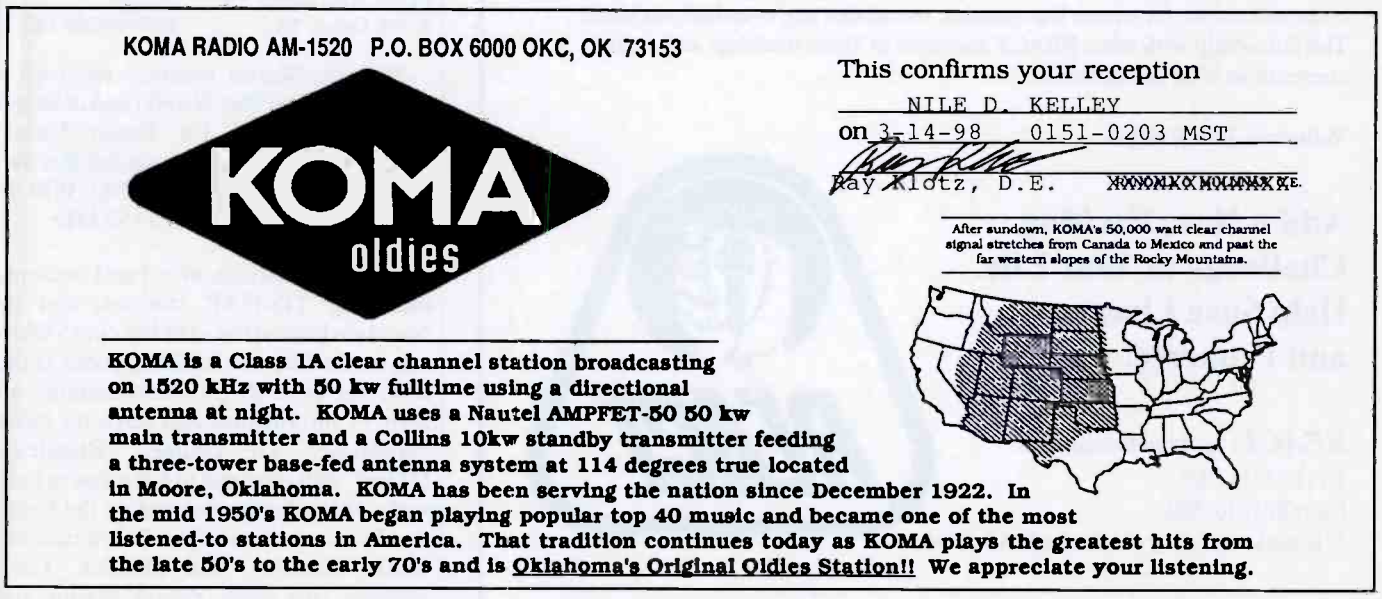
1470 CHOW Welland, Ontario, at 0140 with contest promos, weather, "The new spirit, 91.7" and "Today's country, 91.7 FM" IDs, in transition from AM to FM. WZOU Maine, relaying WLAM on 1470, should be a worthy target when CHOW goes dark. (Conti, NH)

1660 WMIB Marco Island, Florida, very weak at 0700 with KXOL off, with a Barry Manilow song and ID " . . . 1480 and WMIB 1660 . . . Naples and Ft. Myers" into ABC News. I was surprised to hear this, especially in finding KXOL off which is rare. (Martin, OR)

1660 WWRU Elizabeth, New Jersey, at 0200 with "Elizabeth-New York" ID and local programming in Spanish instead of Radio Unica network. (Conti, NH)

Internet Broadcasting

RealNetworks Inc., makers of the RealPlayer software for listening to Internet broadcasts, has released a new software application called vTuner Plus. The vTuner Plus integrates with existing RealPlayer software, and provides instant access to over 1,600 radio and TV stations around the world broadcasting in RealAudio and RealVideo. In addition,



KOMA, Oklahoma City, Oklahoma, sent this QSL to Nile Kelly last year. Note KOMA's nighttime coverage on the map.

according to Maria Cantwell, Sr. Vice President at RealNetworks, "Listings are updated daily and rated for reliability, sound, speed, Website, and best overall stations — so you are always ensured of the best stations and the most offerings." For more information, visit <www.real-store.com> on the Internet.

While on the Internet, check out some of the on-line radio station stores. The Internet has become a shopping paradise for collectors of radio station promotional items. While there are plenty of FM shops, WSB Atlanta is one of only a few AM stations offering T-shirts and souvenirs with their news-talk logo. Become the first in your neighborhood to sport rare K or W call letters from the opposite coast. Just type the call letters into your search engine to find out what's available on-line.

AM Expanded Band Stations On The Air

Station/Location	*Format*
1620	
WPHG Atmore, AL	Religion/Gospel Music
KSMH Auburn, CA	Catholic Network
WHLY South Bend, IN	Nostalgia
KAZP Bellvue, NE	ESPN Sports
KYIZ Renton, WA	R&B
1630	
KCJJ Iowa City, IA	Classic Hits
KKWY Cheyenne,WY	C&W
XEUT Tijuana, Mexico	
1640	
KDIA Vallejo, CA	Classic R&B
KKJY Lake Oswego, OR	Religion
WKSH Sussex, WI	Contemp. Christian/ Religion
1650	
KGXL Torrance, CA	Spanish
KDNZ Cedar Rapids, IA	News/Talk
WHKT Portsmouth, VA	Sports/Talk
1660	
WMIB Marco Island, FL	Adult Standards
WQSN Kalamazoo, MI	Sports Talk
WWRU Elizabeth, NJ	Spanish/Radio Unica
KXOL Brigham City, UT	Oldies
1670	
WRNC Warner Robins, GA	Real Country
WTDY Madison, WI	Talk
1680	
WJNZ Ada, MI	Urban Contemporary
WTTM Princeton, NJ	ESPN Sports
1690	
KDDZ Arvada, CO	Radio Disney
WMDM Lexington Park, MD	Talk
1700	
*WRNU Miami Springs, FL	Spanish/Radio Unica
KBGG DesMoines, IA	Business/Talk
KQXX Brownsville, TX	Spanish
KTBK Dallas, TX	ESPN/Sports Talk

*Patrick Martin recently received a QSL indicating that WRNU had changed calls to WRUN for Radio Unica. However, at the time I compiled this list, they were still IDing as WRNU. WRUN is in Utica, New York, at 1150 kHz.

Complete listings of x-band stations, including TIS/HAR stations, can be found via links at the <DXing.com> Website on the Internet. <DXing.com> is the new Universal Radio site containing all sorts of information and links for radio enthusiasts. Of course, "Broadcast DXing" will continue to keep you in tune with what's happening across the band, thanks to contributors like Ted Alexander, Mark Connelly, Bill Damick, Gary Jackson, Nile Kelly, Patrick Martin, and next time, hopefully you, too. 73 ■

Antennas & Things

BY JOE CARR, K4IPV
<carrjj@aol.com>

SIMPLE ANTENNAS AND ACCESSORIES FOR SIGNAL IMPROVEMENT

Using Filters To Improve Your Receiver — Part 2

Last time this column appeared in *Pop'Comm,* we discussed the general problem of ridding receivers of AM BCB interference. Simply stated (or restated if you read Part-1), the problem is that strong, local stations tend to overpower radio receivers.

Not only are they very close because that's what "local" means (which would be problem enough), but they are also high-powered. The blowtorch "clear channel" stations operate at 50,000 watts of output power, while even the dinkiest local breath-of-hot-air-type station operates with 250 to 500 watts. Power levels of 1,000 to 10,000 watts are common. One chap measured 4 volts peak-to-peak (that's 4,000,000 microvolts) of RF signal across a 50-ohm dummy load resistor connected to the receiver end of his antenna coaxial cable. Want to guess how much signal arrives in the form of shortwave stations? Try a few *microvolts*!

That, then, is the crux of the monitor's problem. When we live near AM or FM broadcast stations, we need to be able to eradicate the offending signal *before* it gets into the receiver.

Last time, we took a look at how filters are mounted. The correct mounting is between the antenna coax and the antenna input of the receiver. If possible, the filter should be mounted on the back of the receiver, directly to the antenna input coaxial connector without any coax between them (a double-male connector will do this for you). If absolutely necessary, then use a short — repeat, short — piece of coax between the output of the filter and the antenna input of the receiver.

Also covered last time was a simple pi-section filter that will snuff out the AM BCB energy well enough for all but the most severe cases. It used readily available components, so it had a certain charm that compensated for its generally low attenuation slope.

In this month's column, we will look at a superior AM BCB filter with up to 36 dB/octave attenuation, a filter to protect AM BCB receivers from other signals, and a special coaxial cable filter that will help VHF/UHF scanner operators get rid of interference from FM BCB (88–108 MHz) stations, some TV stations, and all-too-local landmobile stations.

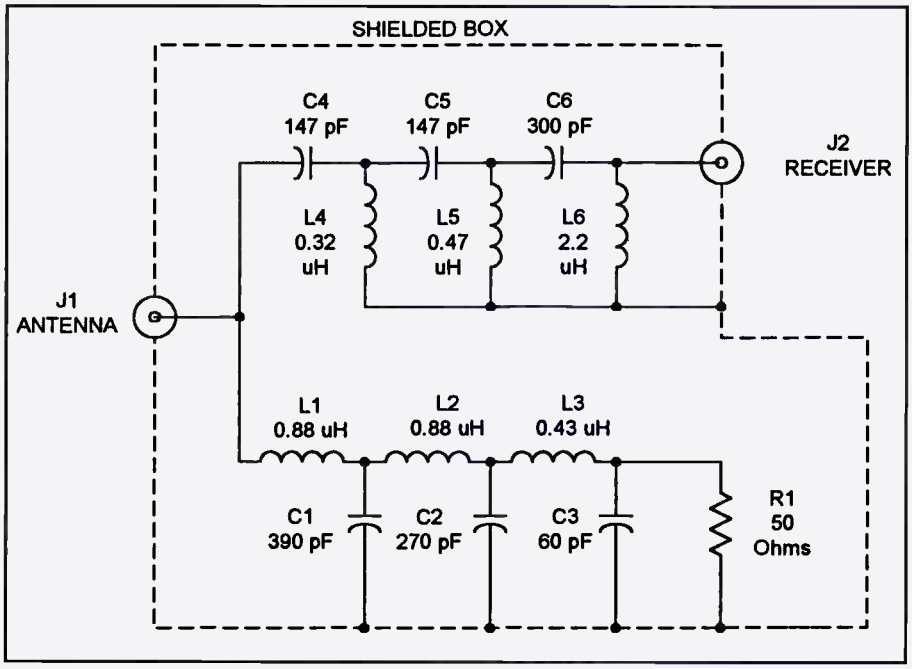


Figure 1: AM BCB absorptive filter.

Absorptive AM BCB Filter

The type of filter shown last month is typical of most filters. It is called a **reflective filter** because the energy of the rejected signals is reflected back towards the source. Those filters work reasonably well when the impedances at either end are reasonably constant and resistive. Unfortunately, most of the time the impedances are not so well-behaved. In those cases, or where more attenuation is needed, an **absorptive filter** is needed.

Figure 1 shows the circuit for an absorptive filter with a cut-off frequency of 2,000 kHz. These filters consist of two filters, actually. One filter is a high-pass type that passes all signals above 2,000 kHz arriving at the antenna connector (J1) to the receiver (J2). The other filter is a low-pass filter with exactly the same cut-off frequency (2,000 kHz in this case). It passes all of the signals rejected from the receiver filter and passes them to a 50-ohm dummy load, where they are absorbed, rather than reflected. For receiver purposes, a 51-ohm carbon composition or metal film resistor will do the trick. Alternatively, you can use two 100-ohm resistors of those same types connected in parallel.

The capacitance values are a little odd in a couple of instances, although most are standard. To make the 60-pF, connect a 33-pF and a 27-pF in parallel. A pair of 150 pF capacitors will make the 300-pF value, while a 100-pF paralleled with a 47-pF will work for 147-pF.

The inductors can be made using T-50-15 toroid powdered iron cores. The winding instructions are:

L1	8 t
L2	8 t
L3	6 t
L4	5 t
L5	6 t
L6	13 t

All of these windings should be with enamel insulation #26 AWG to #30 AWG

". . . it will do a good job of taking out FM BCB QRM."

wire. As with all such filters, construct this one inside a well-shielded metal box.

Blasting FM QRM From Scanners

If you operate a VHF/UHF scanner receiver anywhere near another transmitter, especially a high-powered FM BCB transmitter, then you will find it may suffer the same problems as the shortwave receiver near an AM BCB station. One of the most effective ways to eliminate this problem is to connect a series resonant wavetrap across the antenna input of your receiver. You can even buy such filters in video stores (intended for TV receivers). But the method of **Figure 2** can be home-brewed easily from an old scrap of coax.

The impedance connected to the end of a piece of coaxial cable repeats itself every half wavelength. Thus, a short circuit across the end, will reflect a short circuit for any frequency at which the length is half wavelength, or an odd integer (3, 5, 7) multiple of half wavelength. While this form of stub will also suck-out certain higher frequencies, it will do a good job of taking out FM BCB QRM.

The length of the coax stub is: inches

Where: F_{MHZ} is the frequency (in MHz) of the offending signal, a V is the velocity factor of the coax used to make the stub. The value of V is 0.80 for polyfoam coax, and 0.66 for old-fashioned polyethylene coax. Therefore, for a FM station at 104.5 MHz, and polyfoam coax, the length should be 5,952 (0.80)/104.5 = 45.5 inches.

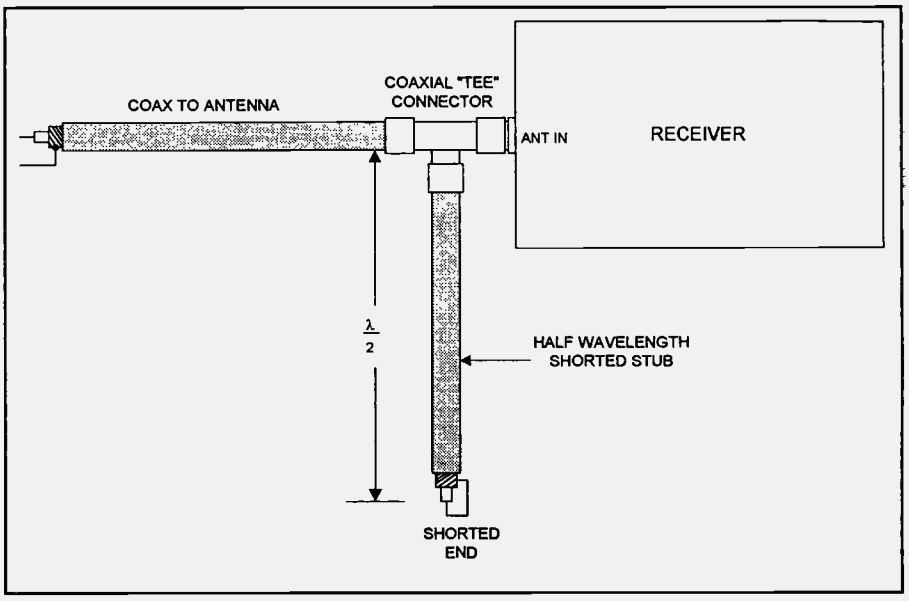


Figure 2: FM BCB coax stub filter.

Filter To Protect AM BCB Receivers

OK, now let's look at the inverse of the AM BCB problem. Suppose you are an AM BCB DXer, and want to keep shortwave signals (hams?) from interfering with the sensitive reception of your AM BCB signals. The filter in **Figure 3** is just such a filter. It consists of two filters in cascade: a 2,000-kHz low-pass filter, and a 500-kHz high-pass filter. It will suppress frequencies that are not in the 500- to 2,000-kHz region. If a ham on 7,200 kHz is normally causing some problems, then you may well find that this filter will do the trick.

So what if it doesn't help? Well, there are two possibilities. One is that the dude is so close that nothing is going to help. The other is that it is not an antenna-arriving interference signal. The offending signal can arrive by speaker leads in some cases. In other cases, the shielding of the receiver is so darn poor that RF pours into the rig from every joint and corner in the box.

I hope you find this material useful. And as always, if you have any comments or suggestions, drop me a letter. I can be reached by mail at P.O. Box 1099, Falls Church, VA, 22041, and via E-mail at <carrjj@aol.com>. ■

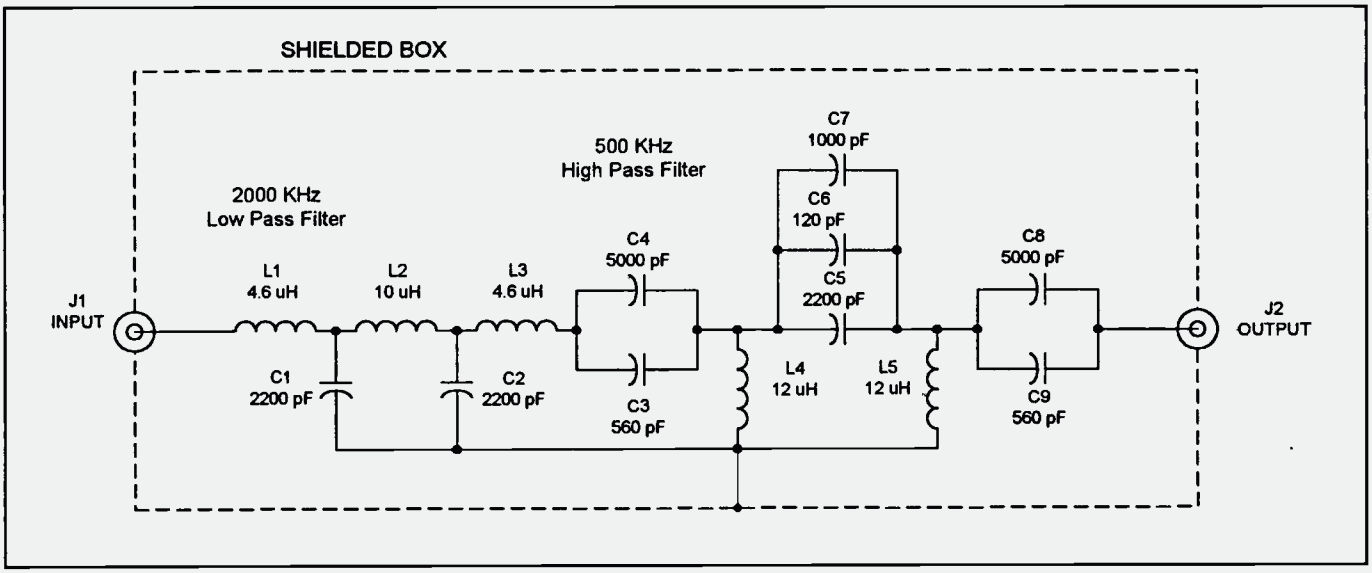


Figure 3: AM BCB bandpass filter.

Tap into *secret* Shortwave Signals

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

MFJ-462B **$179.95**

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

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You'll *read* interesting commerical, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . . traffic your friends can't read -- unless they have a decoder.

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

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

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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- from all over the world -- Australia, Russia, Hong Kong, Japan, Egypt, Norway, Israel, Africa.

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

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

Easy to use, tune and read

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

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

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

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

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $12.95. 5¼x2½x5¼ inches.

No Matter What Warranty

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

Try it for 30 Days

Order an *MFJ-462B MultiReader*™ *from* MFJ and try it in your own setup -- compare it to any other product on the market regardless of price.

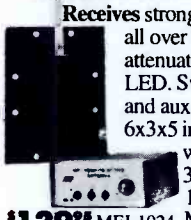
Then if you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping).

Order today and try it -- you'll be glad you did.

Super Active Antenna

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

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



Receives strong, clear signals from all over the world. 20dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. remote has 14 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.

$129.95 MFJ-1024

Indoor Active Antenna

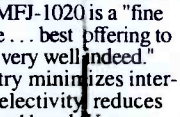
MFJ-1020B **$79.95**

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

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as preselector with external antenna. Covers 0.3-30 MHz. Has Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip, 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

Compact Active Antenna

MFJ-1022 **$39.95**



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

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

Detachable 20 in. telescoping antenna. 9 volt battery or 110 VAC with MFJ-1312B, $12.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$169.95**

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

MFJ Antenna Matcher

MFJ-959B **$99.95**

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

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, $12.95.

Dual Tunable Audio Filter

MFJ-752C **$99.95**

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

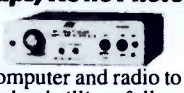
High-Gain Preselector

MFJ-1045C **$69.95**

High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18VDC or 110 VAC with MFJ-1312, $12.95.

Receive CW, RTTY, ASCII, Weather Maps, News Photos

MFJ-1214PC **$149.95**



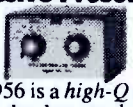
Use your computer and radio to receive and display *brilliant full color* FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code.

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Frequency manager lists over 900 FAX stations. Automatic picture saver.

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

High-Q Passive Preselector

MFJ-956 **$39.95**



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

Super Passive Preselector

MFJ-1046 **$99.95**

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

Easy-Up Antennas Book

MFJ-38 **$16.95**

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

MFJ 12/24 Hour LCD Clocks

MFJ-107B **$9.95**

MFJ-108B **$19.95**

MFJ-105C **$19.95**

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

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

MFJ Antenna Switches

MFJ-1704 **$59.95**

MFJ-1702C **$21.95**

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

MFJ-1702C for 2 antennas.

World Band Radio Kit

MFJ-8100K **$59.95** *kit*

MFJ-8100W **$79.95** *wired*

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

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

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CIRCLE 120 ON READER SERVICE CARD

Pop'Comm's World Band Tuning Tips

September 1999

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

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

UTC	Freq.	Station/Country	Notes
0000	4830	Radio Litoral, Honduras	SS
0000	4985	Radio Brazil Central, Brazil	PP
0000	5905	Radio Ukraine Int'l	
0000	9895	Radio Netherlands	SS
0000	10260	China National Radio	CC
0000	11705	Radio Japan, via Canada	
0000	11985	Merlin Network One, England	
0030	7345	Radio Prague, Czech Rep.	SS
0030	9855	Radio Vilnius, Lithuania	via Germany
0030	11935	Radio Jordan	AA
0030	11960	Radio Denmark	DD, via Norway
0030	15395	Radio Thailand	
0100	5030	Adventist World Radio, Costa Rica	SS
0100	5640	Radio Peru	SS
0100	7250	Voice of Vietnam	via Russia
0100	7300	Radio Slovakia Int'l	
0100	9615	Radio Cultura, Brazil	PP
0100	17815	Radio Cultura, Brazil	PP
0130	4770	Radio Centinela del Sur, Ecuador	SS
0130	6000	Radio Havana, Cuba	
0130	9640	Ecos del Torbes, Venezuela	SS
0130	9737	Radio Nacional, Paraguay	SS
0130	13670	Radio Canada Int'l	SS
0130	15495	Radio Kuwait	AA
0140	7450	Voice of Greece	GG/EE
0200	3280	La Voz del Napo, Ecuador	SS
0200	4840	Radio Amazonas, Venezuela	SS
0200	6498	Radio Altura, Peru	SS
0200	6520	Radio Paucartambo, Peru	SS
0200	9400	Radio Bulgaria	
0200	9445	Voice of Turkey	TT
0200	9570	Radio Romania Int'l	
0200	9640	RDP, Portugal	PP
0200	9840	Radio Budapest, Hungary	
0200	9885	Swiss Radio Int'l	FF
0200	9965	Voice of Armenia	Armenian
0200	9990	Radio Cairo, Egypt	AA
0200	11920	RTV Marocaine, Morocco	AA
0200	15640	Kol Israel	HH
0230	4800	Radio Buenas Nuevas, Guatemala	SS
0230	4905	Radio Anhanguera, Brazil	PP
0230	9515	Radio Japan	
0230	9645	Vatican Radio	SS
0245	6115	Radio Tirana, Albania	
0245	9655	Radio Austria Int'l	
0300	5020	Ecos del Atrato, Colombia	SS
0300	5890	Radio Mi, Honduras	SS
0300	5980	Union Radio, Guatemala	SS
0300	7110	Radio Ethiopia	Amharic
0300	7300	Voice of Russia	
0300	9530	Deutsche Welle, Germany	
0300	9740	Broadcasting Service of Kingdom of Saudi Arabia	AA
0300	11530	Voice of Hope, Lebanon	
0300	11615	Radio Prague, Czech Rep.	
0300	11675	Radio Kuwait	AA
0300	17510	KWHR, Hawaii	
0300	17675	Radio New Zealand	
0300	17685	Radio Japan	
0330	5960	Radio Japan	via Canada
0330	6940	Radio Fana, Ethiopia	vern.
0330	7115	Radio Sweden	
0330	7215	Trans World Radio, S. Africa	vern.
0330	7500	Radio Moldova Int'l	unk
0330	9490	Abkhazian Radio	various
0330	9690	China Radio Int'l	via Spain
0345	4800	Radio Lesotho	
0400	4278	AFRTS, Florida	USB
0400	4991	Radio Apinte, Surinam	DD
0400	5500	Voice of the Tigray Revolution, Ethiopia	vern.
0400	7150	RAI, Italy	
0400	9525	Channel Africa, S. Africa	FF
0400	9905	Swiss Radio Int'l	
0400	11785	Deutsche Welle, Germany	
0400	12005	Radio TV Tunisia	AA
0400	13730	Radio Austria Int'l	

UTC	Freq.	Station/Country	Notes
0430	3356	Radio Botswana	
0430	4955	Radio Nacional, Colombia	SS
0430	9820	Radio Havana, Cuba	
0500	4770	Radio Nigeria, Kaduna	
0500	5055	RFO Cayene, French Guiana	FF
0500	9900	Radio Minurca, Central African Rep.	
0500	11955	Radio Nacional, Angola	PP
0500	15215	Channel Africa, S. Africa	
0530	5047	Radio Lome, Togo	FF
0530	5055	Faro del Caribe, Costa Rica	SS
0530	6015	Radio Austria Int'l	via Canada
0530	6115	Radio Union, Peru	SS
0600	4870	ORNB, Benin	FF
0600	4915	Ghana Broadcasting Corp.	
0600	6185	Radio Educacion, Mexico	SS
0600	7195	VOA via Morroco	
0700	4835	RTV Malienne, Mali	FF
0700	4845	Radio Mauirtania	FF
0700	7110	Radio Tirana, Albania	Albanian
0700	9440	Radio Slovakia Int'l	
0700	11950	HCJB, Ecuador	
0730	6110	Merlin Network One, England	
0730	6155	Radio Austria Int'l	
0800	9700	Radio New Zealand	
0800	15515	Radio Australia	
0900	5950	Voice of Guyana	
0900	6010	Radio Mil, Mexico	SS
0900	6080	HCJB, Ecuador	SS
0900	6160	CKZU, Canada	relay CBU
0900	9710	Radio Lithuania	Lithuanian
0900	11880	Radio Australia	
0930	5950	Guyana Broadcasting Co.	
0930	6020	Radio Australia	
0930	11775	VOA, Tinian, No. Marianas	II
0930	6064	Colmundo, Colombia	SS
1000	4920	Radio Quito, Ecuador	SS
1000	4980	Ecos del Torbes, Venezuela	SS
1000	5077	Caracol Colombia	SS
1000	6060	Radio Nacional, Argentina	SS
1000	11635	FEBC, Philippines	
1000	11805	Radio Thailand	
1030	4600	Radio Perla del Acre, Olivia	SS
1030	4782	Radio Oriental, Ecuador	SS
1030	9865	Trans World Radio, Guam	
1030	9875	Voice of Vietnam	VV
1030	11715	Radio Korea Int'l	
1100	2310	Radio Enga, Papua New Guinea	pidgin
1100	9710	Radio Vilnius, Lithuania	Lithuanian
1100	11335	Radio Pyongyang, North Korea	
1100	13650	Radio Pyongyang, North Korea	
1100	15125	Radio Republik Indonesia	
1100	15530	Radio Pakistan	AA
1130	3315	Radio Manus, Papua New Guinea	pidgin
1130	5020	Solomon Is. Broadcasting Service	
1130	9650	Radio Korea Int'l	via Canada
1130	11670	HCJB, Ecuador	
1130	12015	Voice of Mongolia	
1130	18960	Radio Sweden	
1200	4890	NBC, Papua New Guinea	pidgin
1200	9600	Radio Rebelde, Cuba	SS
1200	9790	Voice of Russia	
1200	11600	Radio France Int'l	FF
1200	11675	China Radio Int'l	
1200	11840	Radio Polonia, Poland	
1200	15700	Radio Bulgaria	
1230	9810	Radio Thailand	
1230	15425	Sri Lanka Broadcasting Corp.	
1230	17670	YLE — Radio Finland	
1300	9570	China Radio Int'l	EE
1300	11565	KWHR, Hawaii	
1300	13640	Radio Oman	AA
1330	9425	Radio Sweden	
1330	15295	Radio Tashkent, Uzbekistan	
1330	17895	Channel Africa, S. Africa	
1400	11570	Kazakh Radio	RR
1400	13820	Radio Marti, USA	SS
1400	15465	Radio Pakistan	EE/Urdu
1400	15560	Voice of Russia	Urdu
1400	17535	Kol Israel	
1400	21515	RDP, Portugal	PP
1400	21520	RAI, Italy	II
1400	21745	Radio Prague, Czech Rep.	
1400	25820	Radio France Int'l	FF
1430	9700	All India Radio	Hindi
1430	9740	BBC	via Singapore
1430	9840	Voice of Vietnam	VV
1430	12010	Swiss Radio Int'l	
1430	15240	Radio Sweden	
1500	11730	Radio Japan	
1500	11940	VOIRI, Iran	Farsi
1530	13605	Voice of Islamic Rep. of Iran	Farsi
1530	15405	VOIRI, Iran	RR
1600	11690	Radio Jordan	
1600	15435	Radio Jamahiriya, Libya	AA
1600	17850	Radio France Int'l	
1700	15365	Radio Romania Int'l	
1700	17680	Voz Cristiana, Chile	SS
1700	17870	Channel Africa, S. Africa	
1800	15345	RTV Marocaine, Morocco	AA
1800	15475	Africa Number One, Gabon	FF
1830	11990	Radio Kuwait	EE
1830	13745	Radio Vlaanderen Int'l, Belgium	
1900	11710	UAE Radio, Abu Dhabi	AA
1930	15315	Radio Netherlands	via Bonaire
2000	11402	Icelandic National Broadcasting Service	Icelandic
2000	13720	Radio Havana, Cuba	
2000	13770	Swiss Radio Int'l	
2000	15084	Voice of Islamic Rep. of Iran	Farsi
2000	15200	RDP, Portugal	PP
2000	21620	Qatar Broadcasting Service	AA
2030	15415	Voice of Africa, Libya	
2100	11755	Merlin Network One, England	via Canada
2100	12085	Radio Damascus, Syria	AA/EE
2200	9565	Radio Universo, Brazil	PP
2200	11740	Voz Cristiana, Chile	SS
2200	13760	Radio Pyongyang, North Korea	
2200	17715	Radio Australia	
2230	15345	RAE, Argentina	SS
2230	15565	Radio Vlaanderen Int'l, Belgium	via Bonaire
2300	7270	Radio Tirana, Albania	
2300	11785	Radio Guiaba, Brazil	PP
2300	12115	Kazakh Radio	Kazakh

Product Parade

BY HAROLD ORT
AND R.L. SLATTERY

REVIEW OF **NEW, INTERESTING AND USEFUL PRODUCTS**

Electra Corporation's New Tiger Scan

Tiger Scan is a shirt-pocket receiver and Electra's re-entry into the scanning market. This new VHF model TSA (140–170 MHz) combines all seven preset NOAA channels and locks on the active one in your area.

Programming this unique receiver is done by subsequent simple button presses. The user can select to listen to just one of the three channels or scan through all three. The Tiger Scan operates on a single 9 volt battery, is shock resistant, contains a low-battery indicator, is Y2K compliant, and made in the USA.

Available options include a belt clip, carrying case, earphone, rechargeable battery and charger, and support stand. For more information on the Tiger Scan by Electra, priced at $59.95, contact the company at 11915 E. Washington St., Indianapolis, IN 46229 or phone 317-894-3229 or FAX 317-894-7370.

Electra Corporation's new Tiger Scan is a three-channel shirt pocket-sized scanner (one channel receives NOAA weather) that has loud audio.

AOR's New AR16B Receiver

In announcing the new 16B, AOR's Vice President, Takashi 'Taka' Nakayama, KW6I, says "The AR16B is a breakthrough in small, programmable high-performance receivers. In one small package, the user will find frequency coverage and capacity that was unthinkable only a short time ago."

Features of this new receiver include frequency coverage from 500 kHz to 1.3 GHz, 500 memory channels (cellular blocked), WFM, NFM and AM operating modes, computer programming capability, S-meter, rechargeable NiMh batteries, and the ability to operate on standard "AA" alkaline cells. Additionally, there are 21 frequency band settings, 25 search banks, 12 selectable frequency tuning steps, and the ability to scan up to 20 channels per second.

The new AR16B wide range 500-channel receiver from AOR is their newest entry into the scanning market.

About the size of a pager, the AR16B measures (HWD) 4.2" x 2.4" x 1.2" and weighs just 5.4 ounces, including the antenna and batteries.

The suggested retail price of the AOR AR16B is $299.95. The so-called "street price" is often lower than the MSRP. For more information, contact AOR at 20655 S. Western Avenue, Suite 112, Torrance, CA 90501 or phone 310-787-8615 or visit their Website at <http://www.aorusa.com>.

ICOM's New Dual Band Amateur Mobile

ICOM's new IC-2800H has a unique full-color LCD display with user-selectable modes and video capabilities. But it's not just pretty. With durable construction, installation flexibility, a bandscope function, 9600 bps packet, independent tuning controls, memory editing, and much more, the IC-2800H offers many advanced functions and features.

The three-inch TFT color LCD remote control head gives wide-angle viewing for mobile flexibility and all-around usability. The screen offers a wealth of information including: scope, S-meter, memory names, scan condition, and more. The brightness and contrast controls are easily adjustable and located in the edit menu. You can quickly find and adjust any controls. And with optional and/or third party equipment, preview real-time VCR or digital camera images, monitor TV broadcasts with a tuner, display GPS maps, and more.

The control head is a compact (HWD) 2.75" x 5.5" x 1.3" and the main unit measures (HWD) 1.6" x 5.5" x 6.6" and can be easily placed under a car seat. The IC-2800H transmits 50 watts and 144–148 MHz and 35 watts on 430–450 MHz.

Independent tuning controls on the unit is ICOM's original tuning control system for smooth operation. A tuning dial, AF gain, squelch level control, and four function control switches are available for each band.

For more information on the new IC-2800H, contact ICOM America, Inc., 2380 116th Avenue NE, Bellevue, WA 98004 or phone 425-454-8155. To request a free brochure, call 425-450-

ICOM's brand new IC-2800H amateur transceiver.

6088 or visit the ICOM Website at <http://www.icomamerica.com>.

Four Bands In One Hand!

ICOM America announces their newest handheld, the IC-T81A. This radio has it all — four bands, great audio, 124 memory channels, and water-resistant construction.

The new ICOM IC-T81A handheld is a feature-packed transceiver.

The IC-T81A measures (HWD) 4.2" x 2.3" x 1.1" and weighs about 10 oz. This slim radio covers the 6-meter, 2-meter, and 440-MHz bands at five watts output and one watt on the 1.2 GHz band.

It has a five-position "joy stick" control for easy control of set mode, tone, duplex, volume, operating band, scanning, and more, as well as an alphanumeric display for memory channel naming. Function keys can be confusing, so the IC-T81A doesn't use any! Many operators say they never need to use the instruction manual with the new radio. The new IC-T81A also boasts expanded receive, so you can tune in a ball game on the radio or TV audio broadcast or listen to air traffic control or scan for police activity.

For more information, contact ICOM America, Inc. at 2380 116th Avenue NE, Bellevue, WA 98004 or phone 425-454-8155. To request a free brochure call 425-450-6088 or visit their Website at <http://www.icomamerica.com>.

Basic Radio: Principles And Technology

You don't have to be a radio black-belt to get a grip on Ian Poole's new book, *Basic Radio: Principles and Technology*. We looked at this 224-page book shortly after meeting Ian at the Dayton Hamvention and found it detailed, yet easily understood, if you've got a basic understanding of electronics.

Contained in the book is a multitude of topics including Radio Today, Yesterday and Tomorrow, Radio Waves and Propagation (well worth getting the book for this topic alone!), Capacitors, Inductors and Filters, Receivers, Transmitters, Broadcasting, Personal Communications, and much, much more! Ian is an electronic engineer, but the book isn't written for engineers — it's for typical radio enthusiasts who want to understand this thing called radio.

Basic Radio: Principles and Technology, published by Butterworth-Heinemann, is available in paperback for $29.95 from Newnes Fulfillment Center, 225 Wildwood Avenue, Woburn, MA 01801 or call them at 617-928-2500 or you can E-mail your order to <orders@bhusa.com>. Call them toll free at 800-366-2665 Monday–Friday from 8 a.m. to 6 p.m. Eastern Time. The company has offices worldwide, so check them out on the Web at <http://www.bh.com>.

Shortwave Primer

Ian Poole has done it again. If you're just getting your feet wet in shortwave listening or know someone who is interest-

(Continued on page 76)

The Listening Post

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

China Makes A Deal With Cuba, And Can You Hear This Congo-Kinshasa Station?

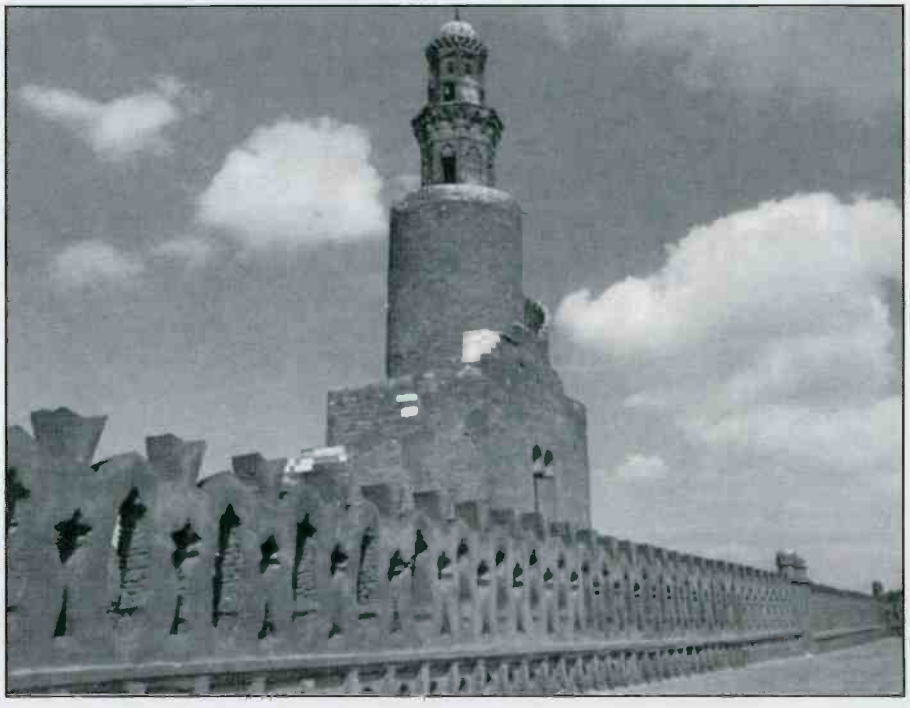
Some interesting things have been happening in Cuba in recent months. The Chinese have supplied the Cubans with new shortwave transmitters, and part of the deal, needless to say, was a China relay site in Cuba, which is now active on **5990 and 9570** (and perhaps others) **relaying China Radio International.** So far, we've seen no evidence that Radio Havana Cuba will use these spots but, at this writing, it seems bugs were still being worked out so RHC usage may still happen. Meantime, the Cuban government has enough spare transmitting facilities to allow it to continue to jam U.S.-based anti-Castro broadcasts. They continue to badger the broadcasts of Radio Marti and do a pretty good job on WRMI (9955), which carries several such broadcasts at various times.

The other Cuban, **Radio Rebelde**, long trapped on **5025**, has come into some new transmitters as well, and is now being heard on **6120, 6140, and 9600**. 6140 and 9600 are used for a morning show aired from 1100 to 1400 and 6120 is on for an hour in the evening at 0300 to 0400. Reports go to Radio Rebelde Shortwave Service, P.O. Box 6277, Havana, Cuba.

An interesting DX rarity being heard lately is **La Voix du Peuple**, from Lubumbashi in Congo-Kinshasa on **7205**, signing on about 0330 in French and local languages. Of course, you have to luck out with a combination of very good conditions from Africa and a minimum of interference. And this assumes that this irregularly operating station is even on the air!

Lithuanian Radio is now on with their new 100 kW transmitter on **9710**, in operation daily from 0900 to 1200, Sundays to 1330, with broadcasts in Lithuanian and Belarussian. Other frequencies are not from Albania.

Some, or all, of **Radio Tirana's** frequencies may be on extended hours as long as the war over Kosovo continues. **6100 and 7270** have reportedly been operating around the clock.



The Ibn Touloun Mosque graces this card Jeff Muska (NJ) got from Radio Cairo.

Austrian Radio has a new service beamed to the Balkans called **Radio Neighbor In Need,** using **5945** from 1800 to 2300, with programs in Serbo-Croatian, English, German, and Albanian.

The Voice of Russia is also beaming special broadcasts to Kosovo — with programs in various 20-minute language segments between 1900 and 2100 on **7350, 11980, and 12000** and 2100 to 2230 on **7350**. A similar transmission goes out from 0300 to 0430 on **7440 and 9485**. Listening to the Voice of Russia lately has been kind of nostalgic, as they damn the U.S. and NATO for the war. **9665** has been particularly good in the evenings, as reporter David Hughes notes in the loggings this month,

And Belgium's RTBF service is carrying a "Radio Balkans" service (transmitted via Germany) in French and Albanian. This airs from 2100 to 2200 on **7345**.

The headquarters building of Radio Exterior de Espana in Madrid.

UTC		NORDAMERIKA	
00	00	täglich	Nachrichten
	05	täglich	Österreich-Journal
	30	daily	Report from Austria
01	00	täglich	Nachrichten
	05	täglich	***Programm A1***
	30	täglich	***Programm C1***
02	00	täglich	Nachrichten
	05	täglich	Österreich-Journal
	30	daily	Report from Austria
05	00	Mo – Sa	Österreich-Journal
		So	Nachrichten
	05	So	Wochenchronik
	30	daily	Report from Austria
06	00	Mo – Sa	Österreich-Journal
	05	So	Zu Gast in Österreich
	30	daily	Report from Austria
11	00	täglich	Nachrichten
	05	täglich	***Programm A1***
	30	di – ve/sa	Journal d'Autriche/Flash des Ondes
12	00	täglich	Nachrichten
	05	täglich	***Programm D***
	25	Fr	DX-Telegramm
	30	daily	Report from Austria
13	00	täglich	Nachrichten
	05	Di – So	***Programm B1***
		Mo	Zu Gast in Österreich
	30	daily	Report from Austria

Austrian Radio International's current North American schedule.

Getting ready for a DJ program on Radio Japan. →

As for **Radio Yugoslavia**, their transmitter sites have been hit by NATO forces and, at this writing, it's unclear whether the station is completely off of shortwave or is operating with reduced facilities and schedule. Keep an ear out for any activity on **6100, 6185, and 9580**.

The Australian government has changed the broadcasting law there, which will allow international broadcasters to transmit from Australia. As you may know, the site at Darwin was closed down due to lack of funds. The new law would allow the Darwin site to be used as an income-producing relay site.

Here's a helpful DX aid you may want to check out. The Danish Shortwave Club International has released "The Domestic broadcasting Survey." This 44-page guide is an outgrowth of DSWCI's "Tropical Band Survey," an annual survey of broadcast activity on the shortwave tropical bands. The Domestic Survey expands the former TBS to cover domestic broadcasting activity (as opposed to international services) on all shortwave bands. Each station listed in the survey has been confirmed as being on the air at the time the list was produced. You can get a copy by sending 14 International Reply Coupons (no cash or checks) to DSWCI, c/o Bent Nielsen, Egekrogen 14, DK 3500 Vaerloese, Denmark. We used the TBS for many years and can attest to the excellent quality of the material produced by the DSWCI and its members.

This month's book winner for quality, faithful reporting to the column is Jack Linonis of West Middlesex, Pennsylvania. Jack will receive a 1999 edition of the *World Radio TV Handbook* from CRB Research Books, — the Radio and Electronics Hobby Bookstore — P.O. Box 56, Commack, NY 11725. CRB has a huge catalog and you can get it by writing to the above address or by contacting them through their Website at <http://www.crbbooks.com>. Check 'em out. And congrats to Jack! Keep 'em coming!

Remember your reception logs are always welcome. Just be sure to list items by country, double-space (at a minimum) between each one, and add your last name and state abbreviation after each item. Other things we can put to good use are spare QSL cards you don't need returned, station photos, and other materials, including schedules. And how about a photograph of you at your listening post? Don't be shy. We'll be glad to do our bit to help make you a DX star! As always, thanks so much for your continued interest and cooperation!

Here are this month's logs. All times are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST, and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included, the broadcast is assumed to have been in English.

ALASKA — KNLS, **11780** at 1734 with Bible broadcast in RR. (Miller, WA)

ALBANIA — Radio Tirana, **6115 and 7160** at 0144 with IS, ID, time/frequency info, news, review of Albanian press. (Jeffery, NY) **6115** at 0245 with program on local crafts. (Dybka, TN) **7160** at 0245 with war news, **//6116**. (Hughes, MO)

ALGERIA — Radio Algiers Int'l, **16160**

Here's a part of the transmitting facility at RCI, Sackville, New Brunswick.

monitored at 1600 with AA/EE IDs, into news. (Linonis, PA)

ANTIGUA — BBC relay, **5975** at 2300, 0000, 0158, 0255, and 0400. (Jeffery, NY)

ARGENTINA — RAE, **11710** at 0239 with news, music. (Miller, WA) **11713** at 1520 in SS. (Ziegner, MA)

ASCENSION ISLAND — BBC relay, **7105** at 0622 in FF. (Foss, AK) **7160** at 0322. (Brossell, WI) **15400** at 2000, **17830** at 1900, 2000. (Jeffery, NY)

AUSTRALIA — Radio Australia, **9500** monitored at 1535 beamed to Asia. (Barton, AZ) **9580** at 1400 with news. (Dybka, TN) **11660** at 1504 with news. (Miller, WA) **13605** at 1100 with news. (Hughes, MO) VNG time station, **8633** at 1522 with time signals and CW ID. (Miller, WA)

AUSTRIA — Radio Austria Int'l, **6015** (via Canada) at 0547 with correspondent's reports. (Barton, AZ) 0648 with news. (Foss, AK) **9655** at 0245 on Kosovo. (DiMaria, IL)

BELGIUM — Radio Vlaanderen Int'l, **15565** at 2249 with sports news, station ID in Flemish and into Dutch broadcast. (Miller, WA) *(Strong because it's via Bonaire — GD)*

BRAZIL — Radio Cancao Nova, **4825** at 0350 with religious broadcast in PP. (Linonis, PA) Radio Guaiba, **11785** at 0220 with Brazil pops, ballads, PP talk, ID. (Alexander, PA) Radio Nacional do Amazonas, **11780** at 0221 in PP with world news. (Miller, WA)

BULGARIA — Radio Bulgaria, **9400** at 0220. (Dybka, TN)

CANADA — Radio Japan/NHK, **11705** via Sackville at 0000 with news. (Kolesov, Ukraine) BBC relay via Sackville, **6175** at 0400, **9515** at 1400 and 2300, and **17840** at 1600. (Jeffery, NY) Radio Korea Int'l via Sackville on **11715** at 1031 with IS, ID, time/frequency info, news. (Jeffery, NY)

CHINA — China Radio International, **9565** at 1603. (Barton, AZ) **New 9570** at 0200–0300 in CC, **//9690. 9570** closed at 0300, **9690** continued. (Alexander, PA) *(9570 is via new Cuba relay — GD)*

COSTA RICA — Adventist World Radio, **5030.09** at 0020 with SS talk, religion, ID as La Voz de la Esperanza, **//9725,** which is heard past 0330. 5030 is irregular — off at 0220 check. (Alexander, PA) **9725** at 0233 with continuous music. (Jeffery, NY) RFPI, **9675** at 0302. (Jeffery, NY)

CROATIA — Croatian Radio, via Juelich, Germany, **9925** at 0315. (Barton, AZ)

CUBA — Radio Havana Cuba, **6000** at 0130 with DX program. (Dybka, TN) **9820** at 0624 with SS vocals. (Foss, AK)

CYPRUS — BBC relay, **11955** at 0307 with "Write Around the World." (Jeffery, NY)

CZECH REPUBLIC — Radio Prague, **11615** at 0300 with news and movie review. (Brossell, WI) EE to NA at 0300, very strong. Relay? (Linonis, PA) *(Don't know of one — GD)* 0304 with news and sports. (Hill, ID)

ECUADOR — Radio Quito, **4915** at 1121 with SS and Latin music. (Miller, WA) *(**Nominal 4919** — GD)* Radio Oriental, **4785**, 1049 in SS with music. (Miller, WA) *(**Listed 4779; lately around 4782** — GD)* HCJB, **9745** at 0535. (Foss, AK) **17760** at 1908 with Mission Network News. (Jeffery, NY)

EGYPT — Radio Cairo, **9900** at 0014 with time pips to quarter hour, news. Better modulation than in the past. Clear until Switzerland came on 9905. (Hughes, MO)

ENGLAND — Merlin Network One, **6110** at 0744 with music. (Jeffery, NY) **9795** with rock at 0350. (Barton, AZ) Radio Canada via Skelton relay, **7295** at 0507. Lots of ham QRM. (Barton, AZ)

FRANCE — Radio France Int'l, **11600** at 1200 with news. (Hughes, MO) *(via China — GD)* **11910** at 2145 ending EE. (Miller, WA) *(Also via China — GD)*

FRENCH GUIANA — Radio France Int'l relay, **17560** with news at 1500. (Hughes, MO)

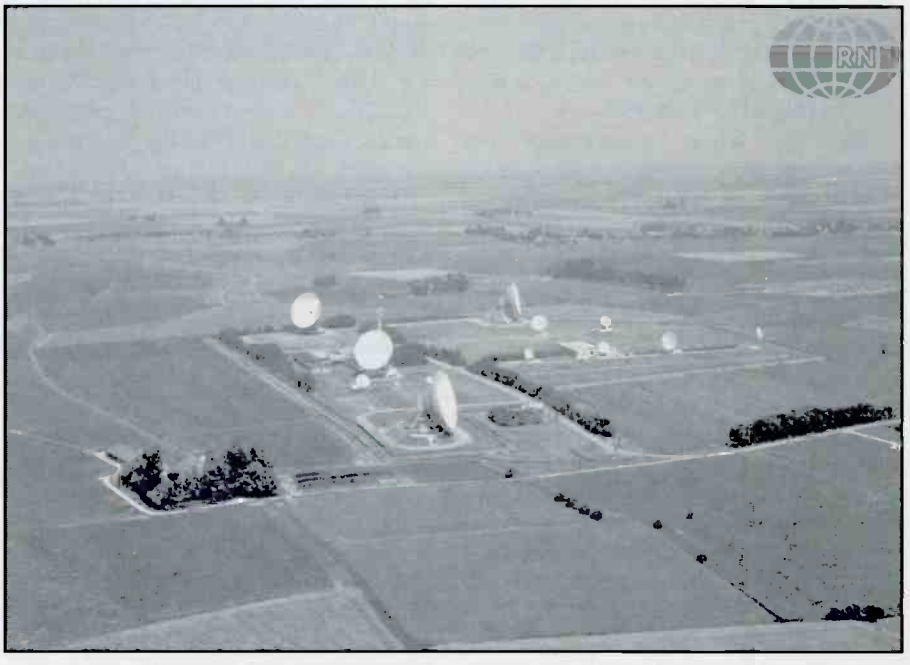
GERMANY — Deutsche Welle, **11810** at 0300 with program on Hindu religion. (Linonis, PA) *(This is likely via either Antigua or Bonaire — GD)*

GUINEA — RTV Guineenne, **7125** at 2345 in FF. (Ziegner, MA)

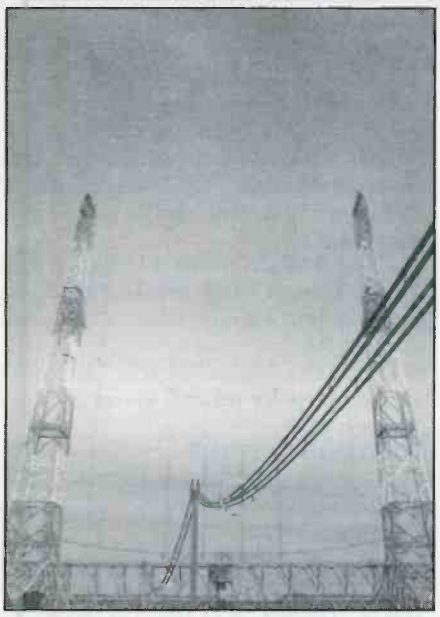
GUATEMALA — Radio Tezulutlan, Coban, **4835** at 0400 in SS with news and marimba music. (Linonis, PA) Union Radio, **5981.06,** 0310 to 0350 sign-off. Light instrumental

Abbreviations Used in Listening Post

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



This uplink facility at Burum, in Holland, feeds the Radio Netherlands relay site in Madagascar.



Part of Vatican Radio's antenna system at their Santa Maria de Galeria site in Italy.

music, SS IDs, religious instrumental music. On past their scheduled 0200 close. (Alexander, PA)

HONDURAS — La Voz Evangelica, **4820** at 1059 with SS religious broadcast. (Miller, WA)

HUNGARY — Radio Budapest, **6135** at 0207 with report on Hungary's introduction to NATO. (Barton, AZ)

INDIA — All India Radio, Bangalore, **11620** at 1436 with Hindi folk music. (Miller, WA) 2200 with discussion on politics in India. (Linonis, PA)

INDONESIA — Radio Republik Indonesia, Wamena, Irian Jaya, **4871** at 1108 in II. (Miller, WA)

IRAN — Voice of the Islamic Republic of Iran, **11930** at 1501 in Farsi. Music. (Miller, WA)

IRAQ — Radio Iraq International, **11787** at 2107 to 2130 close. EE ID, light music, news at 2109 and off abruptly at 2130. Good level, but the usual poor audio. (Alexander, PA)

ISRAEL — Kol Israel, **11585** in Hebrew at 0315. (Brossell, WI) 1500 in Hebrew with world news. (Miller, WA)

ITALY — RAI, **6110** at 0724 in II with music, mention of RTV, more music. (Jeffery, NY) **7150** in EE at 0426 to the "Mediterranean Basin." (Hughes, MO) **15240** in II at 0230. (Miller, WA)

JAPAN — Radio Japan, **11730** monitored at 1511 with "Holiday in Japan." (Miller, WA) **17685** at 0300 with news and IDs. Barely audible. (Jeffery, NY)

KUWAIT — Radio Kuwait, **11675** at 0300 in AA. (Hughes, MO) **11990** at 1830 in EE with news, weather, sports. QSL'd in three weeks for two IRCs. (Linonis, PA) **15110** in AA at 1539. (Miller, WA)

LEBANON — Voice of Hope, **11530** in AA at 0315. (Brossell, WI)

LIBYA — Radio Jamahiriya, **15415** in AA with coverage of a speech by Pres. Arafat. (Miller, WA)

LITHUANIA — Radio Vilnius, **9855** at 0030 with features and mailbag — including my letter! (Hughes, MO) *(This is via Juelich, Germany. **9710** is now direct — GD)*

MAURITANIA — Radio Mauritania, **4858.1v**, 0640 with AA vocals, talk. Not usually heard this high above **nominal 4845**. Slowly drifting down in frequency. (Alexander, PA)

MEXICO — Radio Mexico, **9705** at 0300 in EE with "DXperience." (Hughes, MO)

MOLDOVA — Radio Moldova Int'l, **7500** at 0330. Clear ID at 0333 and into music and possible Romanian. (Brossell, WI)

MOROCCO — Voice of America relay, **7195** at 0616 with Daybreak Africa. (Foss, AK)

MOZAMBIQUE — Radio Mozambique (tentative) **11818v** at 2100 to 2132 in unidentified language. Music and "Maputo" and "Mozambique" over and over. Weak and with interference from Iran. (Ziegner, MA) *(Tricia — Radio Mozambique is being heard again on some of its former channels, including this and **15295v and 9618v**, so it seems likely that's what you had — GD)*

NETHERLANDS — Radio Netherlands, **9895** at 1940 with "Sincerely Yours" and "Sounds Interesting." (Jeffery, NY)

NEW ZEALAND — Radio New Zealand

Radio Broadcast Schedule

Programmazione Radiofonica

Short Wave signal distribution map, by geographic area, time, frequency and language
Mappa delle Onde Corte divisa per aree geografiche, orario, frequenze e lingua.

Ora Italiana/Italian time: UTC / GMT + 1

SHORT WAVE Seasonal schedule WINTER 1998/99 - from 25th October 1998 to 28th March 1999
ONDE CORTE Piano Stagionale INVERNO 1998/99 - dal 29 Ottobre 1998 al 28 Marzo 1999

- Program broadcast also on Rai International Satellite channel via Hot Bird 1
- Programma diffuso anche dal canale satellitare di Rai International su Hot Bird 1

SW/OC NORTH - CENTRAL - SOUTH - AMERICA / NORD - CENTRO - SUD AMERICA

Zone	Time / Ora UTC-GMT		Frequency / Frequenza (kHz)						Language / Lingua
vedi mappa (see map)			49 m	31 m	25 m	19 m	16 m	13 m	
A	14.00	14.25					17780	21520	Italian
	18.30	19.05				15250	17780		Italian
	22.30	00.50	6010	9675	11800				Italian *
	00.50	01.10	6010	9675	11800				English
	01.10	01.25	6010	9675	11800				French
	01.30	03.05	6010	9675	11800				Italian *
	03.05	03.25	6010	**9675**	11800				Spanish
B	01.30	02.30			**11765**	Relais			Italian **"Un'ora con voi"**
C	22.30	00.50		9575	11755				Italian *
	00.50	01.10		9575	11755				Spanish
	01.10	01.25		9575	11755				Portuguese
	01.30	02.30	6110						Italian *
	01.30	03.05		9575	11755				Italian *
	03.05	03.25		9575	11755				Spanish

www.raiinternational.rai.it

Ora Italiana/Italian time: UTC / GMT + 1

RAI's shortwave coverage map and schedule for the Americas.

Int'l, **17675** at 0142 with Cadenza, 0221 with "In Touch With New Zealand," and 0401 with "Radio Sport." (Jeffery, NY)

NIGERIA — Voice of Nigeria, **7255** at 0503 with ID, program preview, and "VON Link-Up." (Jeffery, NY)

NORTH KOREA — Radio Pyongyang, **17735** at 0600 with anthem. Then man and woman with monologues in KK. (Foss, AK)

NORTHERN MARIANAS — Radio Free Asia via Tinian, **13800** at 1536. (Barton, AZ)

PAPUA NEW GUINEA — Radio Madang, **3260** at 1040 with news in pidgin. (Miller, WA) Radio Manaus, Lorengau, **3315** at 1145 in EE with martial music. (Miller, WA) NBC, Port Morseby, **4890** at 1138 with folk music. (Miller, WA)

PHILIPPINES — FEBC Radio Int'l, **11635** at 1023 with ID, religious program, music. (Jeffery, NY)

PERU — Radio San Miguel, **6987.07** at 0145 to 0302 close. SS talk, Peruvian folk music, some announcements with echo, time checks, off with national anthem. (Alexander, PA) Radio Union, **6115** in SS at 0542, romantic tunes. (Foss, AK)

ROMANIA — Radio Romania Int'l, **9510** at 0200 to 0255 close. News, comment, light instrumentals. Good to strong; **//11725** which was fair and **//9570,** which was weak under China. Later, **9570** only at 0400 with no parallels heard. (Alexander, PA) 11725 at 0210 with the week's news highlights. (Dybka, TN)

RUSSIA — Voice of Russia, **7125** at 0320 with talks on Yugoslavia crisis. (Brossell, WI) **9580** at 0528 but not there on subsequent checks over following days. (Barton, AZ) **9665** at 0200 with news, anti-NATO comments. (Hughes, MO) **11675** at 1815. Also on **15560** at 1400 with Urdu to Pakistan. (Ziegner, MA)

SAUDI ARABIA — Broadcasting Service of the Kingdom of Saudi Arabia, **15270** from 0330 with Holy Koran prayers and AA music. (Linonis, PA)

SLOVAKIA — Radio Slovakia, **7300** at 0105 with news, press review, Slovakia Today. (Hughes, MO)

SOLOMON ISLANDS — Solomon Islands Broadcasting Corp., **5020** at 1128 with news, religious music, message about water pollution. (Miller, WA)

SPAIN — Radio Exterior de Espana, **6055** at 0515 with Window on Spain, ID, "Radio Waves." (Jeffery, NY) 12035 at 0636 in SS with pretty instrumentals. (Foss, AK)

SWEDEN — Radio Sweden, **9495** at 0245 to 0300 to NA with "Sounds Nordic" music program. (Linonis, PA)

TAIWAN — Radio Taipei Int'l, **5950 via WYFR**, closing EE at 0300, and into CC. (Linonis, PA) 0655 in SS. (Foss, AK)

THAILAND — Radio Thailand, **11805** at 1215 with ID, into announced Malaysian. (Brossell, WI)

UKRAINE — Radio Ukraine Int'l, **5905** at 0000 with news, commentary, ID. Only **parallel** heard was 6020, but very weak with co-channel QRM. The 0300 EE broadcast was not heard on any frequency. (Alexander, PA)

VATICAN CITY — Vatican Radio, **7305** at 0300, **//9605**. (Hughes, MO) 9605 at 0250. (DiMaria, IL) **11625** with hi-life music, presumed African language. (Brossell, WI)

VIETNAM — Voice of Vietnam, **7250** (*via Russia — GD*) at 0230 with news, economic features, music. (Hughes, MO)

YUGOSLAVIA — Radio Yugoslavia, **9580** at 0000 with anti-NATO propaganda. (Hughes, MO) (*As this is written, NATO has bombed the station off the air — GD*)

And that wraps it up for this month. A thousand thanks are handed out to the following troopers this month: Robert Brossell, Pewaukee, Wisconsin; Tricia Ziegner, Westford, Massachusetts; Rick Barton, Phoenix, Arizona; Jack Linonis, West Middlesex, Pennsylvania; Michael Miller, Issaquah, Washington; Jill Dybka, Nashville, Tennessee; Brian Alexander, Mechanicsburg, Pennsylvania; David Hughes, Kansas City, Missouri; David A. DiMaria, Addison, Illinois; Dave Jeffery, Niagara Falls, New York; Marty Foss, Talkeetna, Alaska; Tim Hill, Mountain Home, Idaho, and Sergey M. Kolesov, Kiev, Ukraine. Thanks to each one of you!

Until next month, good listening! ■

BY GERRY L. DEXTER

Clandestine Communiqué

TUNING IN TO ANTI-GOVERNMENT RADIO

Have We Heard The Last Of Radio Patria Libre?

The Colombian army claims to have raided and destroyed a "telecommunications center" belonging to the ELN, which operated Patria Libre. The army claimed to have captured or destroyed studio and transmitter equipment at the base, located near the small town of Santa Ana in northwest Antioquia Department. Since then, we haven't seen any reports of Patria Libre reception, so it may well be that the report is accurate. However, some years ago, the army located and raided an ELN camp from which Patria Libre was broadcasting. The station went off the air for a period of time, only to return with an expanded schedule and a better signal. So, if Patria Libre is gone, it may not be permanent. A permanent shutdown may not happen until or unless the ELN finally makes peace with the Colombian government. That event, despite several stops and starts in that direction over the years, has yet to happen.

Speaking of signing peace agreements, Sudan and Eritrea signed on this past spring, which may affect the status of several shortwave clandestine stations. Three stations aimed at Eritrea and based in Sudan could go off: the Voice of Free Eritrea, Voice of Democratic Eritrea, and Voice of Truth. On the other side of the coin, Eritrea is home to two anti-Sudanese stations: Voice of Sudan and Voice of Freedom and Renewal.

The Voice of the Iraqi People is the mouthpiece of the Iraqi Communist Party and is on the air in Arabic from 0300 to 0400 on **3900 and 4745** and again at 1630 to 1730 on 3900 only. This station has been around since 1982 and may go as far back as 1963, when a station of the same name was on the air from a site in then Communist Bulgaria. Wherever its facilities are located now, it's quite possible they're being shared with another station — Radio Freedom, which identifies itself as the Voice of the Communist Party of Iraqi Kurdistan.

Another anti-Iraq station is the **Voice of the Islamic Revolution in Iraq**, on the air in Arabic daily from 0330 to 0530 on **9670, 9885, 11730, and 13700,** broadcasting on behalf of something called the Supreme Council of the Islamic Revolution in Iraq. It's a pretty safe bet that the broadcasts come from Iran and use government broadcast facilities.

Another Iranian-based clandestine is the **Voice of Palestine — Voice of the Palestinian Islamic Revolution,** which operates in Arabic from 0330 to 0430 on **11800 and 13660** and also from 1845 to 2030 on **9870, 11815, 11965, and 13645**.

One of the many stations beaming to Iran is **Radio Tomorrow's Iran**, which has been on the air less than a year. It's active on **5830** from 1700 to 1730. The organization behind this one isn't known yet, but the station's pitch is that it wants government separate from religion in Iran.

Here's the current schedule for **VORGAN — Unita's Voz Resistencia de Galo Negro (Voice of the Resistance of the Black Cockerel),** still irritating the government of Angola after all these years: 0700–0900 on **5950,** 1200 to 1430 on **11830,** and 1900 to 2100 on **7100,** all in Portuguese. These time/frequency combinations are not as conducive to North American reception as they were in their previous appearances. As the months get shorter, those on the East Coast and in the Midwest might have a shot at them prior to 2100. VORGAN's current address is Rue Montoyer n_6, bte 6, Brussels 1000, Belgium.

Another clandestine broadcaster whose status may be in doubt is **Radio Kurdirat**, which only returned to the air a few months ago. Now that military rule in Nigeria has been replaced by a democratically-elected civilian government, Kurdirat may feel its job is done. Their most recent schedule had them on **6205 and 11540** from 1900 to 2000. The station is operated by the United Democratic Front of Nigeria and QSLs reports sent to: UDFN, P.O. Box 9663, London SE1 3ZD, England. All programs are in English. The operators of this station may try and "go legit" with a licensed station in Nigeria, once the new government has settled in.

The anti-Chinese **Voice of Tibet** now operates from 1225 to 1255 on **11575.** The broadcasts are produced by the Voice of Tibet Foundation and aired over the facilities of Radio Norway International. Reception reports go to Wellhavensgat 1, 0166 Oslo, Norway, and are confirmed with a QSL card.

The Voice of the People (beamed from South Korea to North Korea) currently operates from 0900 to 2100 on **3881 and 3912** and 0300 to 0600 on **6518 and 6600**, all in Korean. Needless to say, it is sponsored by the South Korean government.

Takhar Radio is the station of the Northern Alliance, the force opposing the Taleban government of Afghanistan. It broadcasts in the Dari and Pashto languages on variable **7070** from 0230 to 0330 and 1230–1330. The power output is quite low and is rarely, if ever, heard by monitors in North America.

That covers things for this time. As we note each month, we're always looking for whatever information you can send along on the subject of clandestine broadcasting, whether it's in the form of station loggings, addresses, QSL notes, operating schedules, background info on sponsoring groups, information about where stations are located, and other news and events which may affect what goes on in the world of clandestine broadcasting and monitoring. Thanks!

Until next month, good hunting! ■

ScanTech

BY KEN REISS
<armadillo1@aol.com>

TRUNKING, TIPS, TECHNIQUES, AND MODS

Hot News From Scanvention '99

Greetings from Dayton, Ohio, home of the world's largest ham-fest with lots of good stuff for us listener types, too. Most of the excitement for listeners was created by products that were shown as demonstrators last year, actually shipping, and available this year.

Leading the pack of scanner gadgets generating excitement had to be the OptoCom "black box" receiver. We've reviewed this unit recently, so I won't spend too much time on it. There was, however, a slight upgrade to the firmware announced, and shipping at the show, which added a feature Optoelectronics calls "bit banger." This allows software to receive data and information that would normally require the data slicer through the normal DB-9 serial port. What this means in English is that software can get access to data and information without additional connections to the radio or computer.

Also shown at the convention, and hopefully available by the time you read this, was the new Com-Counter. This device fits in the expansion slot on the OptoCom receiver and allows it to act (with software) like an XPlorer. You can key any transmitter and it will instantly tune to the frequency and receive the audio. Hams should love this as a diagnostic tool for handhelds and other VHF/UHF transceivers.

It works on the principle of "near field" reception, so the range is limited based on the amount of RF in the area and the strength of background noise versus the signal. Since the OptoCom isn't portable, and adding a laptop computer to it makes it more cumbersome, most scanner enthusiasts will be happier with a Scout or XPlorer, although there might be some interesting mobile applications too. Stay tuned to "ScanTech" for more details as they become available.

"The ICOM R2 was also quite popular this year . . . this small wonder packs a wideband receiver into a pager-sized package."

The calm before the storm. Last minute preparations are made to indoor exhibitor's booths before the crowds arrive.

To take advantage of all that the OptoCom has to offer, a pair of software applications was also shown at this year's convention. The first application to take advantage of the new "bit banger" technology is TrunkTrac from Synthecom. You may remember that we did a review not long ago of their system requiring a board for your computer and an internal buffer connection to the radio. With the OptoCom's "bit banger" feature, Trunktrac can follow up to four Motorola type I, II, or IIi systems with no hardware required! This software approach to

MFJ's booth shows all of the neat radio gear that they carry. And looking across the arena, you can see ICOM's display through the forest of antennas. Shortly after this picture was taken, it was difficult to move in these aisles.

"As a bit of a surprise, Yaesu introduced a handheld receiver, the VR-500."

trunk-following is an excellent first application, and I'm sure we'll see more. Stay tuned — we'll be reviewing Trunktrac's new version soon!

Also introduced was Probe version 5.0. Probe is one of the primary applications for OptoScan support in general, and the only one that supports the OptoScan exclusively. Version 5.0 includes many new features for enhanced conventional scanning, as well as support for many of the features of the OptoCom receiver. Probe doesn't support trunking, but makes an excellent dedicated scanner controller for conventional scanning. Look for a full review of this upgrade coming soon in "Product Spotlight."

Electra Returns!

If you've been scanning for any length of time, you'll know the name "Electra" as the word that used to go in front of "Bearcat." The Electra company is credited with the invention of the scanner radio many years ago and they built many fine scanners in those early years. Of course, the Bearcat line is well-known, but under the present control of Uniden.

Well, they're back with a new and innovative product called the "Tiger Scan." This is a two, yes two, channel scanner for VHF High-band only. The theory is that there are many applications for such a scanner and this one is affordably priced and relatively small. It features two scannable channels, and a third preprogrammed to find the local weather broadcast from NOAA. All receiver operations are controlled by just three buttons on top. This includes programming the two scannable channels to anything you wish in the range of the receiver. Programming is quick and easy once you see how it's done. Check out "Product Spotlight" this issue for a complete review!

The ICOM R2 was also quite popular this year, since it was available for purchase, although it too was displayed last year. This small wonder packs a wide band receiver into a pager-sized package. Performance is impressive in the VHF/UHF ranges. The R2 is a triple conversion design with coverage running .5 to 1300 MHz. 400 memory channels in 8 banks of 50 are available.

ICOM was also demonstrating their new PCR-100 computer-controlled receiver. This unit is a bit smaller than the PCR-1000 introduced last year with a few less features and a great cost savings. Most notably absent is SSB capability on the HF frequency range, however, if you're interested in using the receiver as a scanner, it works quite well. Once again, ICOM's supplied software will only scan one bank of up to 50 channels at a time, however, I'm sure third party options will be available shortly to remedy that major problem. At a street price of $299, it represents one of the most affordable computer-controlled "black box" receivers available, and a good value for the scanner enthusiast.

As a bit of a surprise, Yaesu introduced a handheld receiver, the VR-500. This is a wide band unit similar to many of the recent small receivers that have been released, with coverage from .5 to 1300 MHz. The VR-500 features a keypad for easy programming, and I believe a computer interface as well. The unit is similar in size to the relatively new VX-5 handheld that has been so popular with hams recently. We'll keep you advised as further details become available.

AOR's SDU-5500, which was shown last year, was also available this year for purchase, having just come through the FCC certification process. The SDU-5500 is a spectrum display designed to interface directly with the AR-5000 and

Optoelectronics always has interesting stuff for scanner listeners and this year was no exception. Shown here is a new OptoCom receiver with the Com-Counter board installed (arrow).

A new receiver in the shortwave market. Shown here is the Palstar receiver, their antenna tuner, and a nifty active antenna for times when a longwire just won't work.

"The Japan Radio Corporation's NRD-545 DSP receiver was available for purchase this year."

other high-end receivers to provide a visual display of activity around a center frequency. If you've never used a spectrum display unit before, it's a quick way to get spoiled looking for activity. The 5500 looks like a winner, and a great follow-up product to the previous SDU-5000. If you have an AR-5000 or one of the other receivers supported by this unit, you might want to check out this great accessory. Look for a full review on this one soon too!

SWL's Not Forgotten

For shortwave listeners, there were also a few goodies. The Japan Radio Corporation's NRD-545 DSP receiver was available for purchase this year. It appears as if this receiver has been through some changes in firmware in the past year in response to criticisms leveled early on. Most enthusiasts I spoke with reported that they were now satisfied with the performance of this receiver. It certainly should be a nice unit coming from a company with a history of excellent workmanship. I'm also interested in the optional VHF/UHF converter on this receiver that extends coverage to a full 2 GHz (less cellular, of course in the U.S.). No doubt, we'll be hearing more about this receiver as time goes on and more of them get into the hands of listeners worldwide.

ICOM also has introduced a new shortwave receiver to replace the aging R72, the R-75, which was shown and available for sale at the show. This looks like a very good (which we would expect from ICOM) analog receiver with an optional DSP audio processor available. The DSP unit will work with the audio stage to produce filtered audio, much like the third party add-on units widely-available for almost any receiver. For most shortwave listeners and many utility buffs, this should prove to be an excellent receiver in the under $1000 class. Coverage extends from 30 kHz to 60 MHz, so it will be of some interest for low band VHF enthusiasts. We'll be keeping a close eye on this new receiver, as well.

New Manufacturer In The Shortwave Arena!

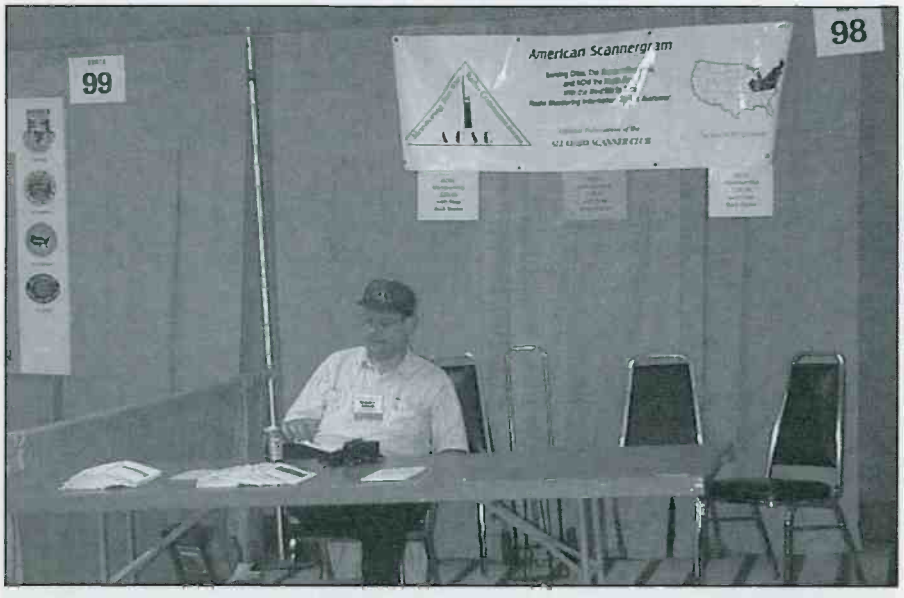
Palstar has introduced a new shortwave tabletop receiver, Model R-30, which was first featured in *Popular Communications* July '99 issue of "Product Parade." While small in size, measuring only 8"W x 7"D x 2.5"H, it appears at first glance to be a great performer. The receiver covers 100 kHz to 29.999 MHz and features AM and SSB modes of reception. There is no keypad available for direct entry, however, the front panel controls appeared to be easy-to-operate and a 1-MHz up and down button made even changing bands relatively easy. There is an option for Collins filters to be installed, which was the model shown. While it's hard to evaluate any receiver in the RF rich environment of Dayton Hamvention, the R-30 appeared to hold its own. Check out their Website at <http://www.palstarinc.com> for further information.

Coming To A Hamfest Near You!

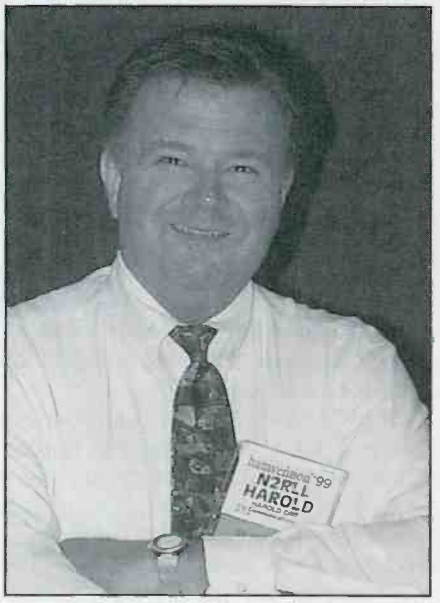
Of course, Dayton is the premiere hamfest of the year and the one with the largest single concentration of vendors and special announcements. But even if you're not a ham, and even if you couldn't make Hamvention this year, don't give up. Almost every community has a local hamfest that will have lots of cool stuff for listening enthusiasts. Antennas, coax, connectors, wire, power supplies, books, reference materials, and even radios are all there to look at, test out, and take home if you desire. If you've never been to one, go! It's truly a blast.

Scanning Speed?

Much discussion has taken place recently on Internet groups, in the AOL



The All Ohio Scanner Club always has a booth, and Dave Marshall is shown here manning it. If you're into scanning, this is a great club to belong to and you'll get their "American Scannergram" as part of your membership. As you can see, they tilt a bit towards Ohio — no wait — they're on a ramp. It's not the camera angle. Actually AOSC covers most of the eastern U.S., from Illinois to the east and north.



Gee, who's this guy? Well, gee, I don't know. But he sure looks a lot like Harold "I need 500 more words" Ort, our esteemed (ahem) editor. Just goes to prove that they will let anyone in here!

"Palstar has introduced a new shortwave tabletop receiver, Model R-30 . . ."

scanner conference, and probably over drinks or meals at local club meetings about the impact of scanner speed. There are many theories put forth, and some vendors of equipment and software would have you believe that scanning speed is the most important criteria in scanning operations.

Speed certainly has an impact on scanning, and probably a greater impact on search operations. Computer-control enthusiasts are familiar with adjustments to slow the computer *down* so that the radio's oscillators have time to stabilize on a particular frequency and see if there's activity there. If you exceed this stabilization speed limit, your radio will start missing things because the tuner hasn't had time to really check for activity on one frequency before it's commanded to move on to the next.

So there is a speed limit. And the more frequencies you're checking, assuming for a moment that they're all quiet, the longer it will take to get back around to the first one. The longer that cycle takes, the more likely you are to miss something. So speed would help in this case.

Let's take the other extreme. Assume for a minute that all of the frequencies you scan were to be busy at the same time. When the frequency you were listening to was released, the very next channel is busy. How important is scan speed in this case? Almost non-existent as a factor. All scanners wait at the same speed: zero channels per second.

But while you were stuck on that one frequency listening to the activity, what did you miss on all those other channels that were busy? Plenty. OK, I'm willing to admit that these two extremes rarely happen. If you scan any number of channels, unless you're in a very quiet area, you're quite unlikely to make a full pass without finding something, although it could happen in the middle of the night. Having them all busy is unlikely too, except in a large metro environment where you probably can't hope to cover with any degree of completeness more than a few frequencies with a single radio.

So what's really up with speed? It depends on your situation, but it can make some difference. Faster scan speeds allow you, in a real world situation, to get to the next active channel faster. In side-by-side tests with one radio at 25 channels per second and another at about 75, you can hear a difference. You hear more activity on the faster scanner because it can jump to the next active frequency in a bigger hurry.

But it's not a critical difference. And sometimes, the faster scanner went by something that was quiet one second, but active the next, and the slower scanner found that transmission. I guess the real bottom line here is that scanning is kind of a random event. We're using a scanning receiver because most of the stuff we listen to is quiet most of the time. If you really want to hear all the activity on a given service, you'll have to park a radio on that channel and leave it there; an effective scan speed of zero, once again.

The good news is that if you have multiple radios parked on single channels, they probably won't all be active at once. So, you'll be able to catch most of the action by just listening to whichever speaker is active at the time. In essence, we've converted from a radio scanner to an "ear" scanner.

Otherwise, your receiver has to be in the right place at the right time to catch the transmission. It's a constant moving net trying to catch a very random target. The more frequencies you load up into your thousand-channel scanner, the more likely you are to miss things. And that may relate more to the continuity of what you hear, rather than the overall traffic. Can you keep track of 12 districts, the dogcatcher, trash trucks, and the fire departments of three counties all at once?

So find what's comfortable for you and your radio. If you don't have the fastest scanner in the west (or east, north, and south for that matter), don't sweat it. Pick a mix of frequencies that you feel important to keep up with and see how you do. Experiment with different organizations of banks and channels to see if you can turn on some extra, not quite so critical, stuff when things are slow on the "main" channels. Or, don't worry about any of this, sit back, relax, and enjoy your scanner. After all, it is supposed to be a hobby.

Your Input Needed

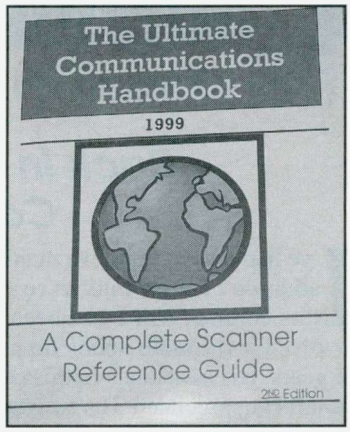
We're always glad to get your letters. If you include an SASE, I'll try to respond directly to you as time permits. Otherwise, send in your questions, pictures, or other information related to scanners and scanning and we'll keep them on file for possible use in an upcoming "ScanTech." You can tell your friends you got something past "Gee, I don't know" Harold and into the magazine. E-mail me at <armadillo1@aol.com>, or traditional mail at Ken Reiss, PMB309, 9051 Watson Rd, St. Louis, MO 63126. Until next month, good listening and 73! ■

Correction

We recently mentioned Electronics Unlimited, Inc. as a great place for radio mods and getting the discriminator tap installed, if you're installing an OptoTracker or other device that needs this connection. Well, our address was right, but the E-mail connection needs correction. The correct way to reach EUI is at <eui@cwix.com>. Of course, you can still get in touch with them the old-fashioned way at 962 Northlake Blvd, Suite 115, Lake Park, FL 33403. Give them a shout!

While you're writing to them, ask them about getting a copy of one of the handiest little books I've found recently. The *Ultimate Communications Handbook* (1999 edition) is billed as the Complete Scanner Reference Guide, and that's pretty accurate.

In it, you'll find all sorts of listings for information that you have someplace, but can't quite seem to remember where. Generic 10 codes, and 12 codes (which I had never heard of), abbreviated Q signals, PL frequencies, TV Frequencies (both audio and video), marine frequencies, and much more! It's a very convenient reference.



This handy little reference is a great tool for scanner listeners. It puts all those little details you know you have in one place.

The normal price for this handy little book is $7.95 plus $1.50 shipping. If you mention you heard about it in *Popular Communications*, it'll still be $7.95 plus $1.50 (and well worth it), but they'll know you now have their correct E-mail address and are a scanner fan too!

BY RICHARD "RD" BAKER AND MIKE FINK <CommConf@concentric.net> or <mikef@apk.net>

Communications Confidential

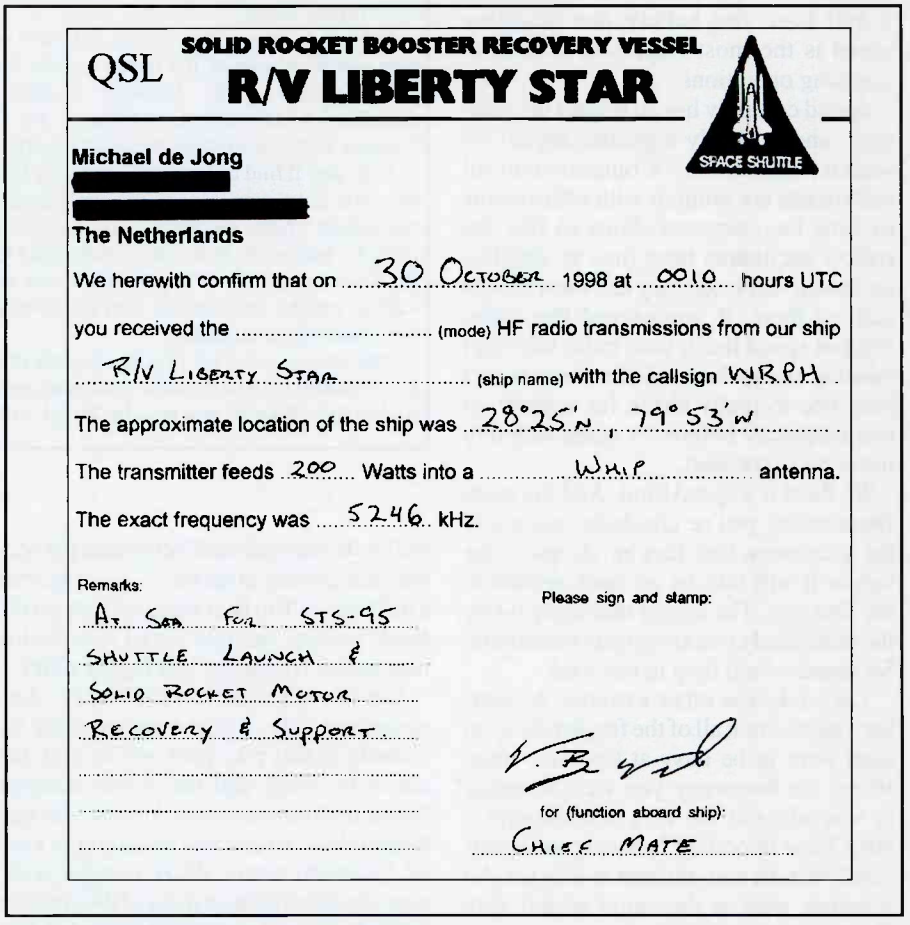
YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Back In The Utility Saddle, And Huge Government Communications Contracts Awarded

I've had a short reprieve thanks to the addition of Mike Fink as co-editor of this column. Mike has been heavily involved in the radio hobby for a number of years. His assistance in this column is certainly appreciated. His assistance also means that for now, I can remain involved with the column. So keep those cards and letters coming!

Raytheon Company has been awarded an U. S. Navy contract with an estimated value of $31.5 million to modify two additional E-6A aircraft to the E-6B configuration and produce two additional aircraft modification kits. This represents a continuation of work under current contracts to incorporate the operational capabilities of both the U.S. Strategic Command's (STRATCOM) EC-135 Airborne Command Post and the E-6A TACAMO (Take Charge and Move Out) mission into one aircraft. The aircraft is a Boeing 707 extensively modified to provide highly-reliable and survivable communications between the National Command Authority and U.S. Strategic Forces. The total scope of the program involves the modification of all E-6A aircraft into the E-6B configuration under follow-on options to the original production contract. To date, eight aircraft have been modified and delivered to operational commands. The first E-6B was presented to the U.S. Navy and STRATCOM in May 1997. Under the current contract, equipment to be transferred from the EC-135 Airborne Command Post includes the Airborne Launch Control Systems, UHF C3FDM radios, and Digital Airborne Intercommunications Switching System, which was developed by Raytheon Systems Company for the aircraft, according to a press release.

In another press release, Continental Electronics Corp. (CEC) has won a major five-year contract valued at more than $34.5 million, including options, to upgrade the U.S. Navy's Very Low Frequency (VLF) network for submarine communications. The new upgrades, which include software and hardware, reportedly will bring a high level of automation to the VLF communications network. The Navy has already exercised part of the contract by placing an order for more than $5.1 million in modifications to the Naval Radio Station, Jim Creek in Arlington, WA. The Navy is expected to exercise its options to upgrade additional VLF broadcast network sites annually for the next four years. VLF technology has been used for naval submarine communications since the first systems were designed and installed by CEC during the 1950s and 1960s. The VLF system is the most reliable form of long distance and underwater communications ever developed, even under the most adverse conditions. The VLF signals can penetrate solid rock and the ocean surface, both of which block radio waves at higher frequencies.



QSL

SOLID ROCKET BOOSTER RECOVERY VESSEL

R/V LIBERTY STAR

SPACE SHUTTLE

Michael de Jong

[redacted]

The Netherlands

We herewith confirm that on 30 October 1998 at 0010 hours UTC

you received the ..... (mode) HF radio transmissions from our ship

R/V Liberty Star (ship name) with the callsign WRPH.

The approximate location of the ship was 28°25'N, 79°53'W.

The transmitter feeds 200 Watts into a Whip antenna.

The exact frequency was 5246 kHz.

Remarks:

At Sea For STS-95 Shuttle Launch & Solid Rocket Motor Recovery & Support

Please sign and stamp:

for (function aboard ship):

Chief Mate

Michael de Jong, The Netherlands, received this PFC back from the booster recovery ship Liberty Star he heard on 5246.0 kHz during STS-95 launch comms.

Klingenfuss Publications has released *the 1999/2000 Guide to Worldwide Weather Services (19th edition!),* which covers the latest Internet, Navtex, radiofax, and radiotelex meteorological data sources worldwide. It includes hundreds of sample charts, homepages, images, and messages recently monitored. They also now have the new Wavecom W40PC DSP card for use inside a PC. It is a superb digital data analyzer and decoder with more than 70 modes. This unique card is very

similar to the revolutionary W41PC DSP digital data decoder card, and it uses the same excellent graphical user interface for Windows 95/98 and Windows NT. Those with Internet access can visit their Website for detailed descriptions and sample pages and color screenshots at <http://ourworld.compuserve.com/homepages/Klingenfuss>.

Reader Mail

Ray Prestridge, Texas, reports he has identified callsign "PWBO" reported here in a prior logging. It is the Brazilian Navy Frigate *'Bosisio.'* Ray received a QSL signed by Eduardo Bacellar Leal Ferreira, Captain. The ship's address is Base Naval do Rio de Janeiro, Ilha de Moncangue, Niteroi, Rio de Janeiro 24040-300.

Ray also adds these QSLs to his list: Telenor, Rogaland Radio, Norway. Signed by Manager (name undecipherable). Address is Rogaland Radio, P.O. Box 3070, N-4392, Sandnes, Norway; CBV, Playa Ancha Radio Chile, signed by Enrique Jimenez Tapia. The address is Armada de Chile, Centro De Telecommunicaciones, Maritimas de Valparaiso, Chile; VRX36, Cape D'Aguilar Radio CHN. Signed by Cheng Kwok Sung, Asst. Engineer. Address, H.F. Radio Transmitting Stations, Hong Kong Telecom, P.O. Box 9896 GPO, Hong Kong, CHN; ZSC, Cape Town Radio, SAF. Signed by Jeffrey Tylee, Support Svcs. Address, Private Bag X1, Milnertown, 7441, SAF. In a QSL received from GKE, Portishead Radio, England, the station states they will close at the end of August, 1999.

Ron Perron notes that the USCGC *James Rankin*, one of the new 175-ft buoy tenders, is now based at the Curtis Bay Yard and replaces the USCGC *Red Birch*, which was decommissioned last year.

Hideharu Torii, Tokyo, Japan, uses a JRC-545 receiver and a HF-1000 with Eavesdroppers antennas and has been a SWL since early 1960s. Hideharu writes that the Asian Broadcasting Institute has posted an Internet site on Numbers Stations on the Korean Peninsula at <http://www.246.ne.jp/~abi>. He has also been monitoring a five-digit A-2 Morse code message station (named M53 by ENIGMA). M53 is currently observed as follows, CQ466.XXX 5650 kHz (1500/ 1600), repeated 30 minutes later on 6870 kHz. CQ466.XXX 8620 kHz (0630), CQ113.XXX 5810 kHz, (1400/1600), repeated 30 minutes later on 8210 kHz. CQ863.XXX 5535 kHz (1400), repeated 30 minutes later on 7400 kHz. CQ735.XXX 5190 kHz (1600), repeated 30 minutes later on 5900 kHz. CQ616.XXX 8110 kHz (2300), repeated 30 minutes later on 8880 kHz. CQ909.XXXX 5670, and 6425 kHz in parallel at 1630. In April, M53 was monitored as follows, CQ466.XXX 5150 kHz (1500/1600), repeated on 5810 kHz (1530/1630); CQ466.XXX 8110 kHz (0630); CQ113.XXX 5590 kHz (1400/1600), repeated on 6630 kHz (1430/1630); CQ974.XXX 5535 kHz (1500), 6750 kHz (1530); CQ707.XXXX 4670, 5200 kHz in parallel. (1630). The same message was repeated for two days. Hideharu reports that the signal is very strong in Tokyo, and suspects M53 and its apparent predecessor M40 originate from North Korea. Hideharu notes confessed North Korean agent Kim Hyun-Hee wrote in her book, *"Now, As A Woman,"* that she received A-2 Morse code messages from Pyongyang at midnight on 10th, 11th, 25th, and 26th of every month while she was in Macao. She says the callsign of her group was CQ616 and her individual callsigns were 083, 914, 493, and 490. Kim received a Presidential pardon in 1990 after being sentenced to death for blowing up a Korean Air Boeing 707, killing all 115 aboard in November 1987. Last, Hideharu reports a North Korean A-1 Morse code message station has been intercepted on 4700 kHz on the hour between evening and early morning in local time. North Korea has been using the frequency for numerical broadcasts in voice and Morse since at least 1970. Great report, Hideharu.

Now, on with the show!

UTE Loggings — SSB/CW/DIGITAL

288: HH, NDB Hoek van Holland light, HOL at 0916 in CW. (AB-NLD)
288.5: YM, NDB IJmuiden Light, HOL at 0917 in CW. (AB-NLD)
296: GR, NDB Goeree Light, HOL at 0916 in CW. (AB-NLD)
311: LMA, NDB Lima, BEL at 0915 in CW. (AB-NLD)
316: pH, NDB Windhaven, HOL at 0920 in CW. (AB-NLD)
327: MVC, NDB Merveille, F at 0921. OO, NDB Oostende, BEL at 0921 in CW. (AB-NLD) All in CW.
350: ROT, NDB Rotterdam, HOL at 0903 in CW. (AB-NLD)
352: NV, NDB Amsterdam, HOL at 0909 in CW. (AB-NLD)
369: PS, NDB Heenvliet, HOL at 0903 in CW. (AB-NLD)
376: WP, NDB Amsterdam, HOL at 0904 in CW. (AB-NLD)

Abbreviations Used For Intercepts

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

386: STD, NDB Stad-aan-het-Haringvliet, HOL at 0900 in CW. (AB-NLD)
387: ING, NDB Inglevert, F at 0902 in CW. (AB-NLD)
388: 500, CH, NDB Amsterdam, HOL at 0900 in CW. (AB-NLD)
393: DEN, NDB Dender, BEL at 0926 in CW. (AB-NLD)
395: OA, NDB Amsterdam, HOL at 0900 in CW. (AB-NLD)
397: EHN, NDB Eindhoven, HOL at 0900 in CW. (AB-NLD)
399.5: ONO, NDB Oostende, BEL at 0926 in CW. (AB-NLD)
404: MRV, NDB Merveille, F at 0927 in CW. (AB-NLD)
404.5: RR, NDB Rotterdam, HOL at 0927 in CW. (AB-NLD)
2625: DRAE, Luetjens at 2239 in USB clg for r/c, nothing heard. (HOOD). *(German Navy or Bundesmarine destroyer* FGS Lutjens D-185 — *Eds.)*
2670: NMN13, USCG Grp Cape Hatteras at 0141 in USB w/Marine Info Broadcast. NMN80, USCG Grp Hampton Rds at 0108 w/same, both in USB. (MADX)
2749: VCS, Canadian CG Halifax at 0810 in USB w/wx. (MADX)
3359: Unid, poss USN stn? at 0747, FAX 120/576 w/blank idle signal. NAA, USN Cutler near here as is RPN71, Kiev Meteo (in 60/576 or 90/576). (MADX)
3485: Gander Volmet at 0856 w/airfied wx cond, at 0005 New York Volmet w/airfield wx. //6604/10051, both in USB. (MADX)
4005: Unid at 0816 in RTTY 50/810 encrypted. (MADX)
4125: Bermuda Harbour Radio clg S/V Margaritaville no joy re relay from USCG RESCUE 1503. Margaritaville to head for Bermuda after maintaining posn until morning. (RM-GA)
4156: Unid heard at 0910 in USB w/ANDVT bursts. (MADX)
4232: FUF, French Forces, Fort de France at 0735 in RTTY 75/818 w/call tape. (MADX)
4271: CFH, Canadian Forces Halifax heard at 0753 in FAX 120/576 w/clean signal and chart. (MADX)
4317.8: NMG, USCG New Orleans at 0757

in FAX 120/576 w/distorted signal normally at 4317. (MADX)

4336.4: WNU, Slidell Radio at 0743 in ARQ w/CW call and sitor free idle. (MADX)

4372: 7QI unid at 039 in USB wkg GIANT KILLER w/radio check. (MADX)

4390: UIW, Kaliningrad Radio at 1830 in USB w/YL op answering unid vsl. (HOOD).

4583: DDK2, Hamburg Meteo at 0015 in RTTY 50/510 w/wx tfc. (MADX)

4585: MIDDLE EAST 34, Civil Air Patrol Middle East Reg, at 0106 wkg DIAMOND FLIGHT 1 (DE CAP Cmd); CAP KITTY HAWK 3 (NC CAP Chief of Staff), 4 (Dir. of Comms), 64, 366; SANDLAPPER 1 (SC CAP Cmd), 14; JEFFERSON 1 (VA CAP Cmd), 47, 26, 4 (VA CAP Dir. of Comms), 238; HILL CAP 2 (WV CAP Vice-Cmd), 3 (WV CAP Chief of Staff), 4 (WV CAP Dir. of Comms), 49; FREE STATE 4 (MD CAP Dir. of Comms), 355; MIDDLE EAST 1 (Region CAP Cmd). Net closed at 0125. All in USB. (MADX)

4670: The Counting Stn at 0001 in USB w/"callup" for 817. (MADX)

4869: Unid School of the Air at 2227 in USB w/YL conducting reading lesson. (SD-AU)

5116: Unid School of the Air at 2153 in USB w/Alan coordinating class times in pre-class meeting. (SD-AU)

5202: BO DEMOCRAT and HELPFUL CITIZEN in USB at 1251, mention of BULLDOG MAJOR. (JM-KY)

5203.5: 32 clg any stn in at 1250 in USB, M9K logging another stn in the net at 1254. (JM-KY)

5245: MRC01, RAF ATC at 1040 in USB wkg many stns. (AB-NLD)

5478: Unid single-ch Piccolo; no traffic seen at 1130. (JD-UK)

5517: Cairo Radio at 2329 wkg Speedbird 2068 for posn rpt. Khartoum Radio at 2209 wkrg Nigeria 8824. Both in USB mode. (HOOD).

5544: Jeddah Radio at 1921 in USB wkg Saudia 1621. (HOOD).

5601: Bombay Radio at 2303 in USB wkg Alitalia 797 for psn rpt. (HOOD).

5649: Icelando Radio at 0830 in USB wkg KLM 682 (at 63N/50W). (HOOD).

5658: Bombay Air Radio at 2211 in USB wkg Lufthansa 779. (HOOD)

5670: Colombo Radio at 1919 in USB wkg Singapore 401. (HOOD)

5680: Several U.S. stns were calling for r/c. Judging by the signal strengths I suspect they were probably all in the Mildenhall area. RCC Malta, w/what turned out to be false alarm. An unusual one was LBJ in Norway, came on to 'roger' all contacts btw Bodo Radio and Saver 20 in a SAR op in the Norwegian Sea. Kinloss Rescue in at 1136 w/DREY (FGS Fraankenthal M1066), also at 1137 w/ Glucksburg Rescue. Mission 4755 at 1419 r/chk w/Glucksburg Rescue. DREY (FGS Frankenthal M1066) at 1236 w/Glucksburg Rescue. DRAV (FGS Karlsruhe F212) at 1759 w/Glucksburg. Rescue bird One (unid U.S. aircraft) at 2117 r/c w/Kinloss for HF r/c. RCC Malta at 2246 wkg 9CU in SAR Op. G0A (Golf Zero Alpha) at 0035 clg 9CU. DREE (FGS Wolfsburg M1082) at 1201 clg Glucksburg Rescue. SRG 07 at 1416, r/c w/Kinloss. Rafair 7473 at 1445 wkg Kinloss. Valentia Radio (IRL) at 1047 in r/c w/Kinloss. 4993 (unid U.S. aircraft, believed to be MH-53J 'Jolly Green Giant' #14993 at 1637 in r/c w/Kinloss. Bodo Radio (NOR) at 2317 w/Saver 20, followed by r/c w/LBJ (Harstad Naval Radio?). (AG-UK) Kinloss Rescue at 0740 in USB w/wx and an avalanche wng for Glencoe, Scotland. (HOOD) All in USB.

5687: At 2140, Airforce Auckland wkg IROQUOIS BLACK, IROQUOIS BLACK airborne Hobsonville, formation of two Iroquois airborne at 1840 for Kaipara Range est Kaipara at 1905, will call again when landed, Airforce Auckland request change to 8974. (NJ-NZ)

5692: RESCUE 1503 with CAMSLANT in USB for pp to District 5 ref. S/V Margaritaville SAR. Discussion of captain's condition and possibly removing him from vessel. Second pp w/ Elizabeth City's Flight Surgeon ref. condition of captain. (RM-GA)

5696: USCG CAMSLANT Chesapeake at 0031 clg Group Miami, then clg Cutter Eagle (WIX-327) at 0034, req they QSY 16 megs SCN. Air Station Elizabeth City 2013 clg "NMN," CAMSLANT. USCGC Eagle (WIX-327) at 0856 wkg CAMSLANT Chesapeake re data coordination. (MADX) At 2107, CAMSLANT adv RESCUE 6010 cleared to RTB for fuel, search terminated. At 2239, RESCUE 1504 passing tfc to D5 thru CAMSLANT, apparently re injured person(s) aboard commercial vessel, adv RESCUE 6009 has passed patient to hospital. At 0043, CAMSLANT w/pp to Miami Ops for CG 1715, which had apparently located a vessel that was object of a search. Then 1715 reports 2.25 hours fuel remaining before they would have to RTB for fuel, Miami Ops req 1715 remain above vessel and another a/c would be sent to relieve them. At 0047, CG 1718 securing guard w/CAMSLANT.(JK-NY) All in USB.

5708: LOCKHEED FLIGHT (SC) at 0109 in USB wkg 5484 concerning trouble w/#1 system. (AWH-FL)

5710: Unid military in USB at 0445, 01 wkg 02, checking out gear, some data in "P7X" format, said would QSY to "93"(?) at "2400," so evidently CDT time zone. Unid Latin, maybe military at 0315 on, lots of voice comm here, IDs noted VERACRUZ, VALENCIA, TORMENTO, LITORAL, HURACAN, INAGUA(?), DIAMANTE, KOALA, FLORES, ULISES, PIRAMIDE, IBERIA, D'AVILA, ESPANA, others. Usually just mutual check-ins, but also plain text radiograms, some 3LG cipher-text msgs also. Prior to about 23Z, this net is on 9085 but migrates here gradually. ALE bursts (related?) and unid half-duplex PSK-sounding (definitely related) data system active on both freqs also. Uses LSB occasionally. (AWH-FL)

5841: 53A rep flt ops and posn to PANTHER at 0055 in USB. (MF-OH)

6200: Cutter *Bainbridge Island* clg CAMSLANT at 0222. K5I clg CAMSLANT at 0029, both in USB. (MF-OH)

6257: Unid at 0841 in USB, two stns w/ANDVT transmissions. (MADX)

6380: UCW4, St. Petersburg Radio, Russia, at 1611 in CW w/tfc to UANP, TKH Ladoga 17, UAQJ, TKH Ladoga 18 and UANR, TKH Ladoga 101. (HOOD).

6496.4: CFH, CANFORCES Halifax at 0740 in FAX 120/576 w/clean signal and beginning of chart. (MADX)

6501: NMN, USCG CAMSLANT at 1607 in USB w/offshore forecast. //8764//. (MADX) CAMSLANT Chesapeake at 0611 clg USCGC Bainbridge Island (WPB-1343, Sandy Hook, NJ). (RP-MD)

6589: Cuban "6589" net in USB at 1200 to 1500 on, mostly unid test counts. At 1446, ROJO clg AZUL, sig checks. Also 418, 419, ROMA, ROMANA, ALMEJA on net. (AWH-FL)

6683: Reassign at 0249 in USB w/Andrews in testing of unid data signal. Testing terminated by Reassign at 0256. (RP-MD)

6705: Two unid stns, at 0955 in RTTY 50 baud chatting about their equip in GG. (AB-NLD)

6712: Croughton GHFS, England, w/pp for SPAR 66 to Andrews VIP in USB, 66 rptd no joy F-267 advised to switch to F-117 at 0043. (MF-OH)

6715: PUNCTURE, USN E-6B Mercury at 0044 in USB clg HARDWOOD, USAF E-4 NEACP on Z160, no joy. (MADX)

6739: ARCHITECT w/airfield colors at 0530. At 0531, OFFUTT w/DECENT "foxtrot" OSS auth RU. At 0532, Andrews rptd the SKYING OSS w/a different auth. At 0536, McClellan, Andrews, Hickam, and another GHFS stn, in that order, each rptd same EAM, APIH4H etc. REACH 379 clg MAINSAIL for r/c no joy. (JK-NY) JGN 84 (RAF Joint Guard Operation aircraft) at 0538 w/ARCHITECT (RAF London) in readability and selcal ck AJ-DL. (RP-MD) All in USB.

6754: Trenton Military at 0732 in USB w/airfield wx and off. (MADX)

6761: TURBO 28 clg TURBO 27 w/nothing heard at 0041 in USB. (MF-OH)

6799: At 2224 in USB, OM conducting pre-class meeting w/teachers, unid School of the Air. (SD-AU)

6815.6: SHARK 05, poss USCGC *Monhegan* (WPB-1305) at 0052 wkg DOLPHIN 30, USCG HH-65A #6530 re surface contact in the channel between St. John's and St.Thomas, req if correct contact DIW and if going to light the contact up. At 0110, advises a white go-fast will be departing Red-? Bay and not to light this vessel up. (MADX) GANTSEC (Greater Antilles Section) at 0055 w/SWORDFISH 21 (USCG aircraft) re minimum length of runway required to land aircraft. Information needed re mission is to transport some unid DVs to Beef/Reef Island (sounds like) in the British Virgin Islands which has a 3,600 ft runway. GANTSEC asks Swordfish 21 to call him when he is on ground at CGAS Boriquen, Puerto Rico. (RP-MD)

6910: MI-51 clg MI11, MI13, MI22-25, MI31-33 at 2135, still up at 0240 in USB, also heard on 5202, 9120, 13722 also w/ALE (MF-OH)

6945: Czech Lady (ENIGMA S17) at 1250, very poor, nothing on 8190. (AB-NLD)
6964.2: NMC, USCG CAMSPAC Point Reyes at 0807 in G-TOR 100/200 clg NRUO, USCGC Polar Sea (WAGB-11); NSTF, USCGC *Steadfast* (WMEC-625); NLVS, USCGC *Rush* (WHEC-723); and NYCQ, USCGC *Boutwell* (WHEC-719) w/top-of-the-hour calls. Off of previously logged freq 6964.4. (MADX)
6993: SPAR 66 check-in w/Andrews VIP at 0046 in USB. (MF-OH)
7055: GB0GVU, Newhaven Radio at 1158 in LSB, British coastal stn event. (AB-NLD)
7651.6: USCG SHARK 14 clg SHARK 17 (prob USCGC Vigilant WMEC-617), ANDVT followed at 0125 in USB. (MF-OH)
7776.5: IST, Oostende Radio, BEL in FEC w/ tfc list@every hr +10. (RP2-TX)
7784: "KAWN" Saddlebunch Key in RTTY 850/75; wx for various places in US at 2300. (JD-UK) *(actual c/s is NAR, NAS Key West, via their Saddlebunch Key xmit site — Eds.)*
7827.5: SPW, Warsaw Radio, POL in CW w/channel marker at 0115. (RP2-TX)
7885: VLR, School of the Air, Longreach (Australia) at 0156 in USB w/YL conducting basic physics lesson. (SD-AU)
7951.5: WSW462, Pin Oak Digital at 0044 in unid 100/170 mode. (MADX)
8040: GFA23, Bracknell Meteo at 0049 in FAX 120/576 w/beginning of chart. (MADX)
8047, V8C, D4C, K5B, and others in USB at 1537. (JM-KY)
8101: Unid at 0629 in USB, presumed U.S. cruising yachtsmen discussing various destinations, one mentioning he was en-route to Auckland. (SD-AU)
8122: CANBERRA CONTROL at 0729 in wkg unid RAN unit. CAR (Unid Vessel) at 0838 wkg CANBERRA CONTROL w/message servicing chatter.(MADX) All in USB.
8160: VNN737, Lake Macquarie Communications at 0634 in USB w/0864 monitored at Bourke en-route to Hungerford and VNN737 at Warren. (SD-AU)
8176: VIS, Sydney Radio, AUS at 0904 and 1104 w/wx, navarea warnings and tfc list. VIM, Melbourne Radio, AUS at 0950 w/wx, navarea warnings and traffic list; VID, Darwin Radio, AUS, at 0840 w/wx, navarea warnings, and traffic list; VIT, Townsville Radio, AUS at 0915 (varies) w/wx, navarea warnings, and traffic list; VIP, Perth Radio, AUS at 1130 (varies) w/wx, navarea warnings, and traffic list. (RP2-TX)
8188: Swedish Rhapsody (E23) at 1237 in USB in progress. (AB-NLD)
8190: ARCHITECT, RAF Upavon at 1245 in USB. (AB-NLD)
8363.5: UAUI, Pyotr Shafranov at 0822 in CW clg UIW.(HOOD).
8379.5: SGAK, M/V Titus at 1805 in ARQ msg to Weser pilot via SAB log-in 29343 SGAK. (HOOD)
8380.5: CBPU, M/T Punta Angeles monitored at 0822 in ARQ DIRSOMAR (AMVER) msg to CBV. (HOOD)
8388: SGWE, M/V Tyrusland at 1816 in ARQ msg via SAB. (HOOD)
8392.5: UHXE, TK Tuapse at 1801 in ARQ admin to UFN log-in 55161 UHXE. (HOOD)
8397: UHCK, TKH Kapitan Glazachev at 0828 in ARQ crew TG to UCE. (HOOD)
8398.5: C6NY6, M/V Falknes at 0831 in ARQ engineering rpt via SAB (12296dwt bulker). V2AN9, M/V CMBT Corvette at 0733 in ARQ msg via SAB. (HOOD)
8399.5: UHEZ, RTMS Tsefey at 0826 in RTTY 50/170 admin from KM Mironov to UIW. (HOOD).
8400: Unid at 0056 in ARQ w/sc, RFBM. (MADX) UWEP, TKH Vega 2 at 0726 in RTTY 50/170 admin to USO5. (HOOD).
8402.5: UAUD, BATM Marshal Krylov monitored at 0819 in RTTY 50/170 msg to UAUA, BATM Valeriy Dzhaparidze for Km Serenkov via UIW. UAUF, BATM Aleksandr Ksenofontov at 0730 in RTTY 50/170 crew TGs to UIW. (HOOD)
8404.5: SQMW, M/V Ziemia Chelminska at 0815 in ARQ msg to Stettin via SPB.(HOOD)
8434: TAH, Istanbul Radio, TUR in FEC w/ tfc list. (RP2-TX)
8440.6: UAT, Moscow Radio at 1300 in CW tfc list. (HOOD)
8453: FUG, French Navy La Regine at 1030 in RTTY 75bd RY tape. (AB-NLD)
8570: RUA8 Petrozavodsk Radio at 1100 in CW ID and tfc list. (HOOD)
8571: UFN, Novorossiysk Radio at 1103 in CW tfc list. (HOOD)

8574: LBG, Rogaland Radio, NOR at 1022 in CW CQ and tfc list. (AB-NLD)
8582: XSN, Ningbo Radio, CHN w/CW channel marker at 1015. (RP2-TX)
8642: MGJ, RN Faslane at 1028 in RTTY 75bd CARB. (AB-NLD)
8650: SPE42, Szcecin Radio, POL at 1026 in CW QSX marker.(AB-NLD)
8682: J2A8 Djibouti Radio at 1630 in CW ID marker.(HOOD)
8691: XFQ3, Salina Cruz Radio, MEX w/CW tfc list at 0100. (RP2-TX)
8705.4: PKC, Palembang Radio, INS w/CW channel marker at 1200. (RP2-TX)
8713: VZX, Penta Comstat at 2202 in USB w/N. Queensland wx and warnings, long-range sked. (SD-AU)
8746: SPO, Stettin Radio at 0828 in USB w/YL giving ID and listening 8222. (HOOD).
8861: Dakar and Canarias at 0124 in USB w/ various aircraft (MWARA AFI-2). (RP-MD)
8879: Bombay Radio at 1712 in USB wkg Speedbird 139 for Selcal AK-RS check. (HOOD)
8892: MAGIC 85 (British aircraft) at 0127 in USB wkg Thule w/pp Aviano Metro. (RP-MD)
8942: Hong Kong Radio at 1709 in USB wkg Japan Air 724.(HOOD)
8971: 4PJ req TRIDENT 741 stand by, then req radio ck at 2327. NAVY JA04 rep ops normal to FIDDLE at 2219, all in USB. (MF-OH)
8974: At 2235, Airforce Townsville w/STALLION 011, selcall LP-BE maintaining selcall watch. (NJ-NZ), WINDSOR 527. At 0100, in USB (B-707) clg Air Force Townsville w/dep msg and selcal check. (SD-AU)
8980: Kinloss Rescue at 1908 in USB w/ Rescue 193. (AG-UK)
8983: CAMSLANT wkg CG1712 at 1503 and C8R re, flt ops at 1900. At 1913, CG1503 secured guard w/CAMSLANT. At 1359, CAMSLANT wkg CG6033, 2121 re flt ops. All in USB. (JK-NY)
8992: SHADO 12 clg MAINSAIL and raising Elmendorf for pp to DSN # at 0451. At 0456, SKYKING msg CEL auth CU by stn who did not ID; rptd by another unid stn w/auth TE. At 0133, MOONBEAM w/EAM of 20 chars 72MEJW etc. also simulcast on 11244, 13245, then rpt immediately on 11175 by Offutt, also on 8992/11175/13200/6739 by Andrews. At 0156, MOONBEAM rpt 72 MEJW EAM. At 0214, MOONBEAM clg PALM LEAF, no joy. At 0246, Offutt w\37-char EAM HRPOCK etc. Rptd by Andrews at 0249. At 0255, REACH 7041 clg MAINSAIL for r/c, no joy. At 0259, Navy YB72 (probable P-3, VP-1 Whidbey Island, WA) clg MAINSAIL and raising Andrews for pp. At 0513, YOSEMITE 184 w/Thule for pp. YOSEMITE 184 came up on 8992 and at first contacted a different ground stn., which was very weak. This station apparently had a poor copy on YOSEMITE 184 who gave posrep as 80 nautical miles NW of Edwards AFB and req current cond. All in USB. (JK-NY)
9001: Kinloss at 1226 in r/chk w/SRG 41. (AG-UK)
9016: At 1904, ANTIQUITY clg MINCEMEAT (E-4B) on Z175. Nil heard. QSY to Z190. (MADX) Hickam clg QM972, then Andersen at 0349. MOONBEAM wkg PALM LEAF re, MOONBEAM leaving net at 0218. At 0312, WAR46 wkg PALM LEAF and attempting pp for PALM LEAF. All in USB. (JK-NY)
9018: 01 wkg 02 ref. landing at Hunter AAF, subsequently heard on VHF tower freq at Hunter. 01 continued to work 02 once on the ground, full callsigns never used, just 01 and 02. Special Operations exercises in progress at Hunter during this time, a/c were MC-130s. (RM-GA)
9088: Unid at 2312 in USB, Australian fishermen w/discussion about new dories also mention of Cooktown. (SD-AU)
9121: NGB35 clg NGB44 in USB at 1404. (JK-KY)
9130: Israeli Intel, (E10), ISR at 2140 in AM in progress. (AB-NLD)
9251: Lincolnshire Poacher (E3), CYP at 2143 in USB in progress. (AB-NLD)
9264: 4XZ, Israeli Navy Haifa at 0152 in CW w/call-tape. (MADX)
9283.6: USCG GANTSEC?, at 1350, tentative, "whale" feedback as normally heard on 6815.6. (AWH-FL)
10100.8: DDK2, Hamburg Meteo at 0329 in RTTY 50/440 w/CQ tape. (MADX)
10132.5: Poss RFFXL, French Forces Beirut at 2344 in ARQ-E 184.6/400. (MADX)
10202: Andrews at 0801 in USB wkg SPAR 06 w/radio ck. QSY to F461 (13211). (MADX)
10204: ANTIQUITY at 1905 clg MINCEMEAT (E-4B) on Z190. Nil heard. (MADX) REAL SILK clg RING DOVE, no joy at 0539. At 0538, REAL SILK clg RING DOVE, no joy then QSY to 9016. REAL SILK at 0538 clg RING DOVE, no joy, QSY. At 0541, REAL SILK clg WAR-46, no joy, all in USB. (JK-CA)
10240: English Man (E6) RUS at 2112 in AM in progress. (AB-NLD)
10493.7: 'RFTJF,' FF Port Bouet, IVO in ARQ-E3 48/425 w/"DE RFTJF" at 2359, 'Controle de Voie' every hour +00 and +30. (RP2-TX)
10536: CFH, Canforce, Halifax, CAN at 0842 in RTTY 75bd wx. (AB-NLD)
10596: 1OYF, unid, at 1010 in CW clg BBNZ, then Cyrillic 5LGs. (AB-NLD)
10780: JV870, C-9B from Jax NAS (VR-58) wkg Cape Radio at 2303 in USB re has minimum fuel inbound to Jax, gets Jax WX from Cape Meteo, then pp to Patrick Base Ops who refuses permission to land (after 6:00 p.m. local) for gas'n go then req pp to MacDill Base Ops and arranges for fuel there, has DV aboard. (ALS-FL)
10871: Russian Navy Moscow, RUS at 0634 w/CW marker; Russian Navy Arkhangelsk, RUS at 0634 w/CW marker; Russian Navy Kaliningrad, RUS at 0634 w/CW marker. (AB-NLD)
11090: Prob KVM70, Honolulu Meteo at 0737 in FAX 120/576 w/weak signal. (MADX)
11170: 4XZ, Israeli Navy Haifa at 0110 in CW w/calltape. (MADX) Same in CW w/channel marker at 2230. (RP2-TX)
11175: Andrews at 0917 w/SKYKING msg (3UB time 17, authentication BA). Andrews at 0813 w/six-char EAM (77L2ZF). ANTIQUITY at 1859 wkg Andrews. Request wkg freq for stn MINCEMEAT (E-4B). Croughton GHFS at 0403 wkg REACH 048 (C-17) w/pp. NAVY GRAY KNIGHT 801, P-3C VP-46 at 0714 wkg Elmendorf w/request for pp, Elmendorf req unit to spell phonetically his callsign, 801 adv to disregard. NAVY PQ478 at 0717 wkg Elmendorf to Duty Office at NAS North Island, also called "WESTERN SKY" by PQ478, adv standing by for further tasking. Offutt at 1851 w/106-char EAM (UKPXDU...). Salinas, USAF SCOPE COMMAND station Puerto Rico at 0343 w/test count and "test out." Sounds like they keyed the entire SCOPE COMMAND system, complete w/large global "echoes." Echoes severely distorted transmission. ID is tentative. SPAR 65 at 1432 wkg Andrews. (MADX) At 0227, Incirlik GHFS, Turkey, w/pp to Elmendorf Meteo for DARK-26. At 0232, Hickam GHFS w/pp for FURLOUGH to JONATHAN, rptd being 15 minutes outside GEP on RF19. At 0711, McClellan GHFS w/EAM simulcast 8992, 6739, 6712. At 1636, STEEL 41 w/Offutt w/pp to "Miami Monitor," terminated due to poor copy. Offutt attempted QSY to 13200 w/no luck. (JK-NY) All in USB.
11178: PLUTO 01 (Dutch Navy aircraft) at 2219 w/PJK (Dutch Navy, Curacao) reporting sighting of two vessels at 1241N/7039W. Also reports ETA Curacao at 2250Z. (RP-MD)
11181: At 0721, SANDUSKY w/Hickam re '2 tone,' will transmit in ANDVT. (NJ-NZ)
11205: Architect at 0232 in USB w/airfield status. (RP-MD)
11247: ARCHITECT being called by GIBRALTAR for radio check at 0536, nothing heard, out. (NJ-NZ) Portuguese speaking aircraft 2119 clg Brasilia at 0656. Probable Brazilian Air Force. (RP-MD) Both in USB.
11253: RAF VOLMET monitored at 0626 in USB. (RP-MD)
11270: Russian Man (S25), RUS at 0820 in AM 615 74754 71744 00000. (AB-NLD)
11297: Kiev meteo at 0650, YL/RR w/airfield wx cond. St. Petersburg meteo at 0705, YL/RR w/airfield wx cond, both in USB. (MADX)
11457: "BR6" location unknown at 1810 in CW "CQ de BR6 QTC" followed by "333 555 nr 01747 bt" followed by long msg of two- and three-letter "words" ident w/the kind of traffic recently handled by "4XZ." (JD-UK)
11554: Polytone stn (XPH), RUS at 0600 in tones. (AB-NLD)
12211: Unid FAPSI stn in RTTY 75/500, circuit ID 40034 at 0955. (JD-UK)
12317: YKLK, M/V Al Bushra at 1614 in USB pp to Syria. (HOOD-UK)
12444: UZPJ, TKH Pyotr Zaporzhets at 0805 in CW msg to Vienna via UWS3. (HOOD-UK)
12479.5: TCGO, M/V Osman Gazi at 0937 in ARQ msg via SAB log-in 29274 TCGO. (HOOD-UK)
12499: EALZ, M/V Begona B at 0815 in ARQ

re ETA for Bilbao via OXZ. (HOOD-UK)
12500: EHUN, B/T Alcudia monitored at 0922 in ARQ msg to Madrid via IAR log-in 08637. (HOOD-UK)
12532.5: TCER, M/V Cengiz K at 0839 in ARQ msg to Istanbul via TAH. (HOOD-UK)
12564: UDBR, TKH Volgo-Balt 115 monitored at 0823 in CW ETA for Kiel Canal via UAT. (HOOD-UK)
12565: UFHG, TKH Mekhanik Tyulenev at 0833 in ARQ msg (in EE) to Bilbao via UCE. (HOOD-UK)
12566.5: UDAU, SRTM Klykach at 0830 in RTTY 50/170 admin to UIW. (HOOD-UK)
12567.5: UBKS, RTMS Sokrat at 0819 in RTTY crew TG to UIW. UBDC, Wilhelm Pieck at 0836 in RTTY crew TG to UIW. (HOOD-UK)
12592: OXZ, Lyngby Radio, DNK in FEC w/tfc list at every odd hr +30, Danish news at 0030. (RP2-TX)
12599.5: UAT, Moscow Radio, RUS monitored at 0844 in ARQ msg to XU7BA, Fortuna 1. (HOOD-UK)
12610: RUF9, Temryuk Radio at 0903 in CW ID and tfc list. (HOOD-UK)
12704.5: PKD, Surabaya Radio, INS in CW w/channel marker at 1130. (RP2-TX)
12729: UVA Gelendzhik Radio at 1500 to CW ID, tfc list, and QSW 6459.5/12729/16930.(HOOD-UK)
12766: UBF5, St. Petersburg Radio at 0805 in CW msg to UBWY, TR Vassileostrovskiy. (HOOD-UK)
12788: NMG, USCG New Orleans at 1605 in USB w/offshore forecast. Relay from NMN, CAMSLANT. (MADX)
12801: TAH, Instanbul Radio, TUR in CW w/channel marker at 0200. (RP2-TX)
12811.3: HZY, Ras Tannurah Radio at 0802 in CW ID marker. (HOOD-UK)
12939: SPE61, Szczecin Radio, POL in CW w/channel marker at 0200. (RP2-TX)
12965: USO5, Izmail Radio at 0758 in RTTY 50/170 msg to UUUZ, TKH Tanya Karpinskaya for KM Kokhanovskiy. (HOOD-UK)
12970.5: PKX, Jakarta Radio, INS in CW w/channel marker at 1000, Nav area warnings one day at approx 1025. (RP2-TX)
13020.4: VRX60, Cape D'Aguilar Radio, CHN in CW w/channel marker monitored at 1200. (RP2-TX)
13022: SPB, Szczecin Radio, POL in FEC w/tfc list at every hr +00, very strong around 0100 UTC. (RP2-TX)
13054: UIW, Kaliningrad Radio, RUS at 0909 in RTTY 50/170 admin to UBDL. Professor Klenova for Km Klimi. (HOOD-UK)
13083: VIS, Sydney Radio, AUS at 1731 in USB wkg vsl "*Lady Ann*" and re they believed that KMI closed down. (HOOD-UK)
13146: 3AC, Monaco Radio at 0910 in USB wkg YKNB, M/V Shaher M. (HOOD-UK)
13152: 3AC, Monaco Radio at 0859 in USB tfc list. (HOOD-UK)
13158: UTQ, Kiev Radio at 0843 in USB continuous ID tape. (HOOD-UK)
13200: Offutt w/pp for REACH 802 to HILDA EAST at 2053 in USB. (MF-OH)
13206: At 0343, Airforce Perth w/STRIKER 102, TTF metar for YPEA (Pearce), and YPKG (Kalgoorlie). (NJ-NZ)
13371: Unid FAPSI stn, in RTTY 100/500 (rev), cct ID 00190 in QSO w/unheard stn at 1750. (JD-UK)
13454: Polytone stn (XPH), RUS at 0620 in tones. (AB-NLD)
13536.7: Unid CW sending 2- and 3-letter "words" like 4XZ or "BR6" at 1630, still there at 1830. (JD-UK)
13580: HMF36, KCNA, N.KRE in 75/170 RTTY at approx. 1400 w/EE nx. (RP2-TX)
13597: JMH4, Tokyo Meteo, J in 120/576 FAX test chart at 1304, good quality. (RP2-TX)
13882.6: DDK6, Hamburg Meteo, GER in 120/576 wefax at 0730. (RP2-TX)
13900: BMF, Taipei Meteo, TAI in 120/576 wefax monitored at 1000, excellent quality image. (RP2-TX)
14367: BAF8, Beijing, CHN in FAX 120/576 w/very strg signal at 2315. (JD-UK)
14560: RGT77 (or someone calling RGT77?) in CW at 0927 sent "RGT77 560 = DDDDD" then 5L grps including Cyrillic. (JD-UK)
14654: Polytone stn (XPH), RUS at 0640 in tones. (AB-NLD)
14692.5: JMJ4, Tokyo Meteo, J in 120/576 wx chart at 1329, good quality. (RP2-TX)
14773: Unid in CW, FAPSI? stn "VVV KRO

KRO KRO QRU SK" at 1240. (JD-UK)
14890: Russian Man (S25) in RUS at 0800 in AM 615 77434 76754. (AB-NLD)
14980: Unid FAPSI stn in RTTY 500/75 "RAU RAU RAU 4646 . . ." followed by "QRU SK" at 1310. (JD-UK)
15793.9: Unid J7B xmsn — four tones spaced 200 Hz,195.2 bd; not readable on any module of Code 3 at 1200. (JD-UK)
16011.7: Unid in ARQ selcalling TVXS; op chat in Arabic at 1540. (JD-UK)
16026: BAF9, Beijing, in parallel w/14367. (JD-UK)
16026.7: Unid in ARQ at 1130 in 5L grps, ended "+++++;" op chat in Arabic. (JD-UK)
16059: 4XZ in CW at 1150, //9263/11102, 16317 no longer active. Looks as though 4XZ changes its freqs fairly often. (JD-UK)
16081.7: Egyptian MFA at 1610 in ARQ w/ATU-80 tfc, then QRT at 1612 w/traditional "YKS YKS." (MADX) *(which is "Bye Bye" — Eds.)*
16125.2: Prob RFQP, French Forces Djibouti at 0054 in ARQ-M2 200/400. No traffic logged. (MADX)
16156.7: Unid ARQ at 1520 op chat in Arabic. (JD-UK)
16220: Unid Piccolo w/Ch1 idle, Ch2 w/crypto at 1320, still at 1830. (JD-UK)
16230: "W3S," unid French embassy wkg "RFGW," in FEC-A 192 bd at 1140. (JD-UK) *(W3S is reportedly the French Embassy, Islamabad, Pakistan — Eds.)*
16235: "U3H" French Embassy Moscow wkg "RFGW" in FEC-A 192 bd at 1145. (JD-UK)
16257: Unid FAPSI in RTTY 75/500 cct ID 90051 at 0840. (JD-UK)
16278.6: Unid COQ-8, op chat in French; presumed Algerian diplo at 1515. (JD-UK)
16287: Unid FAPSI in RTTY 75/500, cct ID 20076, using 8.5-bit Baudot at 0835. (JD-UK)
16706: EMOL, TKH Mekhanik Yuzovich at 0835 in ARQ eta for Istanbul via USU. (HOOD-UK)
16706.5: UCKU, TKH Fyodor Varaksin at 0849 in ARQ admin from Km Donkovtsev to UCE. (HOOD-UK)
16785: UCUC, Leonid Galchenko monitored at 0757 in RTTY 50/170 BBXX from 16.9n 16.8W to UDK2. UFXN, Metelitsa (MT-0124) at 0831 in RTTY 50/170 crew TGs to UDK2. (HOOD-UK)
16797: UIXO BMRT Temryuchanin monitored at 0732 in RTTY 50/170 crew TGs to UGW. (HOOD-UK)
16801.5: UEXM, SST Melongena at 0738 in RTTY 50/170 admin from Km Sobol to UIW. (HOOD-UK)
16802.5: URYM, BMRT Zvezda Azova at 1538 in RTTY 50/170 crew TGs to URK9. (HOOD-UK)
16808: SPA, Gdynia Radio, POL in FEC w/tfc list at 1650, 1850. (RP2-TX)
16829.5: UCE, Arkhangelsk Radio at 1030 in ARQ msg to UCPQ, TKH Kapitan Glotov. (HOOD-UK)
16840.5: UJE, Nizhny Novgorod Radio monitored at 1032 in ARQ msg to UEZP, Irbis. (HOOD-UK)
16914.5: CBV, Valparaiso Radio at 1344 in CW ID marker. (HOOD-UK)
16927: UIW, Kaliningrad Radio at 1550 in RTTY 50/170 crew TG to V3WA6, RTMA Ilmen. (HOOD-UK)
17147: URL, Sevastopol Radio at 1350 in CW crew Tg to UWBS, RKTS Nikolay Filchenko. (HOOD-UK)
17020: UDK2, Murmansk Radio at 1544 in RTTY 50/170 crew TGs to UBCB, Vasiliy Fillipov. (HOOD-UK)
17441.1: 5YE, Nairobi Meteo, KEN in 100 bd RTTY RYRY at 2300. (RP2-TX)
17550.9: "RFTJ" Fr Mil, Dakar, SEN in 192 bd ARQ-E3 message from RFTJC (COMAR, Cap Vert) to RFFIC Dipermil Paris on circuit AFL at 0915. (JD-UK)
18450: Unid Piccolo, w/Ch. 1 idle, Ch.2 crypto at 1600, still at 1830. (JD-UK)
18481: 4XZ, Israel in CW VVVs at 1310 and all day. (JD-UK)
19724.5: UIW, Kaliningrad Radio at 1108 in RTTY 50/170 crew TGs to UHJU, Tr Kapitan Kuzmin. (HOOD-UK)
20890: Customs COTHEN active w/"Turkey Talk" at 2246 in USB. (MF-OH)
22395: USU, Mariupol Radio at 0825 in ARQ msg to USMV, TK Ivanovo. (HOOD-UK)
22542: JJC, Kyodo News, J in 60/576 FAX at 0045 w/wx map. (RP2-TX)
23680: MKK, RAF Bampton, UK in Picc-6 wkg MTS (Falklands); only one channel, idling for over three hours at 1940. (JD-UK)

This months contributors: (AB) Ary Boender, Netherlands; (AG-UK) Alan Gale, UK; (ALS-FL) Alan Stern, Florida; (AWH-FL) Albert W. Hussein, Florida; (HOOD-UK) Robin Hood, UK; (JD-UK) John Doe, UK; (JK-NY) John Kasupski, New York; (JM-KY)Jack Metcalf, Kentucky; (MADX) Mid-Atlantic DX'er; (MF) Mike Fink, Ohio; (NJ-NZ): Noel Jones, New Zealand; (RM-GA) Roland McCormick, Georgia; (RP) Ron Perron, Maryland; (RP2) Ray Prestridge, Texas; and (SD) Simon Denneen, Australia. Thanks to all. ■

The Ham Column

BY KIRK KLEINSCHMIDT, NTØZ

GETTING STARTED AS A RADIO AMATEUR

PSK31 — A Digital Mode For Everyone?

I've had an on-again, off-again romance with radio teletype (RTTY) and other HF digital modes since I was a teenager. Perhaps it's in my genes? After all — or so I've been told by older family members — a distant relative of mine invented the Kleinschmidt Perforator, an early piece of teletype hardware. When I work old-time RTTY ops, I always get an earful about those old machines.

"PSK31 takes up almost no precious bandwidth . . ."

In college, I started monitoring shortwave RTTY and FAX stations with a variety of equipment, from cheap two-diode PC interfaces to expensive (to the folks who bought them new, anyway) HAL and Universal terminal units. When I started working at ARRL HQ in the late 1980s, I fired up with AEA multimode terminal units, an exotic TONO EXL-5000 (a mini stand-alone RTTY/TOR unit complete with a built-in data screen), and a venerable HAL ST-6000 with a built-in tuning oscilloscope. During this time, RTTY was elbowed aside by the various error-correcting "handshaking" modes — AMTOR, packet, PACTOR, G-TOR, CLOVER, and so on — and I couldn't help but feel that an era was coming to an end. RTTY was still around, but it wasn't exactly the "in" thing. (To date, contesting has kept RTTY in vogue.)

The error-correcting modes were fun for a while, but I found that working other stations via AMTOR — which keeps chirping away until all data is correctly transmitted and acknowledged — was too much like using the Internet. It didn't feel like *radio*, where our ability to copy ebbs and flows according to the whims of propagation.

What we needed was a new digital mode that *might* incorporate some means of error correction without requiring back-and-forth chirp-chirping to ensure copy. Well, it looks like that mode is here. It's called PSK31, and you probably have everything you need to operate this exciting new mode right in your shack. This month's column introduces PSK31 and points you toward additional information.

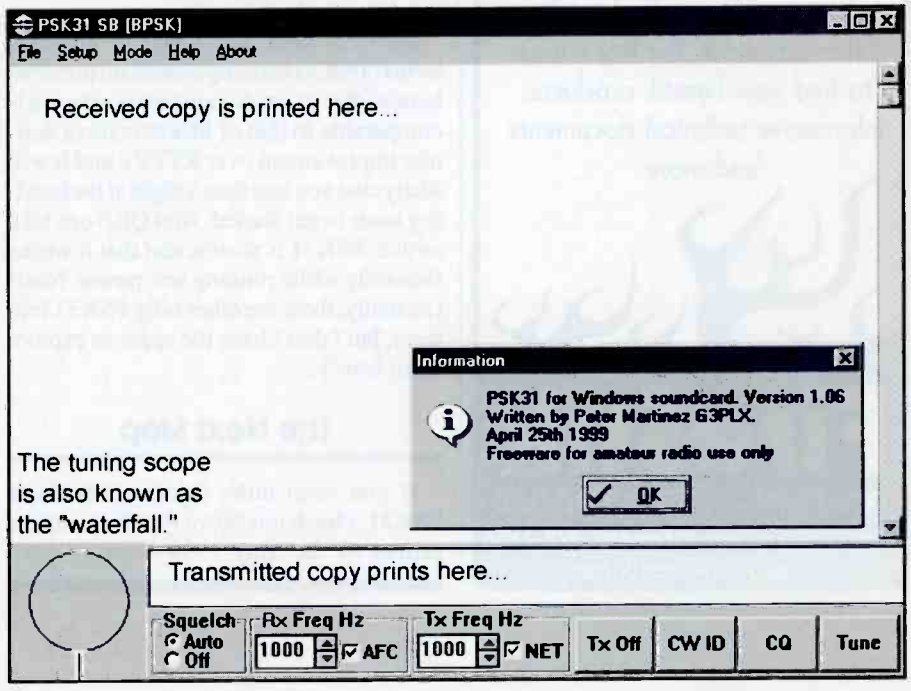


Figure 1: A screen shot of G3PLX's PSK31 software for Windows. It's a free download!

PSK31 Unleashed

Some guys have all the luck — and all the smarts! Peter Martinez, G3PLX, the guy who came up with AMTOR, developed PSK31, the mode that's poised to depose RTTY for good! PSK31 uses the DSP brains of your IBM-compatible computer's sound card (16-bit) and free (open source, like Linux) software that runs in Windows 95/98/NT. If your present sound card is an old 8-bit model, a new 16-bit card can cost as little as $9 at a computer parts store or flea market. The hardware required to connect your PCs sound card to your radio, and to make an optional PTT connection between your PC and your rig, can be built from junk-box remnants or purchased from any RadioShack store for less than $10. That's as close to free as you can get nowadays!

". . . and you probably have everything you need to operate this exciting new mode right in your shack."

The "PSK" in PSK31 stands for Phase Shift Keying, the space-age modulation technique used to transmit an entirely new digital code. The "31" refers to the data rate, or baud rate, of the transmitted signal. It also represents the bandwidth occupied by a PSK31 signal — a paltry 31 Hz! The digital code itself is called *Varicode*, a term coined by G3PLX because each character is made up of a varying number of data bits — just like Morse code! Just like Morse code, commonly used letters

"PSK31 signals don't deedle-eedle like RTTY, and they don't chirp like AMTOR. They warble like a science fiction mind-control machine, or like a synthesizer played underwater."

have fewer bits, while rarely used characters have a whole bunch.

So what does this mean in practical terms? PSK31 takes up almost no precious bandwidth; its weak-signal performance is comparable to that of Morse code (a definite improvement over RTTY), and it will likely cost you less than a night at the bowling lanes to get started. And QRP ops take notice: PSK31 is so efficient that it works famously while running low power. Neat! (Actually, there are other nifty PSK31 features, but I don't have the space to explore them here!)

The Next Step

If you want more information about PSK31, check out Steve Ford's excellent primer in the May 1999 issue of *QST* ("PSK31 — Has RTTY's Replacement Arrived?" on page 41). Next, point your Web browser to <www.aintel.bi.ehu.es/psk31.html>. That's where you'll find the current version of the free-to-download PSK31 software. You'll also find a lot of detailed info about PSK31 and several excellent links to related sites.

Another informative Website can be found at <www.megalink.net/~n1rct/psk/pskin.html>. Assuming you have a 486-or-better PC running Windows 95, 98, or NT, you'll need a 16-bit sound card, the downloadable software, a fairly stable HF SSB rig (USB is the ad hoc standard for PSK31), and a set of cables to interconnect the components. Like I said, you probably have all this stuff in your shack.

Tuning Around

Once you have your software and hardware up and running, tune around the digital subbands (especially on 20 meters) and look for PSK31 signals. They're distinctive, so you won't have much trouble finding them. PSK31 signals don't *deedle-eedle* like RTTY, and they don't *chirp* like AMTOR. They *warble* like a science fiction mind-control machine, or like a synthesizer played underwater. If you can't find one, N1RCT's Website (mentioned above) has a recording. Anyway, once you've heard PSK31, you won't mistake it in the future.

Because the signals are so narrow, you'll have to tune *slowly*. At the lower left-hand corner of the PSK31 terminal program sits the *waterfall*, a digital tuning indicator. Filled with random red "spikes" when the signal is "unlocked," the display shows a vertical line when the signal is tuned properly. From then on, you can simply use the software's "automatic frequency control" to track your QSO partner if he/she drifts up and down in frequency. Once the desired signal is locked and you're seeing text flow across

Show Your Stuff!

Want some PSK31 wallpaper? The British Amateur Radio Teledata Group, BARTG, is now offering the PSK31-40 award. To claim yours, you have to prove that you've contacted hams in 40 DXCC countries using only PSK31. For more information, contact Nigel Roberts, G4KZZ, BARTG Awards Manager, 13 Rosemore Close, Hunmanby, North Yorkshire YO14 0NB, United Kingdom.

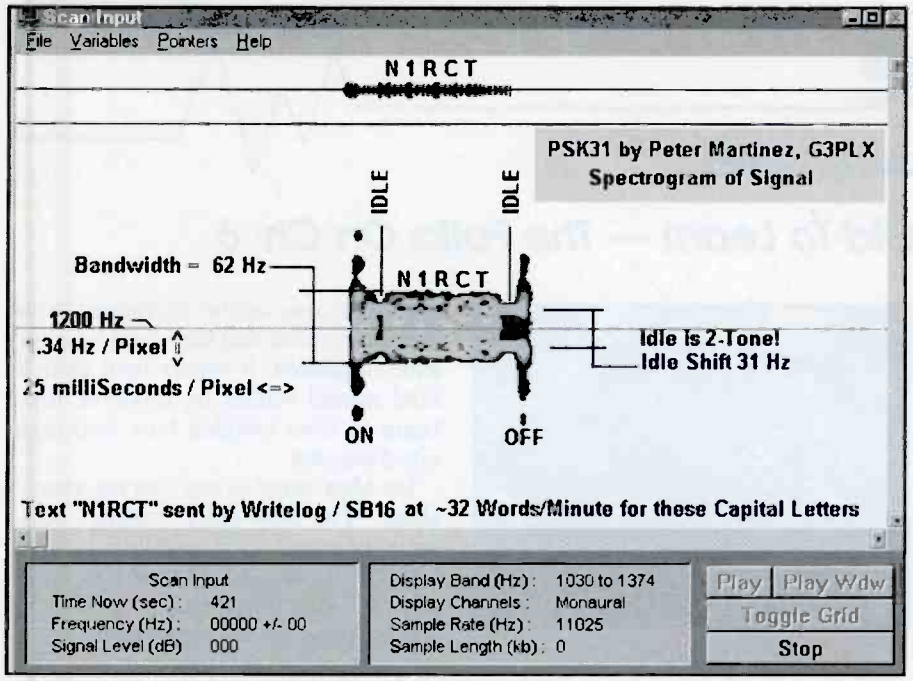


Figure 2: The anatomy of a PSK31 transmitted signal. This graphic can be found at N1RCT's Website, listed in the column text.

your screen, PSK31 QSOs proceed pretty much like regular RTTY.

Although the following band plan has been endorsed by European PSK31 enthusiasts, the distinctive droning signals can be found in most parts of the digital subbands, especially near 14069 kHz. Remember, with such a narrow signal bandwidth, a lot of PSK31 transmissions can share a crowded band. Some ops report that 100-Hz channel separation is sufficient for interference-free copy! Look for PSK31 signals here (in kHz): 1838.15, 3580.15, 7035.15, 10140.15, 14070.15, 18100.15, 21080.15, 24920.15, 28120.15.

People who have been using PSK31 for a while are singing its praises. They're also mentioning that the mode can be a bit eerie at times. For example, thanks to PSK31's extreme sensitivity, signals that fade to the point of being inaudible often produce perfect copy!

The Death Of RTTY?

Will PSK replace RTTY over time? It just might happen. PSK31 offers all the benefits of Baudot RTTY and adds the weak-signal performance of CW. The gear is inexpensive and widely-available. The first PSK31 contest took place in April. It can't be long before the new digital mode starts showing up in DXpeditions, Field Day, and Special Events. Now is the perfect time to get started.

Count me in, Kirk! Send your QSL cards, questions, and letters to me at *Popular Communications*, "The Ham Column," 25 Newbridge Road, Hicksville, NY 11801. ■

CB Scene

BY ED BARNAT
<Edbarnat@global2000.net>

27-MHz COMMUNICATIONS ACTIVITIES

Never Too Old To Learn — The Folks On Ch. 6

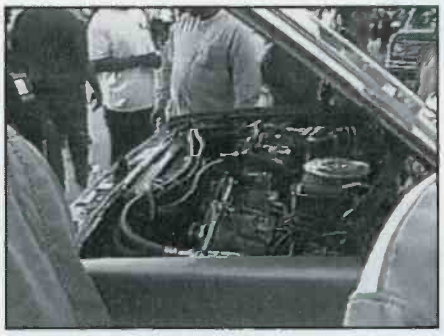
Every once in a while, I tackle a subject that generates more than the usual amount of E-mail. Such was the case with my May column. No sooner had the issue hit the stands when the mail started coming in, and boy, was I in for an education — and a few reprimands!

In that column, as you may recall, Darren Lamden, in the United Kingdom, asked for advice on how to reach CBers in the USA via skip. He had been using FM on our legal 40 channels. I told him that he would probably have better luck using SSB, especially above channel 40. I also told him that he probably could not talk with the stateside "mobiles" he regularly hears on channel 6. Jokingly, I said, that the only thing "mobile" about these folks were their mouths. Considering the amount of power they apparently run, that, if truly mobile, they would quite likely require tandem tractor-trailers to transport their stations. They would have to use one van for the radio and amplifiers and the other for electrical generators.

"Boy was I wrong — they really are mobile — well, most of them anyway. Further, they don't need tandem tractor-trailers."

Boy was I wrong — they really are mobile — well, most of them anyway. Further, they don't need tandem tractor-trailers. They have found ways to cram all of their radios, amps, multi-element beams, and generating equipment into large vans and pickups.

I have been hearing these folks on channel 6 for years. If you have spent any time on CB, so have you. There isn't a day when the skip is in (and sometimes when it isn't) that you can't hear their distinctive signals and highly-stylized patter. Since they all sound pretty much alike and apparently run similar equipment, I had always assumed that they must be somewhat organized. It wasn't until their E-mail started rolling in, however, did I begin to even imagine how well-organized they are.

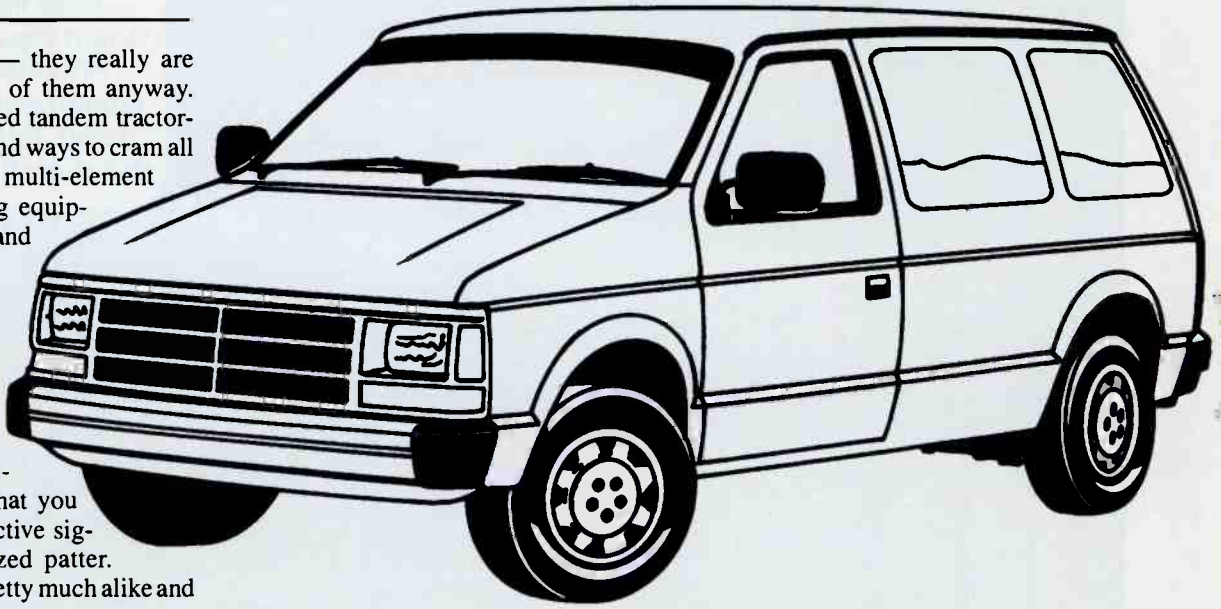


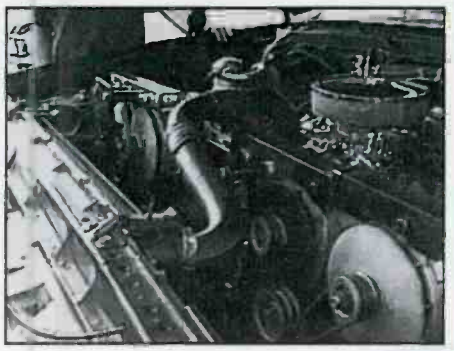
It takes a lot of alternators!

Another AC Sky's the limit, but this one only fuzzed up the camera, it didn't eject the tape, but from the lines and distortion on the screen, you can get a good idea of just how much RF is coming out of these things.

Ice Man wrote to say that my remark about "The only thing 'mobile' about these guys are their mouths" is WAY FALSE!!! I also heard from the Beast, who claims to be a member of the group and says that he has seen mobile operators running 50,000 watts or more. "Most of us 'suberbowl' operators went mobile to avoid causing TVI and RFI," reports another channel 6 regular named Frank. "There are plenty of big ol' bases on as well. There is a great mix of people that run on 6, all races and ethnic backgrounds. We lead the radio spectrum in building and experimentation, and that includes the ham bands. We meet four or five times a year at jamborees. If you want to want to see a 100-kW mobile or a five-element mobile array, then you have to attend one of these events."

Those of us who can't attend can still get a taste of what it's like by visiting <http://WWW.Bigradios.com>. Here you will see how these folks have turned





A look inside a big Dave Made mobile.

a hobby into a highly competitive sport. There are pictures of trucks running 70,000 watts equipped with five or more Lexidyne Alternators (the kind on big railroad trains) and 454 cubic-inch engines running on nitrous oxide to power the huge alternators. You can also see videos of events where the RF was so heavy that it popped the cassette right out of the video camera!

It's All Trash

"I can't believe you would print such garbage," writes Al Bauernschmidt, N3KJP, of Allentown, PA. No longer a CBer, Al is a longtime reader of *Pop'Comm* who recently started reading the "CB Scene" to see what he has been missing. He couldn't believe what he read in the May issue. "Everyone knows what a total mess this band is in the U.S. You would think that people like Ed Barnat would offer some help and advice to his readers as to how to clean things up. However, not only does he support a lot of the illegal activities (freebanding, etc.) here in this country, but now he is encouraging a CBer in the UK to illegally use sideband there. He even stated that it would 'put you at odds with the law.'" He continued, "In my opinion, this is a display of total irresponsibility and cannot be overlooked. In the same issue, the question was asked 'Whither REACT?' If you read articles, such as the one by Mr. Barnat, you will find part of the answer. No one in their right mind today would spend hours sitting in front of a CB radio listening to the foul language and total nonsense that takes place. Face it, CB is a wasteland because this is what CBers have chosen to make it. Much could be done to clean things up if everyone who uses this band would get their act together and do it. Encouraging illegal activities with articles such as the one by Mr. Barnat won't do much in the way of steering things in that direction."

" I try to promote better radio for all. I am in favor of a few rule changes."

Gee Al, sorry you feel that way. In many areas, we appear to be in complete agreement. As you will recall, however, the reader's original question was how to communicate with the "Megawatt" stations on channel 6. I thought I was providing some advice that might help to clean things up. I was trying to point him in a better direction. As you point out, things on CB are a mess. New ops have darn few good role models to learn from and imitate. Regrettably, due to the deplorable state of the "legal 40," most of the better operators can now only be heard in the Freeband. I was merely trying to show the young man how to enjoy his radio in a gentlemanly and efficient manner. If successful, we will gain a good operator to fill the void that was created when you left.

These were the ones to watch. These guys were running five or more Lexidyne Alternators (the kind on big railroad trains) and serious output. The one on the left was running some 70,000 watts. He had a 454 with a billet crankshaft, and a nitrous oxide system to power those huge alternators under the hood. Flames were shooting out of his exhaust pipes during his last keydown at night when he hit the nitrous. Can you imagine hitting the nitrous on a race car sitting still? It would result in massive destruction of the engine, unless you have a serious load on it, equivalent to moving the car down the road. By the way, there are three AVIs here because AC Sky keys down multiple times to get the tubes fully warmed up.

Where you and I might differ is your statement that I am promoting "a lot of illegal activities." I try to promote better radio for all. I am in favor of a few rule changes. You might interpret that as promoting illegal activities. If you do, then it is true. If you think four is a lot, then you have got me pegged.

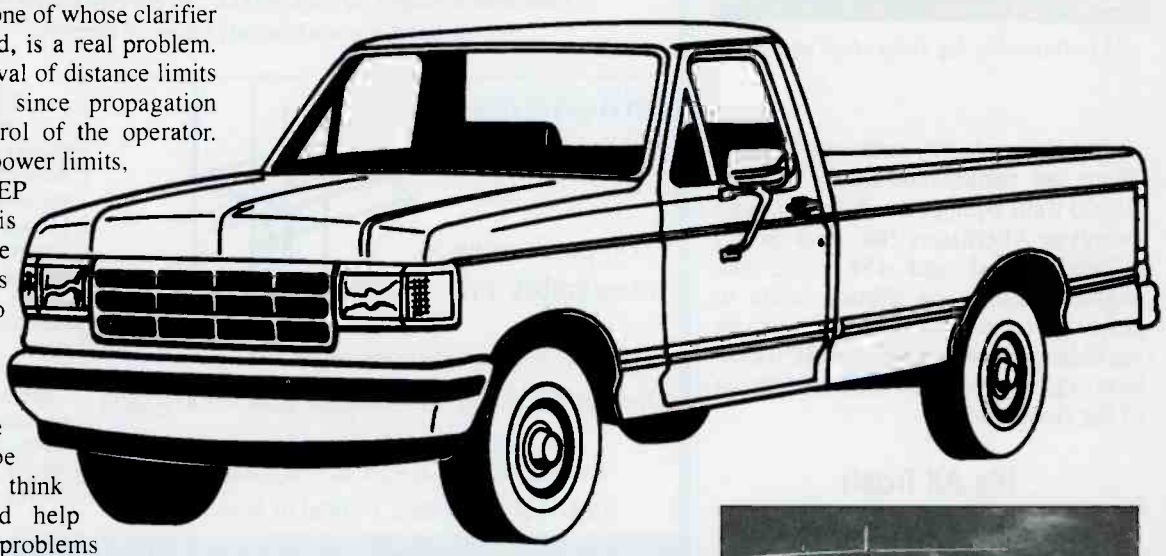
First and foremost, I am in favor of unlocked transmitters. Trying to hold an SSB conversation with more than one other operator, any one of whose clarifier has not been clipped, is a real problem. Second, is the removal of distance limits for SSB contacts, since propagation is beyond the control of the operator. Third, is increased power limits, say 50 or 100 watts PEP for SSB. Fourth, is the opening of the Freeband, perhaps as a separate radio service.

Yes Al, I make no bones about it. I think that the Freeband should be legalized. Further, I think legalizing it could help solve a number of problems faced by CBers, amateurs, and regulators alike. God willing, I'll expand on the whys and hows of it in a future "CB Scene" column. So stay tuned.

Come On In!

Despite all of our problems on CB, we still hear of new friends finding their way to the band and some old friends returning and we are even finding one or two who have been hanging around unnoticed. On March 16, radio talk show host Art Bell admitted in an interview with *Pop'Comm* editor Harold Ort that he has a Cobra 148 hooked up in his shack/studio. They talked about some of the pains and pleasures of CB, so if you get a chance, check the audio archives on Art's

This is the BIG FINALE, the 70,000-watt mobiles key twice, then throws his belt.



Mobile with attached beam.

"Despite all of our problems on CB, we still hear of new friends finding their way to the band and some old friends returning and we are even finding one or two who have been hanging around unnoticed."

Website, <http://ww2.broadcast.com/artbell/mar99.stm>.

Mike Strain, in southern New Jersey, has finally upgraded from AM to SSB and is having a ball. His new callsign is CM1971 NJ. Mike is looking to make new contacts on SSB rigs. He would even like to see a couple of special mixers scheduled for channel 16, so folks with older 23 channel SSB can participate. If anyone in southern New Jersey is interested, you can E-mail Mike at <mikes6nh@webtv.net>.

James H. Brown (SSB-137G, KC5EDL) of Bay City, Texas, has also found his way to SSB. James is looking for contacts and an SSB club in his area. His address is <jhbrown@stpegs.com>.

North of the border, Ted Perry, of Van Cover British Columbia, says "I've been out of CB for awhile (early '80s). I'm really enjoying the relative quiet even with the skip! You can't get this sense of community with a CELL PHONE." Ted is looking for contacts, so drop him a line at <wu448@victoria.tc.ca>.

"You can't get this sense of community with a CELL PHONE."

Fred Bennett, Memphis, Indiana, was surfing the upper part of the CB band on lower sideband and "heard some very intelligent and courteous radio." This took Fred, N9TA (Advanced amateur) by surprise. He was so impressed that he wrote to see how he might get SSB numbers. While he could just make them up, I'll bet Fred would feel better if he could get some from a local club. So, if anyone knows of a club or net Fred can contact in the Memphis, Indiana, area please E-mail him at <N9TA@worldnet.att.net>.

September And October CB Mixers

Looking for a little chatter on the CB? Then plan on attending the next, now regularly scheduled, on-air CB Mixer. They are held, wherever you are, on the last Saturday of the month (the next two will be on the 25th of September and 30th of October) from 9 p.m. until 10 p.m. local time. SSB operators work channel 36 LSB. AM operators work channel 23. For complete guidelines, see the November 1998 issue of *Popular Communications* or drop me a note.

Well, that's it for now. Thanks for writing me here at the magazine or via the Internet where my address <ed@barnat.com>. And as always, if you can (especially on September 25th and October 30th) — catch me on the radio! 73, Ed. ■

Editor's Note: *The Bigradios.com folks have given us permission to run the photos in Ed's column. Our special thanks to them for their generosity! Visit them at <http://www.bigradios.com/tollfree> and <http:// www.bigradios.com/shadow>, if you'd like to see more. One of the operators from the group says "Shadow, and 1-800 Toll Free, both go to the breaks and take most of the pictures. They have gotten numerous calls from different clubs wanting them to come to the break and take pictures. Shadow got a Trophy at the Houston break for taking the pictures and putting up the Website of past breaks."*

BY EDWARD TEACH

The Pirate's Den

FOCUS ON FREE RADIO BROADCASTING

Blind Faith Radio Says It Right: Welcome To The Jungle!

Let's check out what's giving Uncle those migraines again this month. Remember, your pirate news and loggings are always welcome.

WSSR — Solid Rock Radio, 6985.5 USB at 2138, weak, but with clear ID and mention of Wellsville maildrop. (Bill Finn, PA)

Free Radio America, 6955 USB at 2126. "We're Not Gonna Take It" song and ID by the Don. Also at 0202 with mention of "the real free speech network, live on 6955" Also heard at 0202. (Finn, PA) 0021 with Metallica, Black Sabbath, Smashing Pumpkins. Talk about the FCC. Heard several days straight but **up to 6958** after the first. (David Hughes, MO) 2218 to 2303 sign-off. (Tim Taylor, PA)

WACK, 9655 USB at 0140 ID and "the wack will be back in five minutes." (Finn, PA) 0117 with funny bits and many IDs. (Hughes, MO) 0016. Gave 1-888-959-8177 for phone-ins. (Taylor, PA) 0234. Slogan "white trash radio" and phone number for music requests and reception reports. Call and leave your number and they'd get back to you. Also heard at 0025 with various tunes and use of profanity. (Finn, PA)

WMFQ, 6955 USB at 0022 with lots of IDs. (Hughes, MO) 2143 with ELO selections. Later played "Slow Down" at various speeds. Mentioned the Providence address. (Taylor, PA) 0201. "Tired of stations that . . . then write to WMFQ." (Finn, PA)

WMPR, 6955 at 0137 with techno-pop and lots of IDs ("WMPR, followed by three squeals and then a woman saying "6-9-5-5"). (Hughes, MO) 0000 with ID as "WMPR-1030." (Finn, PA) 0024 with Techno and brief IDs after songs. (Taylor, PA) 0122. (Finn, PA)

Radio Metallica Worldwide, 6955 at 0222. The usual, with Dr. Tornado and Sr. El Nino. (Hughes, MO) 2336 comments on current items in the news, Aerosmith number. Also at 2337 with commentary, SAM song, and sign-off. Also at 2355. Other days at 0217 **(on 6950)** with Trigger Happy testing and then off. Also at 0243 with a repeat of an earlier show and then a repeat of the repeat at 0404. Also noted with repeats at 2204 and 2205. Additional logs at 0050 and possibly 0021. (Finn, PA) 2244 with "Monster Hash" song, ID, hard rock. Off at 2257 with "Secret Agent" theme. Announced

the Blue Ridge Summit address. (Dave Jeffery, NY) 0204, mentioning that this was a new show. Also heard at 0407. Also noted at 2046 with "Trigger Happy" and comments on various people and events in the news to sign-off at 2112. Still another time at 0032. (Taylor, PA)

Blind Faith Radio, 6955 USB at 0050 with music by Triumph and ID "For those who give a damn." (Hughes, MO) 2350 with Kent State Memorial program. Said to send reports to the Merlin mail drop, or to <blindfaithradio@yahoo.com>. Also noted at 0319 playing "Bad Moon Rising," the Doors, and others. (Finn, PA) 0318 with "Welcome to the Jungle" and stuff by the Doors and Credence Clearwater Revival. (Taylor, PA) 0328 with "Louie, Louie" and other songs, as well as parodies and comments. Also heard various times between 0400 and 0500 (Finn, PA)

Radio Eclipse, 6956 USB at 0135. James Addiction (*is that the host or a rock star? — Ed*) Parody commercials and then trouble with their CD player.

WREC-RADIO FREE EAST COAST
Box 1, Belfast, NY 14711 and
Box 109, Blue Ridge Summit, PA 17214
QSL# 896

Dear Tim. The entire staff of WREC confirms that you did indeed hear WREC's *Fifth Anniversary Program* on 6955 kHz at 0030 UTC on 5/11 1998 in the AM mode with 100 watts of power

73, P.J. Sparx, Station Op P.J. Sparx

WREC — Radio Free East Coast sent this card to Tim Taylor in Pennsylvania last year.

(Hughes, MO) 1554 with song dedicated to Dr. Napalm. Off at 1601. Also heard at 0015 with show number 23 and mention of Providence address and said if you wanted a QSL, you had to address it as "Radio Re-Clipse." (Taylor, PA) **6950 USB** at 0040 with possible country music, and revealed that Dr. Tornado studied to be a gynecologist. (Finn, PA)

Deliverance Radio, 6955 USB with a "commercial" for E-I-E-I-O-Bonics and "the Deliverance 2000 Squeal-like-a-pig" Truck Alarm." Lots of movie clips. Says no QSLs because he can't read. (Hughes, MO)

Radio Azteca, 6955 USB, monitored at 0105 with program number 33, including the Top Ten Useless DX Accessories, Ask Dr. Radio, The Flushing Report. Signed off with the shower scene from "Psycho." They use the Belfast mail drop. (Hughes, MO)

WEMP, 6955 at 0010 with "It's All Part of My Rock and Roll Fantasy" and maybe "Bad Medicine." Hello to Al and Bill. Low audio. (Finn, PA)

K-Mart Radio, 6955 USB at 0323 with various music styles. Off at 0409. (Taylor, PA)

Jerry Rigged Radio, 6955 at 1531. (Taylor, PA)

Voice of Prozac, 6955 heard at 2345. (Taylor, PA)

Free Hope Experience, 6955 USB at 0250 with "Hawaii 5-0" theme. Said hello to listeners and ID given phonetically and in CW. (Bill Finn, PA)

JRR — 6850 USB and 7375 USB heard at 0548 with Pink Floyd and others. (Finn, PA)

Unidentified, 6955 USB at 0045 with a Madonna show. (Finn, PA)

Crazy Elmo's Relay World, 6955 USB at 2111 with Seinfeld rap, What's Going On, ID as "CERW — Crazy Elmo's coming to take me away . . ." X-Files theme. E-mail address is <crazyelmo@youpy.com>. Repeat show heard at 2217. Heard again at 2305 testing with Star Wars theme, Indiana Jones music. (Finn, PA)

Scream of the Butterfly, 6955 USB at 0107. Johnny Rockin' with a Humphery Bogart clip, Bob Dylan, Beatles, Yardbirds. Send $1 to the Providence address. (Finn, PA)

Radio USA (tentative), 6955 at 0100 with cookoo sounds. I think they said Radio USA and gave the Belfast address. (Finn, PA)

That's it for this round. Keep going after those pirates and keep letting me know what you're hearing each month! ■

OUR readers SPEAK OUT...

(from page 6)

Back From New Zealand

Dear Editor:

I really enjoyed the article on scanning New Zealand — my wife and I just got back from there. I also really think Ken does an awesome job with the "ScanTech" column. Keep up the good work!

Robert Harrison
Florida

Look Out World, Dale's Got E-Mail!

Dear Editor:

I enjoy your magazine very much and read every issue cover to cover. In the "Pirate's Den" in the July issue, you mentioned in the KMUD listing the Door's "Horse With No Name." This song was not done by the Doors, but by the band "America." Actually, I've just recently become E-mail active and as such, I look for the slightest reason to send one. Keep up the good work.

Dale

Losing Our Freedoms

Dear Editor:

As you know by now, your generous help in placing the Reader's Market ad for donations to the prison library and your readers' generous donations were in vain.

I am terribly sorry that I have wasted your time and your reader's time and money. I plan on saving enough money to re- subscribe to *Popular Communications* so I can keep up on all the news concerning my hobby.

I hope everyone is aware (but feel they are not) that we are slowly but surely losing many of our freedoms in this country that we once and continue to take for granted. As we have seen in the past, the new telecommunications laws continue to have an effect on our hobby. Things that we thought couldn't happen, have happened.

The cellular industry can beam their signals from all directions, and even through our bodies, but it's illegal for us to listen to those same signals.

I urge your readers to take an active role in protecting the rights we have left. Vote! Write your senators and congressional reps. Keep at it. We haven't lost this country yet. Perhaps you could print my letters as an apology to your readers. You may also use my name and address.

Sincerely,
Randell Alexander
SRCI-11425996
777 Stanton Blvd.
Ontario, OR 97914-8335

Dear Randell:

Your courteous reply to our readers is very much appreciated. Our readers will recall that Randell is incarcerated in Oregon. A typewritten attachment stapled to his letter that he signed also said, "Please note — I can only receive first or second class mail or UPS shipments at this address. Third or fourth class or bulk rate mail will either be returned or destroyed. Please do not enclose business cards, labels, decals, paper clips, "Post-It" type notes, or any item larger than 18-inches in length or width. You may cut in half if necessary. Your return address

must appear in the upper left hand corner or front of the envelope. My name and all numbers as shown must appear on all envelopes mailed to me at this address. Any mailing that exceeds one-quarter inch in thickness must be separated into two or more separate mailings. Thank you for the extra time and effort required in processing my request. I truly appreciate it."

Best of luck, Randell—and yes, you're right, our freedoms, whether a person is incarcerated or not, continue to erode. Sad, but true.

Loves Alice

Dear Editor:

I absolutely love Alice Brannigan and her regular articles in *Pop'Comm*. She's truly one of a kind. How come you don't print her photo, so I can tape it to my wall right next to my radios?

Ed Lansdale
Detroit, Michigan

Dear Ed:

Alice is the shy type, and from my observations in the office, she doesn't go out of her way to draw attention to herself. Funny thing, though, we've got plenty of photos of everyone else around here, but never get any requests for those!

Dear Editor:

I've been reading *Pop'Comm* for more than 10 years and you and Tom Kneitel always manage to get into the politician's hair over one issue or another. Your latest target seems to be Billy Tauzin and Thomas Wheeler over this privacy issue and right to listen to the radio spectrum. What gives?

Keep up the good work — I love the "CB Scene" column.

Lester Murkley
Phoenix, Arizona

Dear Lester:

What gives is just what you mentioned. Your right to listen to the radio. Do you think General Schwartzkopf would ever invite Saddam Hussein over for a weekend barbeque or a family picnic? Picture Hillary sitting down for tea with Monica. Not in our lifetime.

Billy and Tom are so wrapped up in the politics of Washington and doing what's right for their wallets and at the same time slowly knawing away at our radio spectrum and rights, I don't think they have a clue anymore about the real difference between right and wrong. I saw it in good-old-boy network in the Army hierarchy, (essentially a closed system that doesn't usually tolerate intelligent thinking) and it's the same in Washington politics. What's really frightening — and I do mean frightening — is that some so-called "leaders" sincerely believe they ARE doing the right thing. But we know better.

And there aren't any Pop'Comm *picnic invitations for Billy or Tom. And believe me, we have a darn good time!*

Loves Pop'Comm And Wants To Become A Ham

Dear Editor:

I just wanted to write and tell that I enjoy your magazine. I have had a subscription to the braille edition of your fine publication for five years. Reading your magazine has sparked my interest in the communications hobby. After I subscribed and read a few issues, I went out and bought a scanner.

Secondly, I want to comment on ham radio. I am not a ham, but would like to be one someday. I'm still learning the Internet. I'm all for using E-mail and other communications, but I have an interest in ham radio. I hope it will never die. I'm hoping that it will only change — it has over the years. One thing is for certain: When I become a ham, I don't want to use code. Forget that. I don't know what kind of equipment to buy, but I'm sure I'll figure it out. "The Ham Column" is helping me out with that aspect. That's all I have to say. Thank you very much.

Matthew Phillips

Phil Visits Long Island

Dear Editor:

I just got the latest issue of *Popular Communications* and wouldn't you know it, we had made plans to visit New York and my wife's family. We (I) take my scanner everywhere we go, so our New York trip was no exception. The July issue with the article on Monitoring Long Island by Ed Decker was a surprise! The frequencies were good, and historical perspective was great. Keep 'em coming.

Phil Abbott
Buffalo, NY

Washington Beat

BY ALAN DIXON, N3HOE
<n3hoe@juno.com>

FCC ACTIONS AFFECTING COMMUNICATIONS

Cellular Priority Access — Action The Government Hopes You Won't Notice

The cellular industry would probably rather you didn't know, either. The issue is the Federal Communication Commission's proposed Cellular Priority Access Service (CPAS). In the event of disaster or local emergency of substantial duration, public safety responders and government officials may soon have nearly exclusive use of local cellular, PCS, and SMR channels. Further, an inner circle of preferred customers who have paid a special premium would have the same privilege as well. FCC Docket WT 96-86 addresses several public safety communications requirements and is intended to serve as guidelines for spectrum planning and policy through the year 2010. Buried in the 50-plus pages of the docket's Second Notice of Proposed Rulemaking, released back in October of 1997, lies this little-known provision.

"But the public's exclusive joyride with cellular, which has been anything but free, may soon end."

Access to dependable land mobile radio communications historically has been limited to a privileged few: public safety (police, fire, etc.), government use at various levels, and businesses needing any local dispatch-type service. There were, of course, valid reasons for this limitation. One was the limited spectrum adaptable to earlier technology. Another was the nearly prohibitive cost of commercial mobile radio equipment not so many years ago. With the more recent availability of cellular technology and of 800 MHz and higher spectrum, combined with reduced manufacturing costs, mobile communications became within the reach of nearly every business and consumer. After decades in which basically only emergency vehicles, taxicabs, and local delivery trucks had effective two-way communications, all users in the last 10 years or so suddenly had affordable, sophisticated mobile communications available. But the public's exclusive joyride with cellular, which has been anything but free, may soon end. Public safety radio systems have become more sophisticated in recent times. The FCC is in the process of granting a 24-MHz chunk of new public safety spectrum in the 700-MHz band, presently used (or unused) by UHF television. Yet, the public safety lobbies still want to take a bite out of consumers' wireless telephone spectrum, as evidenced by comments reported in WT 96-86.

This rulemaking has been simmering on the back burner at the FCC since 1986, when it was initially opened for comments. Little progress has been made to date. CPAS remains a nebulous proposal. One government commenter, the National Communications System, dominated by the Defense Department, has suggested that CPAS be "voluntary" on the part of cellular carriers, and that carriers would be permitted to charge for this service. As proposed thus far, anyone with big bucks could buy into the priority access food chain. Several aspects have yet to be resolved. Five, as yet undefined, levels of priority may be created. However, the presently proposed technology would only restrict digital calls. Although analog cellular has had a little-used CPAS feature built-in from the beginning, it relies on a code programmed into the handset. This code can easily be changed by the consumer, thus defeating its restrictive purpose, according to the FCC. On the other hand, calls in progress would not be pre-empted. It is also possible that incoming calls would not be restricted. Only outgoing calls may be affected. But what would happen if a consumer, locked out of the cellular system during a widespread emergency, needs to dial 911? Is there a priority for this case? The proposal mentions this eventuality, but offers no solution. Then there is the question of unlawful discrimination against consumers, defined in Section 202(a) of the Communications Act, another aspect wide open to speculation.

This matter is certain to come to a head at the FCC, as the year 2000 approaches. Much of the final outcome will likely be generated by the Public Safety Wireless Advisory Committee (PSWAC), a group of public safety representatives, radio communications industry representatives, and others, established by the FCC. This committee meets regularly and advises the Commission on policy matters, such as WT 96-86. Further, the FCC recently established another body to consider this and similar issues. The Public Safety National Coordination Committee (NCC) had its first meeting on April 29, 1999. The NCC is to have "open membership" to all interested parties, including individuals. What PSWAC and NCC ultimately determine as necessary may well become law under the FCC. So hold on to those CB radios, ham transceivers, GMRS, and Family Radio Service handhelds — even those allegedly obsolete analog cell phones. While the post-modern world of digital cellular users gleefully delight in their ubiquitous communications devices, those of us determined to "get the message through" in an emergency need to know to have alternate radio communications means available.

"But what would happen if a consumer, locked out of the cellular system during a widespread emergency, needs to dial 911?"

We'll keep you posted on this obscure, yet vital controversy.

Another Threat To Cellular?

Perhaps cellular users need not so much fear government usurping their frequencies at will. Neither priority cellular users nor consumers will have reliable cellular coverage if a new product from Israel makes its way to the States. A "white box" device intended to jam cellular frequencies is said to be in production. While malicious use of any RF jamming device is a serious Federal rap under the Communications Act in the U.S., these devices are as certain to show up on the black-market as did the old "blue box" ESN readers used by cellular phone "cloners." While of no apparent use to those trying to fraudulently obtain cellular service for free, the white box could become a favorite of pranksters, and of those annoyed by perceived inappropriate cellular usage. In contrast to recent attempts on additional prohibitions on cellular monitoring and on cloning, neither Congress nor the FCC appears to be taking any steps toward a preemptive strike against cellular jammers.

The FCC Is Back In The Enforcement Business

Certainly it's true as far as amateur radio is concerned, in case you haven't noticed. The Compliance and Information Bureau (CIB) now handles ham enforcement. Recently, the CIB had established a Washington telephone number just to call in complaints of wayward ham operators. As of this past April, though, the CIB discontinued the telephone number in favor of E-mail. Amateur operation complaints can now be written to <fccham@fcc.gov>

That's it for this month. Please send your comments, questions, and suggestions to my E-mail address at the top of the page. Hear any interesting rumors of new telecommunications legal action? Let me know! I will make an effort to research it and give a response either by return E-mail, or right here in this column. ■

Tuning In *(from page 4)*

need it, but your life sure is hell if you don't have it!

Recent TV programs have stressed preparedness — the same batten down the hatches readiness you should take when threatened by a major storm. Sure is better to have a flashlight with fresh batteries than to sit there scratching your head when the lights go out. It's everyone's hope that this whole Y2K thing will pass overhead like a dark storm cloud that never yields a drop of rain, but from what I'm hearing, we're in for a storm. Expect power brownouts. One program even reminded viewers of all the devices that have tiny microchips that could — *could* — go south the first of the year; cars, clock radios, alarm clocks, hair dryers, certain motors, fans, heaters, TVs, telephones — virtually any product that uses 110 Vac electricity to operate. Think your life isn't affected by Y2K now?

Two things are a *certainty*. One is that again we're in a unique position to be prepared and of great potential service, not just to ourselves and our families, but to our communities as well. NOW is the time to test your radios — and yes, your CB and FRS radios are included — before the end of the year. Frankly, this is something you should do all the time. I've got a small weatherproof box of CB and FRS handhelds, along with fresh batteries and flashlights in the basement — just in case. Apocalyptic? Hardly. Ask the thousands of folks that experienced Hurricane Andrew in Florida a few years ago. Preparedness, to include a simple AM/FM radio, CB, and obviously a NOAA weather radio, saves lives.

The other certainty is that we're likely to experience sporadic power outages lasting hours or days. How often has your power gone out for a few hours because a car used a utility pole as a quick-stop device? Or because a couple of squirrels decided to lunch on the overhead wires? Think about it. If, in these technological superior times, the power is lost to thousands because of these otherwise minor incidents — ice storms and high winds not included — what will happen when the clock rolls over and the Nation's massive power grid hiccups? You guessed it.

It's not our personal home computers, the bank's computers, or even the computers in our air traffic network that could present problems, but rather the *electricity* that runs the darn machines. No power, no nothing.

How far along is your power company in assessing the risks associated with the Y2K problem? My own utility, GPU Energy found "about 9,000 items" — equipment, processes, and systems — that are at risk for problems. Remember too, that for a large part of North America, the Y2K bug strikes in the dead of winter when sub-zero temperatures are common and several feet of snow is the norm.

While young folks and old-timers alike will bemoan our over-dependence on the *computer* and the problems associated with the microchip, the real problem goes back to 1790 when the Italian scientist Galvani observed a strange phenomena during his dissection of a frog supported by copper wires. When he touched the frog with his steel scalpel, its leg would twitch. He reasoned that the frog's leg contained **electricity**.

We've come a long way since Galvani, and decades ago when the first citywide power distribution system became operational. Volta, Tesla, Edison, Faraday, and the long line of science greats would be truly impressed.

The end-of-semester test — a cumulative one — will be graded in four months. I hope we don't need flashlights to see the questions, but I'm prepared if we do. Are you? ■

Products *(from page 43)*

ed, but not yet a convert, the *Shortwave Listener's Guide* is just the book you need.

This 192-page paperback book is a great reference tool, covering shortwave from A to Z. The appropriate use of diagrams and illustrations throughout the book adds to its ease of understanding and readability. Ideas are clearly explained and technical information is provided so anyone can read the book and come away with an understanding of what shortwave is all about.

The Shortwave Listener's Guide is only $29.95 in paperback from Newnes Fulfillment Center, 225 Wildwood Avenue, P.O. Box 4500, Woburn, MA 01801 or phone 617-928-2500 or call toll-free 800-366-2665 Monday–Friday from 8 a.m. to 6 p.m. Eastern Time. There's a $4 (for U.S. customers) handling fee for the first item ordered and $1.50 for each additional item). Canadian customers are asked to pay by credit card or in U.S. funds and include 7 percent GST on books and handling.

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Understanding Trunktracker Scanners Is Easy

Wouldn't you know it, our own "ScanTech" columnist, Ken Reiss has put together a good — actually, a great book — *Understanding Trunktracker Scanners*. If you think you'll need to spend the weekend with your new trunktracker scanner and a 5000-page book, forget it. This 24-page spiral-bound book is an easy read and packed with logsheets for your trunked banks, conventional scanning banks, and even a fleet map/user ID worksheet!

Written so even a non-scanner enthusiast can understand it, Ken has taken a fairly technical, complicated topic and reduced it to a fairly short, non-technical read. Borrowing a friend's trunktracker (and having never used a trunktracker before), we were able to work the radio A to Z with no problems. Ken hit it right on the head in his introduction saying, "Lots of experienced scanner enthusiasts are getting into the trunktracker only to find they're lost." Not so anymore, folks. No excuses for not getting the trunktracker scanner and firing it up this weekend!

We particularly liked the illustrations that help guide you through the process — clear photos with no guesswork about what you're viewing. So, as Ken says, forget what you know about frequencies and channels as you know 'em. Let the radio do the work for you. But you need this book by ACS Press, 9051 Watson Road #309, St. Louis, MO 63126. It's well worth the $14.

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The Loose Connection

BY BILL PRICE, N3AVY

RADIO COMMUNICATIONS HUMOR

Hello, Mrs. Price-Magoo?

Years ago, William Peter Blatty — famous for writing *The Exorcist* — wrote of his mother in a book called *I'll Tell Them I Remember You.* It was perhaps the funniest thing I read in junior high school, and his name stayed with me until I saw it on the cover of *The Exorcist* and thought there surely must be two Blattys.

No one will question whether there's more than one William James Grieb Price, because I have written (and will write) about my own mother exactly as I write of my shock-filled youth, my hapless friend Norm, and my sometimes-incredulous partner, Dave. I'll write the truth. Mostly. When it fits the story.

Even in her own words, my mother is a dear soul, perhaps misunderstood, and usually well-intentioned. She has never had a fear of things technical (she could unclog a fuel line in her '36 Ford by blowing into the filler spout), but neither has she had an illustrious career controlling the flow of electrons, as she demonstrates with her coat hanger-attempts at antenna modification on her AM radio ("No matter how I move this hanger, it never stays good when I take my hand off").

I have explained radio-dial parallax to show why making a mark on the dial won't always bring her back to WPEN-AM. I draw imaginary pictures in the air, showing ionospheric layers, signal reflection, and other theories of propagation because sometimes she won't be able to receive WPEN at all. She nods and smiles the way a foreign tourist will when you give detailed subway directions to Times Square. "Yeah, I know — but it goes farther in winter, doesn't it?" she says. I nod and smile. She wins.

I haven't taken the time to find out if WPEN is a daytimer or reduces power at sunset, and if it is, I'll probably be only two sentences into explaining the FCC when she declares them to be a "bunch of morons." How could you not love a person who thinks like that?

We discuss lightning protection, the "Jerk of a Cable Guy," the "Miserable Phone Company," and the "Stupid Long Distance Companies." I believe she has the same utility providers as I do.

Did I mention that my mother doesn't hear quite so well anymore? Sometimes when I think of her, I see a hearing-impaired version of Mr. Magoo, wandering blithely, unscathed through terrorist-attacks, leaving a wake of calamity, hearing what she will of a conversation, and responding accordingly. Yes, she has a hearing aid. She has several. They are all broken. She will get another one someday. Or get one fixed. Not right now, though. This condition makes our telephone calls memorable. Often just from the cost standpoint. While some long-distance carriers have initial "hit" charges, such as a one-minute minimum, or rounding-up, mom has a phone ritual. If she were a cell-phone user, it would be called "roaming."

Only one of the phones in the house allows her to hear well. That one's in the kitchen. She usually isn't.

I dial. "Hello?" she sings. I speak. She thinks it's me. "Wait a minute, honey," she says. "I've gotta change phones. This silly phone's no good." I hear her floppy slippers paddle off to the kitchen. "Just a minute, now," she says through the kitchen phone. "I'm setting this one down while I hang the other one up — OK?" OK. Rumble-rumble-rumble clunk. Paddle paddle paddle paddle.

Click ruffle rattle. "Ya' there?" she asks.

"Uh-huh."

"OK. I'm hanging this one up now." She does. I wait.

"OK." she says. I check my watch. Three minutes and counting.

"How are you doing?" The telcos have got to love this woman.

Sometimes, I help her with minor house wiring problems. Often, they involve the fusebox, which is in the basement, far from the kitchen stairs. How I wish for just a moment of video here — split screen — so that you could see me in the basement, unscrewing a fuse, and her in the kitchen, watching the light.

"Is that it?"

"What?"

"IS THAT IT?"

"Is that it? Is that what you said?"

"Yes."

"Do it again."

"I already did it. The fuse is out. There's nothing to do again. Is the light off?"

"Did you say the fuse blew again? When did it blow the first time?"

"IS THE LIGHT OUT?"

"Yeah. Want me to turn it on?"

We were one of the first families in our country town to have CB radio — a communications breakthrough in the mid-'60s. My mother was a top-notch operator in the days when you called on channel 9 and "moved to a clean one." She knew all the 10-codes, and spoke in a voice that lured many professional drivers to invite her for coffee. She always asked if she could bring her husband and kids along. Once, while my car left me stranded in the Poconos, she and my dad drove out to rescue me at some wee-morning hour. After they arrived, my dad told me of her conversation with a CBer called "Running Bear."

"Oh," she said, "That's an unusual handle — are you an American Indian?"

"No," he said. "I'm a nudist."

"Oh," my mother said, staring at my dad for a moment, "that's interesting." She resumed her composure — and the conversation — as if he'd said he was a Presbyterian. She and my dad became radio pals with "Running Bare," but never went to visit.

In my Coast Guard days, my ship got a ham radio station on board so that the crew could speak to folks at home via SSB ham phone-patch. I had no ham license then, so my Chief Radioman made the patch and I spoke to my mother. He identified himself to her and said they were speaking via phone-patch on ham radio.

"Oh — 10-4," she said, "over."

"Roger roger," the chief said, and handed me the mike to speak. Before I said a word, she spoke again, "Is your name Roger, Chief? Over."

"No," I said. His name is Chief. Just call him Chief. How are you? Over."

"We're doin' fine, honey. How can we call you on the radio now that you've got one. What channel are you on? Hey — wait a minute — I'll listen for you on the radio. Over."

"No," I said, "It's not a CB radio — it's a HAM radio. Different frequencies."

"You forgot to say 'over,' over."

My chief looked at me. "She wanna work for me?" he asked.

She still listens to WPEN on her GE Super Radio. And we still communicate. You should too. Call your mom, while you still can. ■

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