

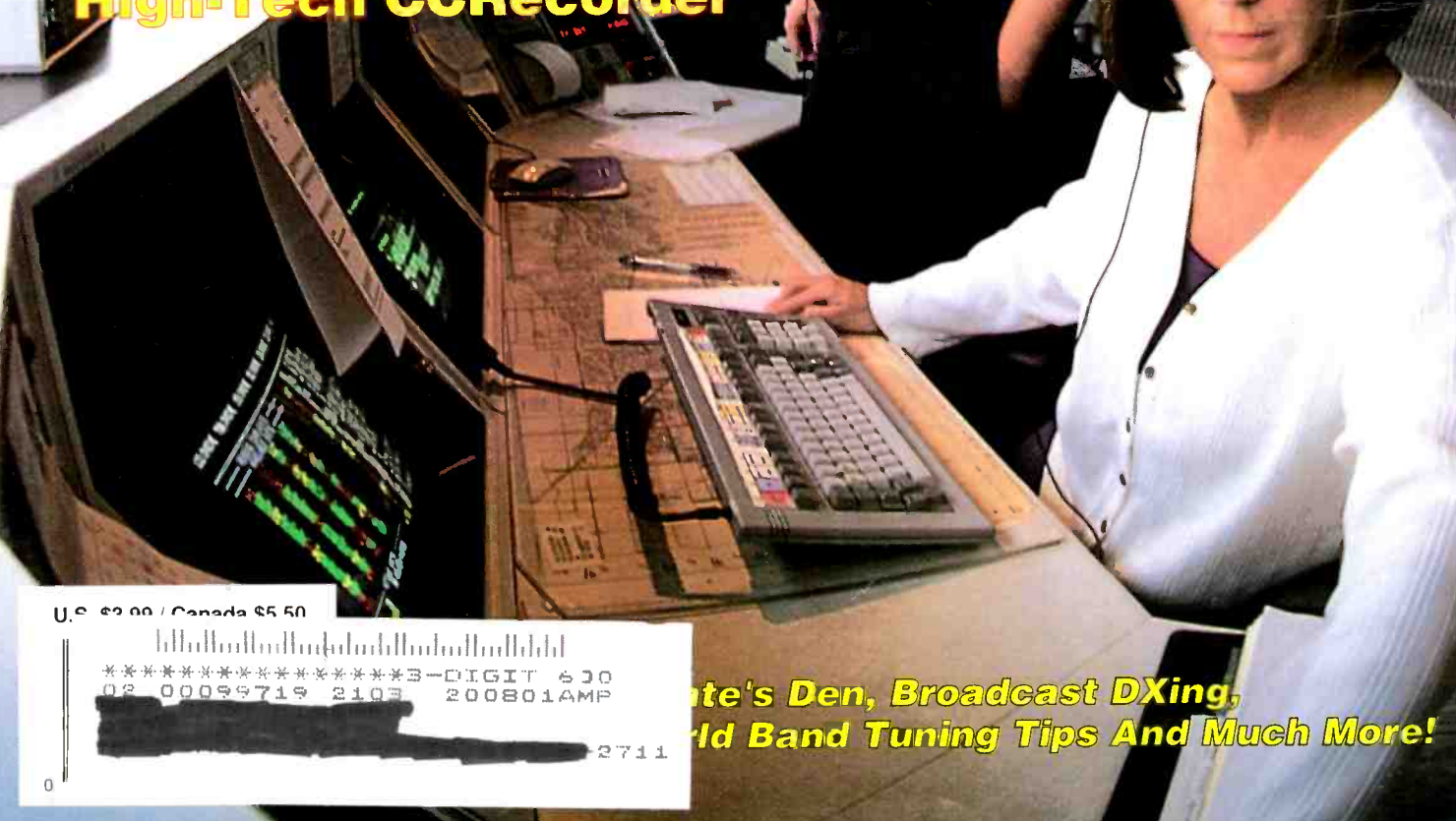
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AUGUST 2000

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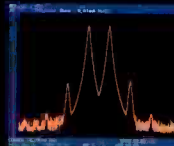
IDBT: A Breakthrough in Selectivity!

II. VRF: Variable RF Front-End Filter

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Class A 75 W PEP IMD

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V. Multi-Function Shuttle Jog Tuning / Control Ring

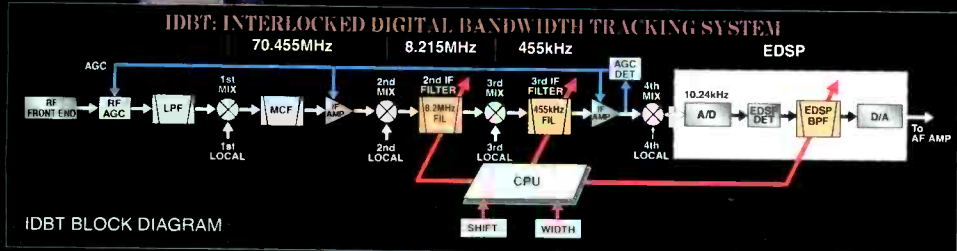
The immensely-popular Shuttle Jog tuning ring, which is concentric with the Main Tuning Knob, has a new look in the MARK-V: it now includes the activation switches for the VRF (left side) and IDBT (right side) features, so you don't have to move your hand position to activate these important circuits during contest or pile-up situations!



DC 30 V / 13.8 V Power Supply FP-29

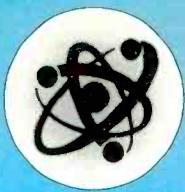
Photo shows optional MD-100a8x Deluxe Desk Microphone

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On The Cover

What's the frequency, Ken? Karen Thompson and Arthur Proctor of the Anaheim, California Police Department at the Department's 911 board certainly know the Anaheim public safety frequencies, but what about frequencies in your monitoring area? Beginning this month in Ken Reiss' "Scan Tech" column, he'll give YOU a frequency to monitor. Let him know what you hear, and you could win a three-month subscription extension. This month he also reviews the super-hot ARC-8200 software package for AOR's AR-8200 handheld scanner on page 55. (Photo by Larry Mulvehill)

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Freebanding: What Really Matters

You can't blink today without breaking the law. I could probably be carted away for saying it's my opinion that many of our current Congressional Representatives and leaders in general are overpaid greedy, self-centered Neanderthals that can't chew gum and bounce a ball at the same time. I jaywalked in Manhattan two weeks ago. And passed a cop on the New York Thruway last weekend at three miles-an-hour above the speed limit. And a couple of days ago, a CBER somewhere in Georgia and I exchanged weather reports. I suppose one could argue that breaking *any* law makes you a criminal, but let's not forget about the "casting the first stone," story, please. How many hams do you know — yourself included — who have either kerchunked the local repeater or keyed that mic without properly identifying their station? And power. Talk about power! Forget about the rule that says you're supposed to use the minimal power necessary to make contacts. And CBERs — they get the dirty end of the blame stick for every radio ill there is — interference, linears, loudmouths, rebels and people who are either too stupid or lazy to become a ham. Horsehockey! You and I both know *that's* a major crock!

But it's no secret that the FCC essentially gave up on seriously policing CB years ago. Sure, every now and then they bust an operator, but it's typically for over-power or out-of-band operation. And perhaps eventually — it may take many, many years — Uncle will climb out of the trees and join the rest of civilized society, and in the interest of "less government," will dump the 150-mile CB rule. How old you and I will be by then is anyone's guess.

Maybe Uncle's attitude is what drove the first Freebander outside the limits of the 11-meter radio spectrum many years ago. Or maybe it was because folks were looking for a radio adventure in what's *perceived* to be uncharted unused radio territory. To be sure, the Freebanding

hobby has grown since then. Our "CB Scene" co-columnist, Ed Barnat covers Freebanding, and does a really fine job! Of course however anyone defines it, we all know that Freebanding is illegal. (Reporting on it in *Pop'Comm* clearly isn't.) Freebanding, devoid of any mumbo-jumbo wordsmithing is simply the illegal operation of a radio transmitter on frequencies not assigned to the operator. Period.

While I'm a fun-loving person and have a sense of adventure, Freebanding personally isn't *my* thing. I think there's plenty of radio spectrum to do my talking whether it's CB, ham, GMRS, or FRS. Breaking away from the crowd is nothing new either. Being an open-minded person, I respect that. So I can really understand how Freebanders think of themselves as a different breed and are happiest doing their own thing.

Recently Art Bell and I talked about radio topics from A to Z, and, not because we're both hams, and certainly not because we're both in the media, we both agreed that Freebanding is simply illegal. I make no apologies for telling it like it is: operate on frequencies outside your authorized part of the spectrum and Uncle Sam will place you in his sights. Fact is, there's a renewed interest in clamping down on Freebanding, pirating, and *high-profile* illegal radio operation. Like your local and state police, they've got a job to do, and it's simply human nature they sink their teeth in the most visible culprits of the moment. That's why the cop makes judgement calls; plenty of folks roll a little bit at the stop sign, but they'll likely pull over the doofus that blatantly plows through the intersection without so much as an acknowledgement of the sign.

Some folks, my friend Ed included, have tried to compare Arts' and my comments about other radio topics with our views about the act of Freebanding. (Please keep in mind the no BS definition of Freebanding). It seems to me that virtually *any* radio pursuit is going to ruffle

someone's feathers. My personal advice is to have fun and operate with dignity, but be careful *where* you operate. Perhaps my best comparison of Freebanding with the rest of the real world would be the fellow driving 60 mph down the *shoulder* of the road while the rest of us are at — or even just above the limit — but on the asphalt with the flow of traffic. Maybe the guy on the shoulder at 60 mph has an emergency, or perhaps he's just feeling his oats, or exercising his sense of adventure. Whatever the reason, it's obviously highly illegal and not quite the norm. Now, anyone who knows me knows that I'm typically not one to admonish anyone, let alone another radio operator. But, please know that if and when the feds come knocking at your door and you're operating a radio transmitter where you're not licensed — Freebanding or whatever it's called today — you're in deep doodoo — *much* deeper than talking skip on 11-meters with an unmodified CB and otherwise legal setup. And certainly in much, much deeper doodoo than listening to a neighborhood baby monitor or using a radar detector to avoid a speed trap.

In my life, I've really tried to be an honest, straightforward kind of guy. My school grades were pretty good (OK, a slight stretch of the truth), I've had a solid civilian work ethic since high school, spent 20 years in the Army retiring as a Master Sergeant (OK, I just lied — it was 20 years, one week and three days), I've got a grand total of one speeding ticket (almost 30 years ago), there's no one hunting me down for any unpaid bills, and I'm not a regular on America's Most Wanted.

But then there's my dirtbag side. In the '60s I set my clock so I could talk skip and, like many folks, have the QSLs to prove the contacts. Am I going to jail? Hardly. Those were the days when just keying the CB microphone could send you to the bighouse. And to be sure, many radio operators felt the wrath of the FCC.

I use a radar detector — not just sometimes, but *all* the time on the expressway, especially on very long trips. And like I

said on Art's program — it's to *stay alert* while driving. Fact is, my radar detector — while illegal in some states — is in fact *legal* in cars in New York and New Jersey where we do most of our highway driving. But beyond the detector I use two things to keep from getting speeding tickets: common sense and cruise control. We set our cruise control right at the posted speed limit. As unreal as that may seem, it's a simple matter of mathematics. There's no reason why I should give Uncle any more money than he already gets from us. So I take an eyeball reading of the area when the detector comes to life. You'd be foolish not to, don't you think? But those detectors with the new high-tech highway warning systems make me feel even *more* secure about my surroundings. I have a confession, though. Once, while driving through Virginia, an anti-radar detector state, although I had physically removed the detector from the windshield and tossed it into the glove compartment, I imagined how wild and free I'd feel if I had boldly left it on the windshield and honked the horn at the State Police sitting in the median. (I suppose if there's a slick Virginia prosecutor reading this I could be brought to task for fantasizing in the wonderful state of Virginia). Imagine.

And, like I said on Bell's program and have written about in articles and talked about on other shows, during my duty in the Gulf as part of Operation Desert Storm I not only had my scanner, but *also* a portable shortwave receiver and a copy of the *World Radio TV Handbook* and *Passport To Worldband Radio*. My foresight as a senior NCO kept our command of some 20,000 soldiers abreast not only of what was going on around us (more than a dozen field-grade officers and I would listen nightly), but provided unfiltered news about what we were fighting for under extreme conditions that most civilians can't begin to imagine. There was no AFN or cable TV in our little enclave. In the midst of a living Hell, radio for us was a Godsend. Wouldn't it be appropriate for those who have neither served their country during wartime and weren't sucking up sand or fighting off scorpions not to pass judgement on things they know little or nothing about?

How Deep Is The Doodoo?

When we operate a radio transmitter illegally, an intelligent assessment of what we're doing must take into account

the seriousness of the "offense." A logical, thinking person might then ask how serious is serious? Our clown doing 60 down the side of the expressway has, in my humble opinion, committed a pretty serious, —and dangerous — moving offense and should have his license yanked for a few months. If you or I need the shoulder in an emergency or want to exit the highway, oops, there *he* is at breakneck speed where *he* shouldn't be operating. In radio terms, let's suppose that you talk skip with an *unmodified* CB

on 36 USB once in a while. You're not cursing or ranting and raving at other operators, just doing your thing on CB's radio highway. Illegal? You bet. But, compared to the fellow operating a kilowatt on Channel 9 or the fellow operating "Freeband," the doofus award goes to Kilowatt Chuck and the Freebander because they're not marching to the same general beat as the rest of the radio world. Simply, they stand out bigtime! And, like

(Continued on page 76)

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Ken Comes Back To CB

Dear Editor:

I somewhat disagree with you on the use of CB (and channel 9) as a primary emergency requesting method. Personally, I think that the cellular phone is by far the best method for obtaining help in a specific "on the road/highway" emergency. Here in the Springfield, Massachusetts area dialing *677 (which gets one the state police troop B communications center in Northampton, MA) or dialing the published alternate emergency number for the local police departments (which is the number that the call is transferred to when the PSAP gets the call on *677) or if 911 is dialed it defaults to the Holyoke Police Department. One gets an emergency dispatcher professional on the other end of the line. There's no chance of interference and action becomes accountable from the moment the call is answered versus an unknown entity on the other end of the "emergency" base CB microphone. I just can't put my money on CB as being the primary method of getting quick help in an emergency! Also I just don't think many police agencies monitor channel 9 anymore (replaced by the cellular phone comm method). I don't think the Massachusetts State Police do this anymore. Why not do a survey on this for an upcoming article?

However, I would agree that CB is a back-up emergency system (and where cellular phone coverage is not very good is a viable option) — but one may get help more quickly by finding someone talking

on another channel than on channel 9. Also, in the event of a widespread emergency that results in disruption of cell phone sites it may very well be the only comm method available.

CB equipment still is somewhat cumbersome because of equipment & antenna size which determines the range of the transmission. Perhaps, if we had been put on another frequency band (remember the 200 MHz proposal a few years back?) with repeaters being available (and smaller equipment/antennas) the service would be more acceptable to the average Joe & Jane citizen as an emergency assistance/communications system.

Also there's some competition. I'm sure you've seen the commercials for the "On Star" communications system that guarantees (via satellite) assistance by pressing a button which pages a customer assistance person who has the capability via GPS to know exactly where you vehicle is located and talk with you about the exact help you need.

Regarding REACT — I have never heard anything about them in the Springfield, Massachusetts, area and I've been here since 1990 after completing a 20-year U.S. Air Force career. So I would agree that there really isn't any push to recruit new folks or even to form new teams. I remember from the old days, REACT folks used to patrol roads/highways and stop/help folks that appeared to be having problems. I think that at least in the metro area this has been largely replaced by a combination of U.S. Department of Transportation grants (to state & regional government activities) and/or large retail chains e.g. CVS having a Good Samaritan Van patrolling the major interstate highways and dispensing free assistance.

Perhaps the fire department or EMS folks would be a better place for the monitoring post [than a police dispatch center] for Channel 9. As far as disaster type communications I think the vast majority of emergency management folks are more attuned to getting comm assistance from the amateur radio community and not CBers. Anyway, you've renewed my

(Continued on page 76)

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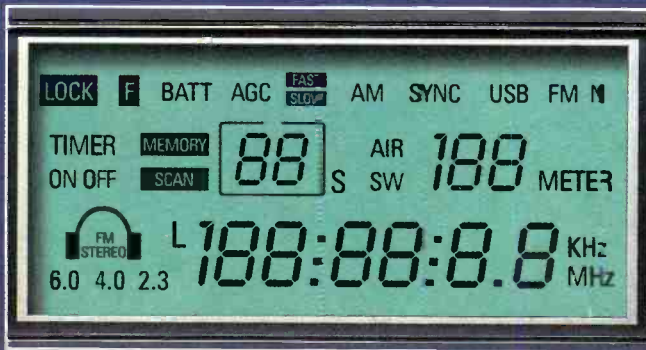
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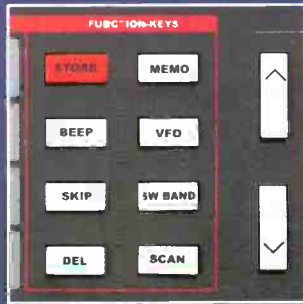
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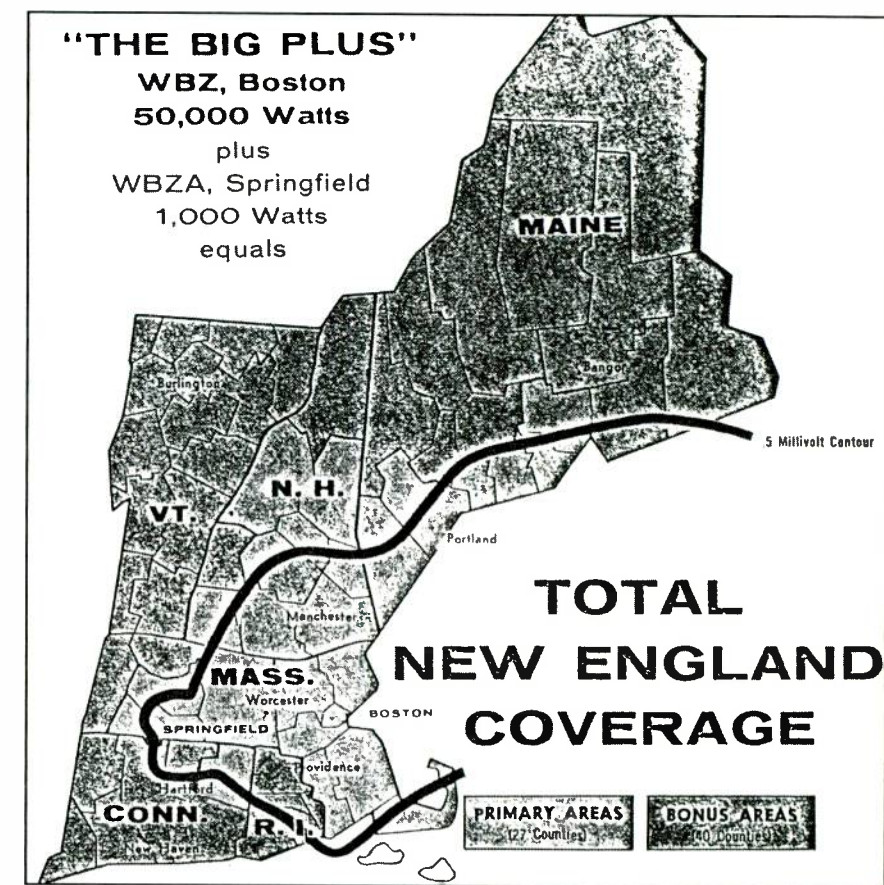
Respected Radio Group Sidetracked In Springfield

A Slice Of Westinghouses' Remarkable Broadcast History

By Peter Hunn

The exact locale may now be forgotten, but there's a New York City office in which Westinghouse "Group W" execs planned to transform their radio division into a massive industry force. Witness the venerable organization's FM takeovers of the 1980s, the purchase of CBS in the '90s, as well as the Infinity Broadcasting, and American Radio Systems acquisitions. There's also the recent Westinghouse Broadcasting/CBS amalgamation with Viacom. While long a great group owner, Westinghouse (now under CBS/Viacom/Infinity banners) has become the major player's major player. Much of the respect earned by this broadcast organization came from its serious, deliberate, and determined service-oriented corporate culture. And, Westinghouse was always responsive to audience interests. For instance, Group W helped plant both Top-40, and all-news formats on North America's radio landscape. That given, imagine a time when this company's multi-million dollar radio expansion train was sidetracked by the number "7" and a local, thousand-watt AM with just enough power to edge big Westinghouse over a barrel.

The famed manufacturing and electrical firm already owned well-known KDKA Pittsburgh almost a year before being licensed by the Department of Commerce, in September of 1921, to operate WBZ in East Springfield, Massachusetts. Within three years, Westinghouse officials set Boston in their expansion sites as WBZA was added as a "Bean Town" outlet. In 1931, the calls got switched so that the three-letter classic sign and "mother station" status went to the bigger city. Although (through the spring of 1948) it had its own Hotel Kimball studio in Springfield, WBZA served primarily as the western

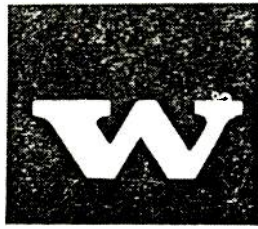


WBZ, Boston, plus Springfield's WBZA's total coverage map.

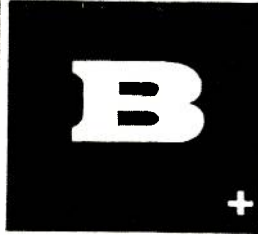
Massachusetts re-broadcaster of WBZ Boston, and had a separate chief engineer (who also minded WBZA-FM 97.1).

During the 1941 North American reallocation, both AM stations were standardized on the 1030 kilohertz spot, paving the way for a bit of clever reasoning in the 'BZ sales department. Someone there figured that with Boston cranking out 50 kW, and the Springfield rig generating a kilowatt, WBZ + WBZA

equaled a whopping 51,000 watts — more than any other standard broadcast station in New England. Certainly this wasn't bullet-proof RF theory, but it sure sounded ominous, making, on paper, other clear channel outlets, the likes of WTIC (1080 kHz, 50 kW) Hartford, Connecticut, look disadvantaged. Consider the challenge 51,000 flame-throwing watts presented to folks associated with a point two-five kilowatt, or



51,000 WATTS



BOSTON

+ WBZA SPRINGFIELD

even your classic 1 kW facility (such as WHYN in Springfield) in 'BZ's territory. For some Hartford/Springfield radio ad salespeople battling coverage-area and sheer wattage, it might have felt like using a rubber knife against an oncoming tank. But what could they do? It wasn't very effective arguing against the WBZ stations' commitment to excellence.

Into The Fifties

Network radio's long-form programming heyday was well into sunset by the mid-1950s. Many smaller stations took advantage of this change by emphasizing local programming. But, smarter than most other large operators, Westinghouse quickly joined the independent fray, in 1956, by phasing-out most NBC offerings in favor of a Massachusetts focus. This brand of service became so well received throughout New England that 'BZ's ownership looked to duplicate its success in other markets. At the end of the Eisenhower-era, Westinghouse literature boasted command of top stations in Boston (WBZ + WBZA), Pittsburgh (KDKA), Cleveland (KYW), Fort Wayne (WOWO), Chicago (WIND), and Portland (KEX). Six solid media markets caused "Group W" to seek an even larger one as its seventh, a magic capstone number since the FCC, at that time, only allowed a broadcaster to own seven stations in any single service (AM, FM, or TV). Late in 1960, Westinghouse spied KLAC, offering \$4.25 million for the viable Los Angeles AMer.

"Sold!" said KLAC's owners. "Here's our chance," figured patient WHYN back in Springfield, Massachusetts. "Hey, that's not the way we see it," argued Group W. "They've got a point, Westinghouse," noted the FCC. And the Los Angeles deal was immediately put on hold.

At the heart of the issue was the "+WBZA" on Westinghouse's Boston sales brochures. Although just five little characters, they represented a thorn in the side

of a number of those Hartford/Springfield stations. To the Commission, they stood for a legitimate Springfield standard broadcast station licensed to Westinghouse. Just in case a FCC waiver was in the works, WHYN reminded authorities, "there can be little doubt that WBZA is a standard broadcast station. It has a separate transmitter, antenna, and license." In fact, Group W would have to forget the Los Angeles deal, as it already had in WBZA a seventh and final station.

The Hartford/Springfield radio people knew that such a government ruling would yield Westinghouse three choices:

1. Stop dreaming of expansion, and be satisfied in Springfield.

2. Sell one of its other stations to facilitate the KLAC transaction.

- or 3. Pull the plug on WBZA 1030 kHz (as it was arguably too close to WBZ 1030 kHz to be sold to another firm that, in those days would inevitably do separate broadcast programming).

WHYN and the other Hartford/Springfield fellows bet that those options would annoy Westinghouse, but placed their money on door number three. Not long afterwards, WBZA was silenced, as was WBZA-FM which Group W could have kept for 1mv/m Hartford/Springfield coverage. Edited WBZ promotional pieces touted only 50,000 watts, and the local radio guys breathed a momentary sigh of relief.

And what about the KLAC deal? Well, WHYN's petition, a document that never really meant to prevent Group W from getting into L.A. circa 1961, had such an effect. All the delay soured the transaction. Was there steam rising from Group W execs contemplating in the aforementioned office? Maybe temporarily, but the WBZA situation actually opened the way to land a bigger catch. Under the old three-year, non-trafficking rule, the purchase of KLAC could have left Group W unprepared to take the needed quick action to pick-up WINS New York in 1962. With that lesson actualized,

Westinghouse sold its Portland AM to Gene Autry, then waited for another chance in Los Angeles. The renowned KFVB was ushered into the Group W fold a few years later. Even though this story is but a slice of Westinghouse's remarkable broadcast history, it demonstrates how an organization that learns from its challenges is ready to grow in responsibility and reward.

Not too long ago, media watchers noticed Group W fade into history as Westinghouse purchased CBS. In a subsequent shuffling, the newly-formed CBS radio amalgamation (of the old Group W, CBS Radio, and Infinity stations) began flying another corporate banner. That means the vintage WBZ (AM) Boston license now indicates the historic outlet is officially licensed to Westinghouse spin-off, reincarnated Infinity Broadcasting. Within the past year, Viacom joined forces with Westinghouse's CBS. And so it goes . . .

NOTE: At 7 p.m. on July 26, 1947, 50,000 watt WBT in Charlotte, North Carolina, was joined on 1110 kHz by a 1 kW "booster" station five miles northeast of Shelby, NC. While very similar to the WBZ + WBZA situation, the Shelby facility didn't seem to have any broadcast station call letters, and was only on at night. WBT simply referred to the outlet as its "satellite," avoiding it being a hindrance to possible group ownership expansion in the pre-duopoly radio days.

Editor's Note: Peter Hunn is a professor in the Communication Studies Department at the State University of New York, Oswego. He also serves as Electronic Media faculty for Baker High School in Baldwinsville, New York, where his students operate WBXL (FM) 90.5 MHz. Like many other "baby boomer-era" broadcast people, he received an early taste of quality radio via Westinghouse's stations. You can reach him at <hunnp@oswego.edu> ■

WJY: A Half-Hour Broadcasting Career

Even So, It Was The First Mass Radio Broadcast In History!

By Alice Brannigan

It was 3:16 p.m. on the sweltering Saturday July 2, 1921. The place was a Jersey City outdoor arena known as Boyles Thirty Acres. Jack Dempsey, world heavyweight boxing champion, and Georges Carpentier, the dashing European champion, had just entered the ring. In just a moment the bell would announce the first round of the "Battle of the Century."

Sitting at ringside with his mouth pressed to a telephone was J. Andrew White. White was a radio hobbyist and the editor of *Wireless Age* magazine. Next to him was David Sarnoff, young General Manager of the newly-formed Radio Corporation of America. Their phone was hooked to a special telephone line 2.5

miles long, connected to another phone. At the other end of the line, the description of the fight was repeated by an announcer into a microphone into what was claimed to be the largest commercial radiotelephone transmitter that had yet been built. The first mass radio broadcast in history had begun.

The broadcasting service was not to officially commence until the first broadcast license was issued on September 15, 1921, though many stations had already opened with Amateur and Experimental licenses in order to send out voices and scratchy phonograph recordings. A November 1920 KDKA broadcast of the Harding-Cox election returns had kindled interest in radio. Yet the audience

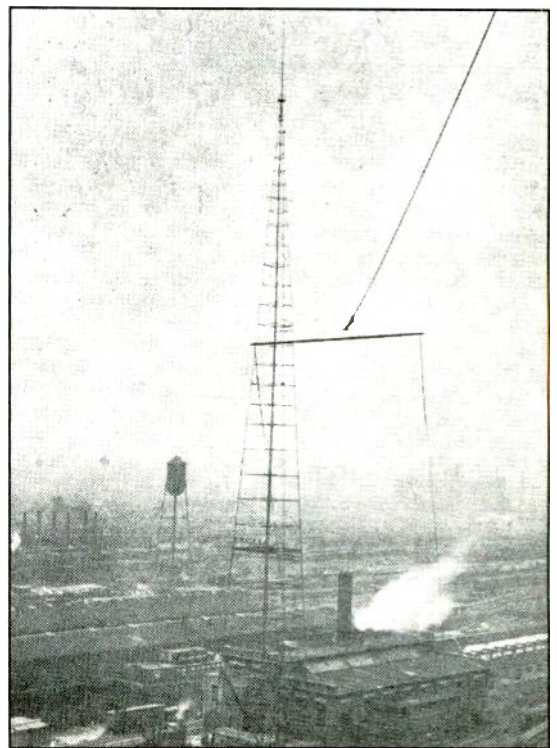
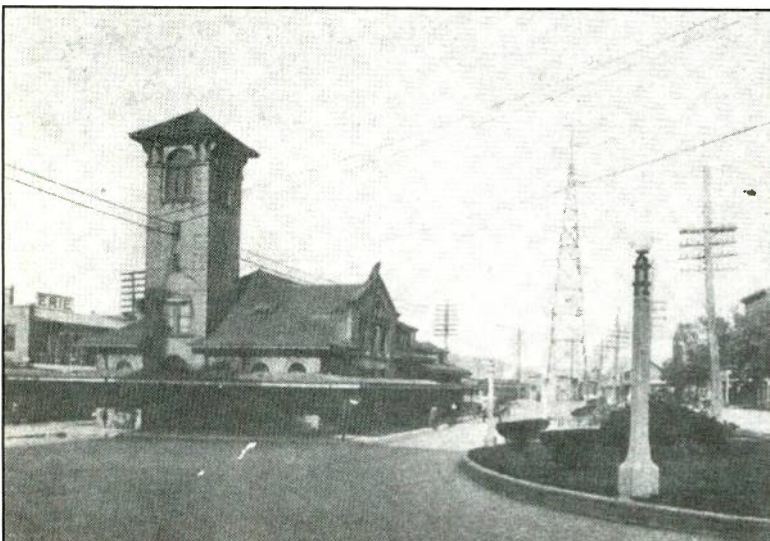
that awaited the broadcast of the prize-fight that sticky afternoon in July of 1921 numbered between 200,000 and 300,000, and was located in some 200 theatres and lodge halls, ballrooms and barns, from Quebec to Florida, and as far inland as West Virginia.

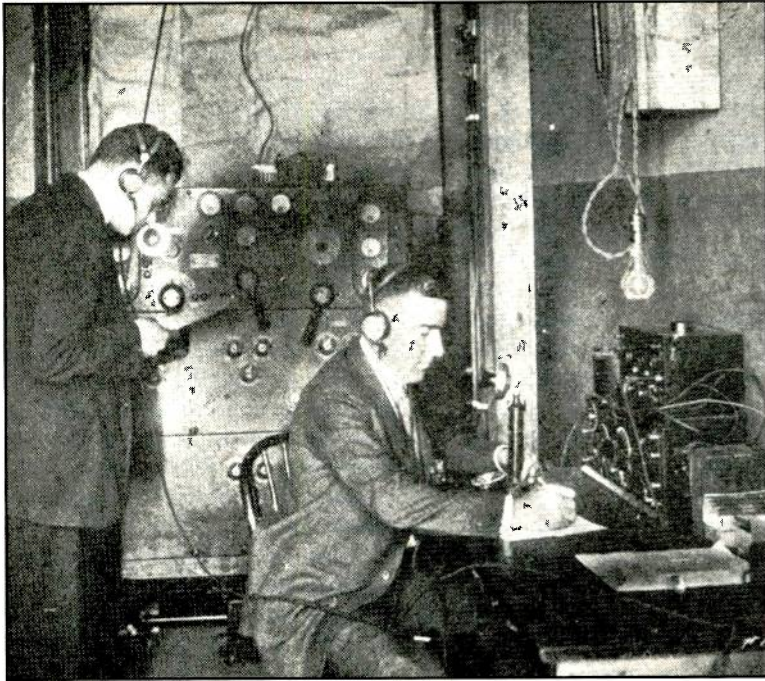
A Crazy Scheme?

This experiment, thought of as "just plain crazy" by many, had been built upon the enthusiastic dream of David Sarnoff. To pull it off, Sarnoff and J. Andrew White had figured out how to obtain \$1,500 financing from a special RCA account. They had also convinced the government to issue them a temporary

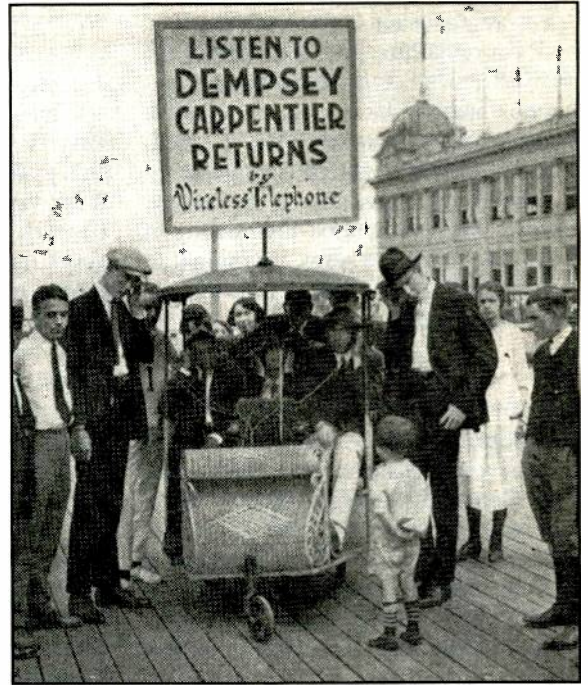
The steel tower at the DL&W station supporting the WJY antenna. Note the antenna wire coming towards the camera. →

The DL&W railroad station at Hoboken, N.J. as it looked in 1921. The clock tower is on the left, the radio tower can be seen to the right. ↓





Interior view of the WJY transmitter site during the big fight. The transmitter can be seen in the background.



On the boardwalk at Asbury Park, N.J., fight results were heard by strollers gathered around portable receivers installed in rolling chairs.

(one day) license to broadcast the fight. Their license bore the call letters WJY and authorized voice operation on a wavelength of 1600 meters (188 kHz).

The Big Rig

Sarnoff had asked Franklin D. Roosevelt, then Secretary of the Navy, to allow General Electric to loan him the use of the Navy's new 3.5 kW long-range voice transmitter for broadcasting this fight. GE had just completed the transmitter at its plant in Schenectady. The transmitter employed a number of 250-watt Radiotron vacuum tubes and required a special motor generator to supply the tubes' plate voltage. Roosevelt agreed, and GE even sent an engineer to help install and operate the transmitter and generator at a Delaware and Lackawanna Railroad porters' shack not far from the railroad's Hoboken terminal. Though more than two miles distant from Boyles Thirty Acres, the site was selected because it was convenient to erect an antenna there.

It turns out that in 1914 the railroad had tested the use of wireless between wayside transmitters and trains. The tests had long ended, but the abandoned 250-foot tall steel tower used for those tests still stood. For the WJY broadcast, a T-type antenna

was strung between this tower and the railroad's clock tower. This consisted of four No. 14 phosphor-bronze wires, 450 feet long with a 250-foot lead-in.

The actual reporting was with Sarnoff and White at ringside, taking turns at reporting the fight's most important features. This description was sent over a private phone line leased from AT&T which led directly to the WJY transmitter site. The news was given round by round and incident by incident, and at the other end was typed directly from the phone line and handed to an announcer in the form of bulletins. These bulletins were then read into the WJY microphone. This process meant there was about a one-minute delay between ring action and the information being broadcast.

Why didn't they simply broadcast the fight directly? They wanted to, but AT&T regulations then prohibited putting any phone conversation on the air. They figured out how to get around that regulation. The phone line couldn't be hooked directly to the transmitter, but it could be used to provide information to be broadcast by someone else.

About 300 ancient "tulip" style phonograph horns had been purchased from a junkyard for a few cents each and attached to hearing aids used as sound amplifiers. These devices were mailed

out, with printed operating instructions, to all ham operators who wrote in to say they were willing to play the fight broadcast in public places. Hams volunteered their services, and had to pay for the antennas and other equipment they were using in theatres and elsewhere. A small admission fee was charged which was donated to charity. In addition, many ham stations rebroadcast WJY's signals, and the fight was also rebroadcast by CFCF, Montreal, Quebec, Canada.

Short And Sweet!

Thankfully, the big fight didn't go too many rounds. Dempsey scored a KO in the fourth. At the end of the match, J. Andrew White passed out from heat stroke. What was worse, a minute after the fight ended, WJY's transmitter suddenly overheated and burned out. The heat of the day and the fact that the transmitter had not been designed for continuous broadcast use, had combined to silence WJY. Regardless, this had been the first "big" radio broadcast, nationally publicized and widely heard. It had cost RCA only \$1,500 of its own money, and put radio on the map as something everybody wanted in their home. It allowed David Sarnoff to convince RCA that the company should be in the broadcasting business.

Several thousand letters were received by RCA remarking on the quality of the signals from hundreds of miles away, saying how natural the announcer sounded. Listeners were requesting that a scheduled Carpentier fight in September at Boyles Thirty Acres also be broadcast. Instead, RCA purchased the blown-out transmitter from the Navy, shipping it to the company's New York City headquarters for storage.

Aftermath

In September, RCA obtained a license for a new broadcast station to be located at the General Electric plant in the Aldene section of Roselle Park, New Jersey, 16 miles west of New York City. This station was intended to compete with the new Westinghouse station in New York City, WJZ. Unfortunately, the RCA station was done on the cheap, as they say. The Aldene plant was the site of two existing 175-foot steel towers placed 200 feet apart that had been erected in 1916 for Experimental station 2XR when the building was owned by the manufacturing division of the Marconi Company of America. Even though they would not present the best signals towards New York City, these existing towers would be used for the new RCA station, which became licensed as WDY for 1 kW operation on 833 kHz. RCA simply took the former WJY transmitter out of storage, repaired it, and sent it over to Aldene for use by WDY. On December 14, 1921,

WDY went on the air under the direction of none other than J. Andrew White, former ringside announcer of WJY.

It had been the intention of WDY to serve New York City listeners, but things didn't work out that way. By the time WDY came on the air, WJZ had gotten a 10-week head start attracting the New York City audience and had become a huge success. WJZ was not only New York City's first commercial broadcast station, it was the first such station in the USA to present live musical entertainment and major stars. While the WJZ transmitter was originally in Newark, N.J., its studios were conveniently in New York City's deluxe Waldorf-Astoria Hotel.

WDY's signals came from seven miles further west than WJZ's, and from a poorly oriented antenna system. They were not well-received in New York City. Moreover, big name performers balked at traveling to WDY's inconvenient Aldene studio location. Soon enough, WDY's programming consisted only of phonograph records. On February 24, 1922, after a mere two months of operation, Sarnoff pulled the plug on WDY before it could tarnish young RCA's image and reputation. The day WDY went dark, RCA made arrangements with Westinghouse to equally share in the operation of WJZ. J. Andrew White joined the WJZ staff and by 1926, RCA owned WJZ outright. WJZ's successor (ABC-owned WABC) remains on the air to this day.

The Delaware and Lackawanna Railroad tower used by WJY was again

used by the railroad for wireless experiments to trains, beginning in March 1922.

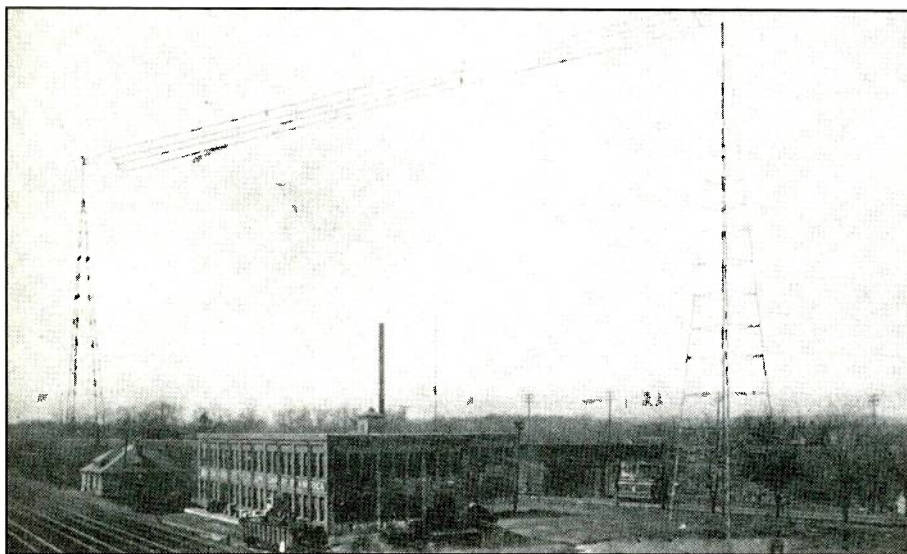
The call letters WJY were recycled in March of 1923 for use by a 500-watt (later 1 kW) RCA broadcast station on 740 kHz in New York City. WJY shared airtime with WDT in New York City, and WOR, Newark, New Jersey. WSY was to be a companion station to WJZ, whose transmitter had been relocated to New York City. WJY and WJZ shared a double antenna system. While WJZ offered popular programming, WJY was to offer classical music concerts, operas, cultural lectures, and what RCA called "quality" programming. The WJY studios, WJY/WJZ transmitter and antenna were located at beautiful Aeolian Hall, 33 West 42nd Street, between Fifth and Sixth Avenues. George Gershwin's *Rhapsody in Blue*, as played by Paul Whiteman's orchestra was introduced over WJY during a live performance. In 1926, RCA decided to increase the power of WJZ to 50 kW and relocate its transmitter to Bound Brook, N.J. However, less powerful WJY had been a commercial failure, so when the WJZ transmitter was removed from Aeolian Hall during late summer of 1926, RCA also decided to kill WJY. The two 50-foot towers were removed in 1927.

The former WDY building at Aldene, N.J. still exists at Exit 137 of the Garden State Parkway. Aldene was actually a railroad location (junction of the Jersey Central and the Lehigh Valley Railroads).

Canadian Researcher

In our March issue, we ran a short history of station XWA (later known as CFCF), Montreal, Quebec, Canada. There is good reason to believe this may have been the world's first broadcasting station. In the aftermath of our feature, we received a letter from a researcher who is presently writing a book containing a detailed history of XWA/CFCF. He asks that I request readers of these pages to contact him if they can provide any documentation, photos, news clippings, and other information about XWA/CFCF. His name and address is Arthur E. Zimmerman, Ph.D., 514 Brunswick Avenue, Toronto, Ontario M5R 2Z5, Canada. His E-mail address is <df404@torfree.net>.

That's it for this time! Our snail mail address here is Alice Brannigan, *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. The direct E-mail address is <Radioville@juno.com>. ■



The old Marconi plant at Aldene became the site of RCA's station WDY (the antenna towers are difficult to see in this faded photo). Using the former WJY transmitter, this station was a big flop.

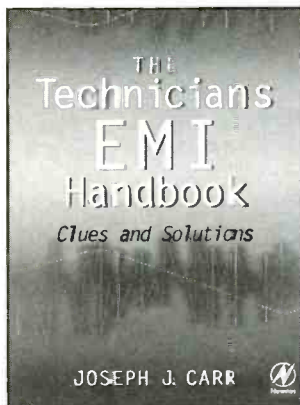
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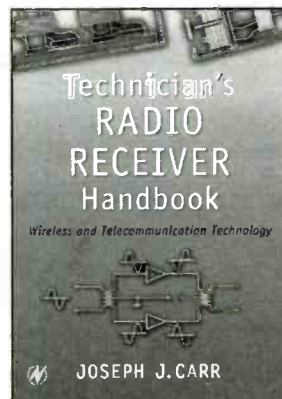
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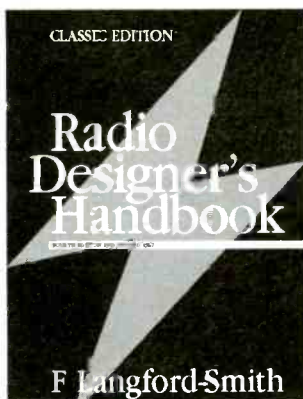
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Meteor Scatter DXing On The TV And FM Bands

Patience And Persistence Can Pay Off With Outstanding DX!

By Frank Aden, Jr., N7S0K

It is probably true that all non-TV-FM DXers have seen examples of meteor skip or scatter on the TV channels and/or the FM band and not realized what it was. If you've ever stopped on an empty TV channel or FM frequency and have seen or heard a short burst of signal lasting only a second or two, you have experienced meteor scatter or skip. Of all the major types of propagation that affects the VHF and UHF frequencies, meteor skip is the only one that can be predicted in advance for specific dates.

Meteor skip is one of the most challenging areas of TV and FM DXing. It is believed to be caused by the ionization of the ionosphere by the trails of incoming meteors (shooting stars) before they burn up. Since this only takes a second or so, the ionization is short-lived. Meteor Scatter usually affects only TV channels 2-6 (low band VHF) and the FM broadcast band. It has been known to affect higher frequencies including those in the UHF range, but only on rare occasions. Distances are usually in the 300-900 mile range.

Time Is Tight!

The challenging part of Meteor Scatter DXing is that you have so little time to identify the station received in the "burst." All is not a lost cause, as there are several techniques that can be used to build up a DX log.

Although this type of DX can be seen or heard at anytime year round, it is very predictable because we know when the major meteor showers occur (see Table No. 1) and Meteor Scatter (MS) DX peaks during those times. Showers are rated by the number of meteors per-minute produced and some showers are better for MS DXing than others. I have found those in August, November, December, and January to be the best. TV and FM DXers

look forward to each major shower with great expectations as each one acts as a separate DX "season."

To DX Meteor Scatter, an outside antenna on a rotator is almost a must. Since many of the "bursts" are of weaker signal quality than Es and other VHF propagation, you must have a decent high-gain system working for you to be successful. A sensitive TV and/or FM receiver coupled to a high-gain yagi or log periodic antenna will make an acceptable DXing combo. The antenna should be as high as possible and a VHF preamp can add additional sensitivity. Those living in highly congested VHF areas may find preamps to be more of a problem due to overload caused by local stations. Antennuators can be of help in those situations. Preamps should be kept in mind since they can be used when many of the locals are off the air.

Some DXers use their automobile FM radios by going to areas away from local broadcast transmitters, allowing them a "quiet" monitoring post since FM tuners in automobiles are very sensitive. Many DXers even have portable TVs and antennas systems and go to remote sites during the major showers.

Techniques

The techniques of Meteor Scatter DXing require great patience and persistence. Fortunately for TV DXers, meteors are at their peak in the early morning hours, when local stations may be off the air and distant stations may be running test



Photo of KJRH, Tulsa, Oklahoma received via Meteor Burst at a distance of 1,177 miles.

patterns and/or color bars. Having different time zones in North America is a help in this area. If you live in the west, eastern stations will be on before your locals. If you live in the east, very early morning hours may have western stations still on the air, finishing their broadcasting schedule. You have to be willing to get up early (4 a.m. to 6 a.m.) and sit in front of your TV set, tuned to the lowest open VHF channel and wait for the Meteor Scatter bursts. Since we know when the major showers occur, it is more profitable to do this during these periods. If you have access to the Internet, check out <http://fs1.ilkk.de/sites/gap/metshw.htm> for a detailed meteor shower calendar.

For TV Meteor Scatter DXing, DXers usually have a camera set to photograph the station's Test Pattern or Color Bars and/or a VCR running. In fact with the proliferation of VCRs, TV DXing has been made easier. Just set your VCR on the lowest available open channel and set it to record from 4 a.m. to 6 a.m. local time. You can be asleep during the peak Meteor Scatter period, then later review the tape to see if any DX occurred. TV DXers have been known to edit their DX tapes and have accumulated large albums of Meteor Scatter TV DX photograph albums.

During major meteor showers it's often very possible to identify stations during

Table 1— Major Meteor Showers

Shower	Peak	Meteors per hour	Shower	Peak	Meteors per hour
Quadrantids	Jan. 4	60	Aquarids	July 28	27
Virginids	Jan. 15	20	Capricornids	July 30	10-35
Aquarids	May 3-4	21	Perseids	Aug. 12	25-100
Scorpiids	June 5	20	Aurigids	Sept. 1	0-35
Arietids	June 7	30	Orionids	Oct. 20	30
Ophiuchids	June 20	8-20	Leonids	Nov. 17	20
Taurids	June 26	30	Geminids	Dec. 14	60
Draconids	June 30	10-100	Ursids	Dec. 22	17-20
Draconids	July 10	100+			

regular broadcast hours. I usually leave my TV set on either Channel 3 or 4 (I have a local channel on Ch. 2). Even though the least favorable time for Meteor Scatter is around 6p.m. I have had considerable success with identifying stations in that time period. I rotate my antenna to the direction with the most station possibilities, but I also do a "burst check" first, checking various directions to see from where the maximum number of bursts are coming.

As an example, on one occasion, having left my TV set on Ch. 4 during one early evening, I noticed multiple bursts were being received from what appeared to be the same station. Programming was local news, and I knew if the bursts continued to be received from the same station I would eventually be able to see a burst during the local weather report. That would reduce the station to just a few possibilities. After waiting several minutes I finally saw several bursts and a state map! Knowing from my WFTDA (Worldwide TV-FM DX Association) TV Station Guide there were only two stations in that state on Channel 4, I was able to send a tentative report to each station fully describing the news and weather "sets" and the time I saw them. A few weeks later, I received a verification letter from one of the stations informing me I had definitely seen their station. The other station also replied indicating they did not run news at that time and I had seen the other Channel 4 in their state. A little patience had paid off!

Today we have excellent sources on the Internet for locating and identifying stations. You can try the FCC FM database at <http://www.fcc.gov/mmb/asd/fmq.html>. You will also find links to their TV database from there. USA TV ONLINE is another excellent web page for TV station information and it can be found at <http://www.metronet.com/~chipk/usatv.html>.

Belonging to an organization like WFTDA can increase your station totals tremendously. WFTDA has a column for

identifying stations from receptions such as above which is very useful for Meteor Scatter DX. The TV DXing hobby has developed a system for classifying different types of color bars and test patterns used by TV stations and WFTDA's CCI (unidentified stations) column tries to keep abreast of which stations are using which types of color bars and test patterns. WFTDA also publishes TV station logos in its VHF-UHF DIGEST frequently to help identify those seen by Meteor Scatter and other forms of TV DX. WFTDA's regular DX reporting columns can also be of aid in identifying stations. For a sample copy of WFTDA's UHF-UHF DIGEST, send \$1 to P.O. Box 501, Somersville, CT 06072. Their web page is <http://www.ANARC.org/wtfda/>. Their MAILBOX column has a Website at <http://pages.cthome.net/fmdx/mailroom.html>.

FM Meteor DX

FM Meteor Scatter DXing, I believe, is even harder to do than Meteor Scatter TV DXing. To have any chance of identifying FM MS DX you must be extremely patient. The best bet is to sit on one open frequency and note the number of bursts coming in. As in Meteor Scatter TV DXing, it is a good idea to check antenna directions for maximum number of bursts. Leave your tape recorder running to capture any reception heard. If you are hearing music most of the time, move to another frequency. The trick is to find a frequency with a station running a lot of announcements, Top 40 rock, News etc. For frequencies where you hear a lot of music, try them only during station identification time, five minutes before the hour to five minutes after the hour. Collecting partial data on a station heard by Meteor Scatter might also make it possible to be identified by sending the information to the WFTDA CCI Column (if you are a member). Bruce Elving's FM

Atlas is an excellent directory to FM station in North America and lists many of the station slogans that might be heard in a Meteor Scatter burst. The FM Atlas is available at many radio dealers. You can get more info at <http://members.aol.com/fmatlas/>.

DXing the TV and FM bands via Meteor Skip may seem to be almost impossible, but with a little patience and persistence you may be surprised at the results you can achieve. I have actually had bursts occur during identification time, contrary to the DXing hobby's Murphy's law, that stations never identify when you are getting the best signal. ■

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the radio connection

A Look Behind The Dials

Nails, Capacitors, And Warm Hazy Days

It only took three months, but I've managed to identify the nail size I used in making the basket-weave coil in the Lyonodyne crystal set! My local hardware store guru assures me my sample is a #20 Common nail, and that they're readily available in small boxes as a prepackaged off-the-shelf-item. A few readers had advised me they were waiting for this information before proceeding with construction, but, to be honest, the exact nail size is not all that critical to the coil's final performance. The trick is to keep some distance between adjacent coil turns. Almost any diameter nail of sufficient length will do the job. This spacing helps to reduce the stray capacitance between the coil windings. I'm really looking forward to seeing some photos of Lyonodyne crystal sets built by our readers, along with some tall tales of the splendid DX heard on these sets.

Capacitor Basics 101

In our previous column, we learned some tricks-of-the-trade that you, as a restorer, could use to rebuild vintage electrolytic can capacitors like the ones

encountered in the American Bosch restoration we are undertaking. We've also discussed replacing all of the early wax-capacitors encountered in early tube sets on numerous occasions. Although we covered these topics a few years ago, now is a good time to bring my newer readers up to speed on this important subject.

As a quick review, remember that wax capacitors are non-polarized, and can be used in both AC and DC circuits. They are commonly used for coupling signals between stages, bypassing and "decoupling" or isolating one stage from another (a form of bypassing), and are used for tasks in tone-control circuits and AGC time-constants. We'll be discussing some highlights of the American Bosch chassis restoration. Replacing or rebuilding the capacitors is an important step. Unlike the early electrolytic capacitors that are intended for power supply filtering, that have high capacitance values and working voltages, wax capacitors are made using two parallel strips of aluminum foil sandwiched between layers of a special paper which is used for the insulator and dielectric. The assembly is rolled into a cylinder, the leads attached, and then the

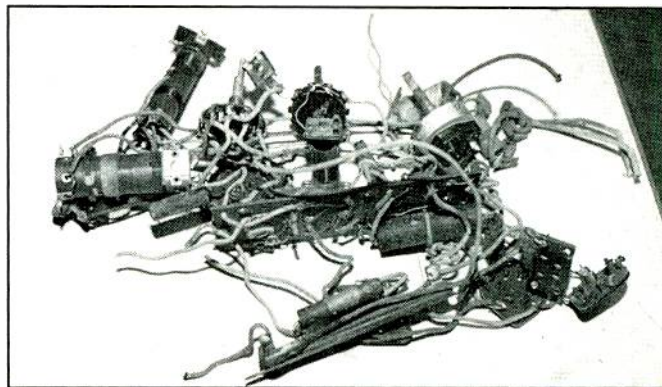
assembly is slid into a cardboard tube housing that is also usually imprinted with the capacitor's technical data and the manufacturer's name and logos. As a final step, the capacitor is impregnated with hot wax to seal against moisture. Remember that early radios were consumer devices, and designers built them for a specific life span, never anticipating or intending that they would be a popular collectable 50 or 70 years later. Newer and better models were always coming out, and cabinetry — updated to reflect the latest interior design schemes — often dictated a premature obsolescence long before technical innovations could. When not being played, the radio was often a major piece of parlor furniture. Imagine how out-of-place an early cathedral set would have looked in a home during the '50s or '60s!

Tube radios have many high-impedance points. For example, AGC circuits, grid inputs, and other areas are very high-impedance and will be adversely affected by capacitor leakage. Even a few megohms of leakage resistance can cause serious performance problems, and even damage a radio by affecting the biasing point of the last audio stage.



← Photo 1. The electrolytic capacitors after being cleaned and rebuilt. The aluminum shells were gently cleaned in a large ultrasonic cleaner.

Photo 2. The circuit card used for mounting most of the small resistors and capacitors in the American Bosch is visible in the jumble of components removed from the American Bosch chassis.



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

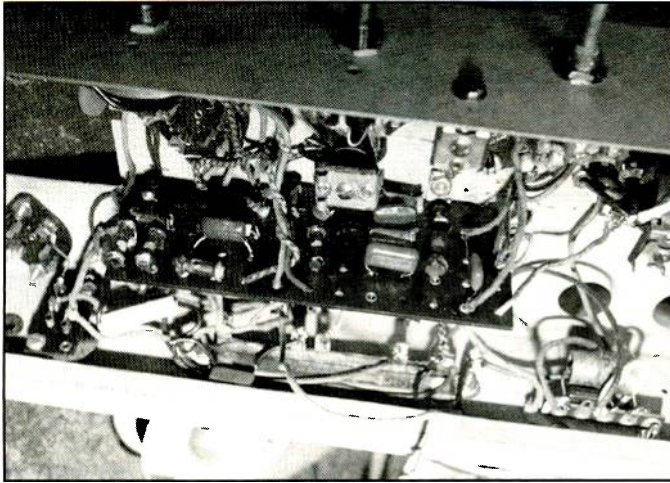


Photo 3. Circuit card with replacement mylar capacitors in place.

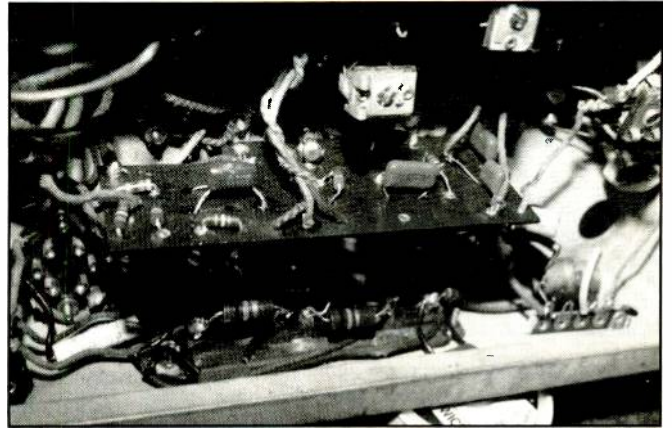


Photo 4. When a majority of the resistors were measured and found to be too far out of tolerance, they were replaced with modern carbon-composition resistors. Note the two-watt units bridging bad sections of the wire-wound power resistor on the rear apron.

Many restorers feel that simply testing a vintage capacitor with an ohmmeter is fine. I've had a few tell me that vintage wax capacitors improve with use, as if passing electrons through them magically restores them to original factory tolerances. Some feel that the heat of the tubes and other circuitry helps drive moisture from the capacitors. Hogwash. Wax capacitors were used for several reasons: they were considered state-of-the-art *at that time*, as radios were not expected or designed to last 70 years, and economical considerations dictated the final quality of components used by the engineering team. I've always felt that if you're going to take the time to check each capacitor individually, you might as well spend the 30 or 40 cents it costs to replace each one with a modern plastic equivalent. This insures that the under-chassis restoration is likely to last for many years, and certainly far longer than the factory original components.

Alan Douglas, a well-respected vintage radio author and collector, has this to say about vintage wax capacitors:

"All capacitors leak. There are two related aspects:

1. *How much do they leak?*

A VTVM (vacuum tube voltmeter), VOM (Volt Ohm Meter) or DVM (Digital Voltmeter) won't apply enough voltage for a meaningful test (though of course if a cap reads a megohm at 1.5-volts you can chuck it in the trash immediately). You really need to apply working voltage, or rated voltage, to see the actual leakage.

Measuring leakage in terms of resistance in megohms is not very helpful, although most capacitor checkers do it that way. To get the true picture, there is

nothing like seeing the exact leakage current in microamperes (μA) on an analog meter. It is rarely steady, by the way, and often quite erratic. I have tested a great many capacitors from the 1920s and '30s — used, unused. All brands, all styles. The very, very few examples that leaked less than 10 or 20 μA (microamperes) were some Western Electric 1- μF caps in rectangular black cans (*some*, not all) and a filter block from an Atwater Kent 89 (hermetically sealed in a can with a Bakelite terminal block). All others were bad. Many paper capacitors will pass milliamperes at working voltage — even some glass-sealed metal cased capacitors I tested from the 1950s.

When the capacitors were new, if they were made well, they were heated to drive out moisture from the paper dielectric. They were then OK for a 10 to 20-year service life. Inevitably moisture gets back in (no paper or plastic is totally impervious to water) and combines with the acidic compounds in the paper.

Condenser paper is a pure cellulose, but like any article of commerce it is bought and sold on the basis of price versus specifications.

2. *Does it matter?*

Maybe not from strictly from the "will the radio still work" standpoint. But, leakage *never* goes down. Consider the mechanism. We essentially have an electroplating cell! All current passing through the capacitor causes metal ions to move through the paper. The anode foil is being eaten away, and very likely the metal atoms are being deposited in the paper dielectric's pores. A capacitor that is being used, in a running radio, will even-

tually fail. It is only a matter of time before it shorts out. Not *if*, but *when*.

This is where knowing the exact leakage current helps: if the capacitor is a cathode bypass with only few volts across it, who cares if it leaks? It is a coupling resistor feeding a 1-megohm impedance grid resistor, 10- μA equates into a ten-volt bias shift and you can kiss your power transformer goodbye.

Mylar capacitors generally show a microampere or so of leakage, some zero. I have some leaky polypropylene caps bought at a flea-market, so it always pays to check!"

Alan went on to note that restorers often quote references from early radio books, such as "*Television and Radio Servicing*," published by McGraw Hill back in the early '60s, and will often cite the good life expectancy of wax capacitors. Alan replies: "Note the date of publication was back in 1961. Your average capacitor is three times older now, plenty of time to soak up moisture. What was good advice then is less relevant today."

I would like to add my views. While a wax capacitor can short, they often develop leakage currents. Restorers living in arid climates may experience better longevity for these vintage components, but when those sets are moved to a damper environment the failure mode accelerates proportionally. Most wax caps have end seals made of wax, holding the capacitor body inside of the cardboard tube. I have seen these "dry-out" and shrink, exposing the capacitor innards to the outside atmosphere, and at times, allowing the internal connection between the foil and wire lead to pull apart, causing an open or intermittent condition.

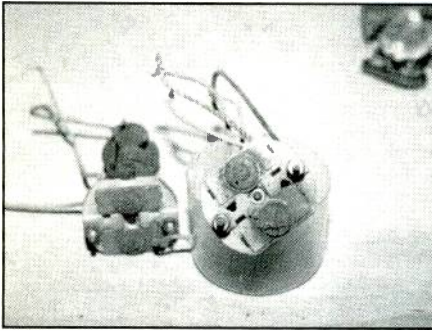


Photo 5. The adjustment screws and plates of these mica compression capacitor are encrusted with dust and dirt. These are used for aligning the IF tuning in the set.

American Bosch Restoration Continues

Knowing that the chassis had sat on a damp cellar floor for decades left no doubt in my mind that all of the wax-capacitors should be replaced — not that I would have tried to save them if it were not the case. One unique aspect of these early American Bosch sets is the method used to mount many of the smaller electronic components, such as capacitors and resistors, under chassis. A small section of Bakelite material, using brass eyelet's as solder tie points, holds the majority of these parts as would a printed circuit board in a modern set. This probably helped speed the assembly line process, since having the set build up from larger modules also reduced the time needed for quality control inspections on the assembly line. Working on these early circuit boards is a bit harder than the average set (whatever that is!), and I've seen more than a few similar comments from other American Bosch owners on the web at rec.antiques.radio+phono newsgroup.

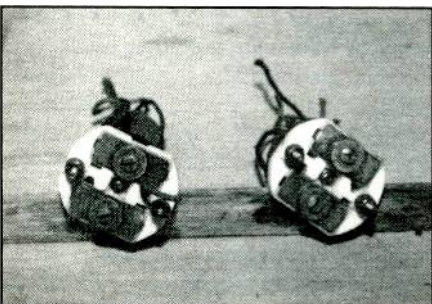


Photo 6. The screws are fully loosened, and then the tops of the IF transformers are immersed in the ultrasonic cleaner to remove the crud. The fine wire leads from the IF transformer coil windings are not allowed to contact the caustic solution.

Rebuilding The Chassis

Undertaking a restoration of this magnitude requires some preparation. The restorer should be confident that he can rebuild the radio using only a schematic if necessary. What I am showing here is usually reserved for the *basket cases* I run across since it is a very invasive approach. Good drawings or photos of how parts are orientated or positioned are a must. Also, be very sure that your set's schematic accurately reflects the chassis wiring in your radio! Many companies went through several revision levels on their more popular chassis'. It doesn't take too much time to make a quick comparison between the schematic and the actual wiring in most sets, especially the more common five-tube sets. A typical five or six tube set used only several wax capacitors and a like number of resistors. Checking the actual values used in the set against what is shown on a schematic is not a difficult task.

Once the components were cleaned, rinsed free of residues from the ultrasonic cleaner chemicals, and dried, they were remounted on the chassis in the reverse order that they removed. Riveted parts were reattached using pan head screws and nuts. The compression capacitors in the IF transformers were impacted with dirt and dust; this was removed using the ultrasonic cleaner. First, the adjustment screws were backed fully out to expose the mica insulators and tuning plates. The tops of the transformers were carefully immersed in the ultrasonic cleaner solution while being cautious not to expose the fine transformer leads or windings to the caustic solution. Once the compression trimmers were free of crud, they were rinsed out using alcohol to remove all of the cleaning solution residue. I hadn't expected to be able to save the original under-chassis cloth wiring. It was moldy, and I expected to find dry rot and disintegrating insulation after being removed from the ultrasonic bath. I was surprised to find the insulation turned their original factory colors, and in very good mechanical shape! After rinsing off the cleaning solution using several baths of warm tap water, the components were allowed to dry, and then several coatings of clear acrylic spray were applied to the wires to seal the cloth insulation.

The photos are not in the exact sequence the restoration took toward completion, as I would alternate between chassis and cabinetry work. For example, the original resistors were left in place as

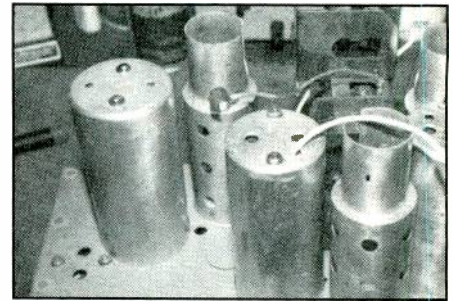
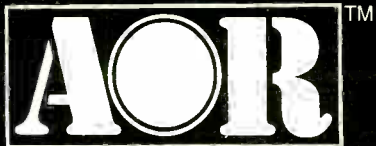


Photo 7. Major components being re-installed on the chassis. Tube sockets, RF and IF transformer shields, and the main tuning capacitor are being put back in place.

can be seen in one photo, and replaced with more modern carbon-composition resistors when several were found to be out of tolerance when measured at a later date. Wire-wound chassis mount resistors were often used for voltage dividers in these early sets. One can be seen mounted below the circuit board, on the rear apron of the radio's chassis. These resistors are very prone to failure. The fix is simple. Another photo shows how axial lead resistors can be simply bridged across the open sections. If the wattage rating is not known or shown on the schematic or the Rider's manual part lists, you will need to calculate the needed wattage based on the voltage drops and current flowing through the resistor. Allow for at least twice the wattage for safety: if the resistor is dissipating one-watt, use at least a two-watt resistor to replace it. I've covered most of these formulas in past columns, as well as more detailed data on selecting replacement capacitors in past columns. If enough readers want more details, let me know and I will spend a few columns reviewing the basics of resistor and capacitor substitutions.

The wire leads for grid connections from the IF transformers were beginning to show signs of insulation damage from years of handling and being exposed to the heat from the tubes. Since the IF transformers were removed from their aluminum shields, it presented a good time to install new grid-cap leads using cloth-covered stranded wire to replace the original wires. The IF and RF transformers, tuning capacitor, and tube sockets were the first items installed above chassis. The power transformer had special problems that will be covered in a later column.

Under chassis work included remounting the volume control, coils, and circuit card. Note that the sockets are mounted from the bottom of the chassis, since the wire leads are still attached. ■



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radio resources

Interesting Thoughts And Ideas For Enjoying The Hobby

Going Mobile On HF: Automatic Antenna Couplers

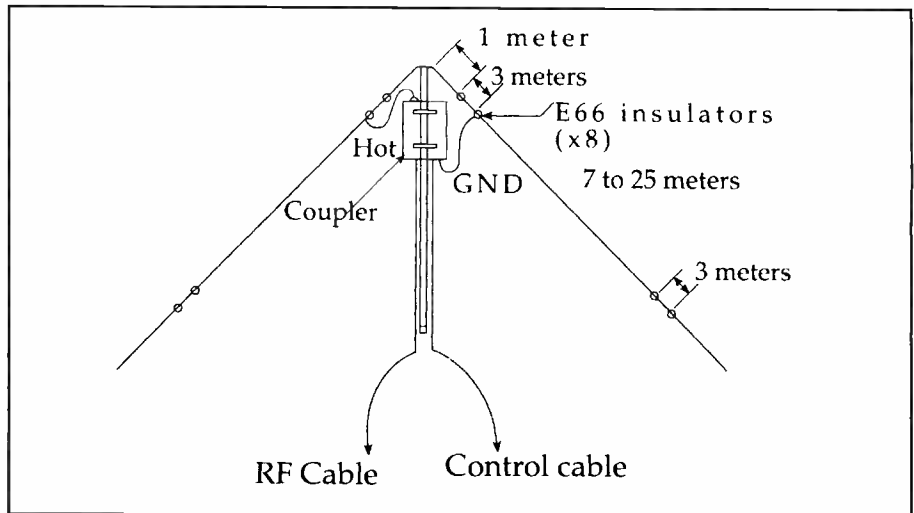
The antenna matching units built into larger high-frequency transceivers are specifically designed for standing wave ratio (SWR) *trimming*, not random wire *tuning*. Any high-frequency transceiver with a built-in automatic antenna “tuner” may allow you to operate in portions of a lower frequency band where antenna resonance is quite narrow.

If you are into both data as well as voice on 40 meters, a 40-meter dipole cut to the middle of the band would allow the automatic built-in antenna tuner to minimize any elevated SWR at band edges at the transceiver. The built-in antenna tuner is not really changing the *resonance* of the dipole, but rather smoothing out the SWR “hump” as you operate high or low on the band and out of the antenna’s natural resonant point. What the built-in automatic antenna tuner is doing is presenting a 50-ohm ideal match that the output transistors see, but be assured there are still elevated SWR levels along the feedline and at the antenna.

“Think of the coupler as a balun at the antenna feedpoint.”

For operation on the 75- and 160-meter band, the resonant point of a dipole or mobile antenna will be quite sharp. If you plan to operate 50 kHz away from the natural resonant point of the base or mobile antenna, the built-in automatic antenna tuner will normally pacify the output transistors of your equipment into thinking everything is quite fine after the SO-239 antenna jack. Actually, the entire coax including the antenna is now part of the radiating antenna system due to the elevated SWR. But your rig remains happy.

The built-in automatic antenna tuner is normally rated to operate with SWRs below 3:1. If you are running coax into a random wire or to a stainless steel mobile whip, and are operating on any ham band well beyond the natural quarter- or half-wavelength of that wire, the built-in antenna tuner will probably show “anten-



Base dipole installation.

na fault,” and if it does lock in, immediately overheats. The built-in automatic antenna tuners are NOT designed for random wire antennas or the non-resonant mobile whip.

Using A Coupler

An effective way to tune long wires, non-resonant mobile whips, marine insulated rigging antennas, and random length dipoles and random length loops is a fully automatic antenna *coupler* placed far away from the amateur transceiver as possible, at the antenna feedpoint. These automatic antenna couplers are designed for outside mounting, and hanging them on your tower or in a tree won’t hurt them a bit during the next rainstorm or snowstorm. Just get them out of the shack.

These little five-pound, active-electronics-filled, black or white boxes are available from each of the worldwide radio manufacturers. ICOM uses an AH-4, Kenwood the AT-50, and Yaesu the FC-20. Alinco uses their EDX-2, and each of these ham radio manufacturers wire their tuners to *specifically* operate with their own equipment. In other words, the

ICOM AH-4 would not take the same tune data command on a Yaesu, nor would the Kenwood take the same tune command on an Alinco or ICOM. These remote-mount automatic couplers all need an additional two-conductor line to remote start the tuning process, and then remote stop it with an indication on the transceiver that the automatic coupler has achieved resonance.

An exception to this “same manufacturer” requirement is the well-respected and *very* popular line of SGC automatic antenna couplers. SGC couplers do not require any start or stop additional-wire tune commands from anyone’s transceiver. Rather, just whistle on *any* ham, marine, aviation, or military HF transceiver, and the power output going up the coax will trigger all SGC antenna couplers into active tune-up, and you can watch your SWR drop in just a matter of seconds when the coupler locks in. And if you really want a small LED to light up on confirmed remote tune, they have a couple of extra wires in their coax cable harness to oblige you, too!

Another nice feature of all SGC automatic couplers is the fact they are PRE-WIRED with a six-foot harness to get you

BY GORDON WEST, WB6NOA



Gordo and Don, N9ZGE, try out the SGC Autocoupler on top of his van with great results!

started in the set-up with extension cables. With most of the other high-frequency antenna tuners from manufacturers whose tuner will only match their own equipment, you must spend about two hours breaking open the sealed tuner to make your wire and coax cable connections. Once you remove all of the screws and the nuts drop off without keepers, you now need to re-seal the enclosure so rain won't get inside. With the SGC automatic couplers, the enclosure *is* sealed and there is absolutely no need to break open the multi-screw case to get inside.

SGC also offers a voltage isolation kit that could allow you to use an existing coax run to carry both the output power and receive signal, plus voltage, with two little isolation boxes required for both ends of the circuit. While this is certainly not earthbreaking technology, it certainly is welcome technology when you need to set up an automatic antenna tuner at an installation that only has coax running up to the roof 10 stories up.

All of these automatic antenna couplers have multiple input capacitors, multiple output capacitors, and multiple inductors that are switched in and out of circuit with tiny relays. This could provide thousands of different (or L configurations) for your antenna. If you're trying to tune up a piece of wire that is too short for 160 or 80 meters, series inductance is switched in until the phase is deemed as being inductive. At this point, it is normal for the input impedance to be very low. Input capacitance is added until the antenna is no

longer inductive.

With an antenna long wire that is too long, for let's say 10, 15, or 20 meters, output capacitance is added until input impedance test results are low. At this point, the antenna will be capacitive. Therefore, series inductance is added until the antenna is no longer capacitive.

How They Work

When you key your microphone and press the tune button on equipment with its own matching coupler, or slowly draw out your call sign on transmit with an SGC coupler, the automatic antenna coupler goes through the tune sequence. If you're close enough to hear it, you hear a lot of clicking. When the clicking stops, your transceiver probably is registering an extremely low SWR, and you are now impressing your 100 watts onto the active antenna wire, and your coax to the coupler should be relatively free of RF coming back down the outside shield.

The automatic antenna coupler draws about 800 miliamps when actively searching for "tune," and about 300 miliamps when some of the relays are engaged. The relays stay engaged until you switch to another band, or turn the coupler completely off. There are all sorts of antenna possibilities with the fully automatic antenna coupler. This could be loops where the antenna actually circles back and grounds to the coupler's ground terminal. It might be a long wire where

the coupler is well grounded to the earth, a steel building, or a metal tower. The automatic coupler outputs a high-voltage screw terminal with a relatively large insulator at that terminal to prevent arc-over. The fully automatic antenna coupler is **ABSOLUTELY NOT INTENDED TO TUNE A 50-OHM COAX FEED**. The coupler **MUST** be placed at the antenna feedpoint and is **NEVER** intended to feed coax. Think of the coupler as a balun at the antenna feedpoint.

Mobile Applications

In mobile applications, the fully automatic antenna coupler is *not* intended to smooth out SWR on a HF pre-tuned whip. Things will arc-over bigtime in your trunk if you try to split apart coax and feed a pre-tuned whip with it. If you have a whip like we have described last month, tune the whip yourself and make no attempt to try to tune it with an automatic antenna coupler! But you can run a non-resonant whip on your mobile and get good performance with the remote-mounted automatic coupler. Exhaustive tests by Don Wilson, N9ZGE, have

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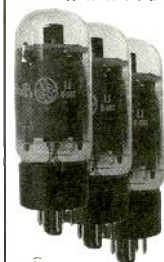

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The "hidden wall" installation of the SGC coupler.



The Auto-Tuner QMS mounted on an off-the-road vehicle.

proved how effective the SGC QMS system is where the antenna whip mounts directly on the mobile coupler itself. In repeated tests, his signal on most bands was comparable to that of a pre-tuned ham whip of about the same eight-foot length. But Don would have the advantage of being able to change bands instantly on his ICOM 706 where anyone else with a mobile whip would need to stop the car and change bands. Big screw-driver antennas would be the exception.

Don and I also ran extensive tests that proved that the longer the wire you can attach to the mobile automatic antenna coupler, the improved signal strength via skywave. There is no magic way to make a small radiating aerial look like a huge antenna system with the automatic coupler. So when you get to where you are

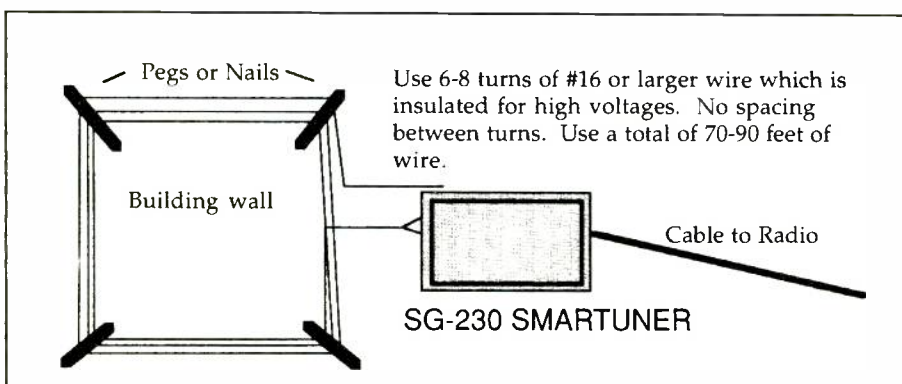
going, add some more wire to that stainless steel mobile whip, and get set for the coupler to re-tune with a more efficient signal getting into the longer radiator.

Automatic remote-mounted antenna couplers are a godsend for those of you living in townhouses or communities where no outside antenna is allowed. Get your hidden wire up as high as possible off the ground, run it in a loop or long-wire configuration, ground the coupler or run the wire back onto the coupler itself, and then get set for some good performance without anyone knowing. But keep in mind RF safety guidelines when placing this wire *anywhere* near people

down below. You can also expect that the antenna, on transmit, will get into every telephone, television, and audio system in the house because of the proximity of the radiating wire all around the roofline. But more about this next month.

Fully automatic antenna couplers are great for non-resonant wires. I save them as my first line of defense against communities with antenna ordinances, and I use them often in marine installations where I am using a portion of insulated rigging as the actual radiating antenna element and seawater as ground. For mobile application, I stay with the pre-tuned antenna, and watch my friend Don be able to band change faster without ever having to get out of the car. But I like the simplicity of a high frequency, pre-tuned, mobile whip without a whole bunch of things in between. Less to go wrong!

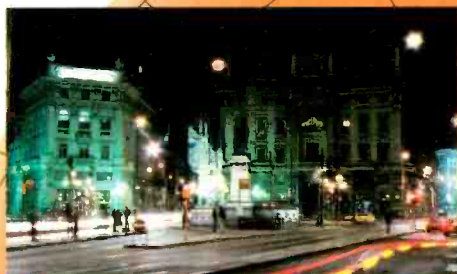
And if I had my choice of which antenna coupler I would work with, I would certainly choose the SGC line of "Smartuners" because they don't require a separate data line of any kind, and they work with ANY type of HF transceiver including operation all the way up to 6 meters. I don't like the idea of having to go inside an automatic antenna coupler that has been specifically sealed up against the moisture in the first place! For long wires and hidden antenna installations, fully automatic antenna couplers are a great way to go!



A small loop antenna and the SG-230 Smartuner.

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DRAKE

the listening post

What's Happening: International Shortwave Broadcasting Bands

New Christian Broadcaster On Merlin, And China Radio International Overhauls English Service

World Beacon, mentioned last month, has begun its transmissions via Merlin Communications. This new Christian religious service says it is unique in its approach, in that all the programs are produced and broadcast by African-American Christian groups. The initial schedule is 0430–0630 on **6115**, 1600–1800 on **6145** and 1800–2200 on **9675**, via the Merlin-operated transmitters in England (ex-BBC) and South Africa, at Meyerton. Reports can be sent to Affiliated Media Group, 2251 St. John's Bluff Road, Jacksonville, FL 32246.

Merlin Communications transmitters in England and South Africa relay CBS/Radio Taipei International, HCJB, Radio Korea International, Radio Japan, RAI-Italy, Radio Netherlands, Radio Telefis Eireann, Swiss Radio International, Wales Radio and WYFR, along with various other program-like broadcasts. Busy folks!

China Radio International says its English service is getting an overhaul. The new format will place a greater emphasis on news, including in-depth reports from CRI's overseas reporters. The second half of each hour long transmission will take a magazine approach and focus on a particular subject each day, such as sports, customs, social life, cultural aspects, and so on.

Virgin Radio is a new "trial" service from England, aired via the Merlin facilities. It will focus on football (not ours!), music and "gossip . . . to English speaking communities around the world." The initial schedule is 1100–1730 to on **21455**, 1600–1730 on **15525**, 1300–1400 on **11890**, 1400–1730 on **15500**. A program called Flat Earth Radio is a part of the service. From initial information it appears that the "trial" service was only to last a few weeks, and that a regular service would then be scheduled for August. So, things may be in full swing soon, if not already.



A small village graces this card from Radio Japan. (Thanks Martin Spiva, NJ)

Radio New Zealand is currently operating on **15115** from 0706 to 1205, on **6100** (occasionally) for sports from 1206–1505, **6145** (for sports occasionally) 1506–1650. Regularly on **11695** from 1650–1751, and **17675** from 1752–0705.

The Voice of Turkey features English broadcasts from 0300–0400 on **6155**, **11655** and **21715**, 1230–1330 on **17830** and **21540**. Also 1830–1930 on **9785** and **11765 (USB)**, 2030–2130 on 9525 and 2200–2300 on 7190 and 13640.

Radio Vlaanderen International has English from 0400–0430 on **15565** via Bonaire, 0700–0730 on **5985** (direct), 1130–1200 on **9925** (direct) 1730–1800 on **5910**, **9925**, **13710** (Juelich, Germany) and **17735**, 1930–2000 on **5960** (Juelich) and 2230–2300 on **15565** via Bonaire.

The current English schedule from Radio Cairo is 0000–0030 on **9900**, 0200–0330 on **9475**, 1215–1330 on

17595, 1630–1830 on **15255**, 2030–2200 on **15375**, 2115–2245 on **9900** and 2300–2359 on **9900**.

The **Voice of Armenia** has English Sundays from 0840 to 0900 on **15270** and Monday through Saturday from 1955 to 2015 on **4810** and **9965**.

Radio Finland has cut back on the amount of English it carries. Currently it's 0000–0100 Sundays (otherwise just 0000–0015) to North America on **11985** and **13770**, 0630–0645 to Asia and Australia on **15250** and **21670**, except Saturdays when it's 2300–0000 on **11985** and **13785**, to Southwest Europe Saturdays from 0800–0900 on **9560** and daily to Europe from 1930–1945 on **6110**.

Radio Jordan has English from 1100–1300 on **17680** and again 1300–1730 on **11690**.

Radio Yura, La Voz del Layo, is a new one from Bolivia. It's located in Yura, Quijarro province, Potosi Department. Listed for **4715**, initially, at least, it's operating closer to **4717**. This one, like many of the Bolivians, will take some chasing to pick up. Sign-on is believed to be around 1000.

Huh? **The Voice of Vietnam** was briefly relayed by Radio Canada International's Sackville site a couple of months back. This was classified as an "experiment." Does that mean Canada, like Russia, may become a regular relay for Hanoi? The broadcasts occurred on **9695** and **9795** — maybe spots to keep an ear on for a possible return.

Here's an interesting broadcast to chase. A domestic service in Tagalog (and English) from **Radio Kuwait!** Actually, it's a Kuwaiti domestic station, **Radio Pinoy**, which airs material aimed at the local Filipino population in Kuwait and other Gulf States. It's carried on shortwave from 1000–1200 on **17885**.

Stewart MacKenzie forwards a schedule for meetings of the American Shortwave Listeners Club and SCADS (Southern California DXers). Coming

BY GERRY L. DEXTER

dates for ASWLC meets in Huntington Beach, California, are August 5, September 2, October 7, November 4, December 2, and January 6. These club meetings are from noon to 4 p.m. Guests (non-members) are always welcome. Call 714-846-1685 for directions or more info or check www.ocnow.com/community/groups/shortwaveradio. The SCADS schedule is August 19, September 16, October 21, November 18, and December 16. These meetings are held from noon to 4 p.m. at the F&M Bank, Seal Beach, CA. You can call 714-522-6434 for more info, or check the same Website above or E-mail to billfisher@dgx.net.

Reporter Jack Linonis is looking for an owner's manual for a RadioShack DX-160. If you have one please contact Jack at 1890 S. Hermitage Road, West Middlesex, PA 16159.

This month's book winner is Rick Barton of Phoenix, Arizona, a regular reporter sometime back who has returned to the fold during the past few months. Rick receives a year 2000 edition of the *World Radio TV Handbook*, courtesy of CRB Books, whose catalog of radio communications hobby and related books covers just about every phase of the hobby you can imagine! You can get a copy of this biggie from CRB Research, P.O. Box 56, Commack, NY 11725. Check their website at www.crbbooks.com.

Remember that your reception logs are always welcome. Please be sure to list your logs by country, provide at least a double space between each (so we can navigate scissors more easily) and add your last name and state abbreviation after each. And also, be sure to use only one side of the paper, otherwise some of your logs won't make it into the column. Other things we can use in the column are spare QSL cards you don't need returned (or good quality copies), station photos and other items from stations, including schedules, brochures, etc. We'd also love to feature a photograph of you at your listening post. 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, **9615** at 1300 with IS, ID, features on the Cowboy Hall of Fame,

Koko maailma yhdellä silmäyksellä

Radio Finlandin lyhyt- ja keskaallohâlykysten yhdistelmäaikataulu 26.3.00 - 29.10.00 Ajat ovat maailmanajakkaa (GMT), joka on kolme tuntia jäljessä Suomen kesäajasta. Katso ylävirallia aika, eriväriset janat osoittavat lähetyksen kielen ja keston. Taajuuudet on ilmoitettu kilohertseina (kHz) ja vastaavina metreina.

Aika GMT/UTC:	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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Radio Finlandin lyhyt- ja keskaallohâlykset Radio Finlandin lyhyt- och keskaallohâlykset YLE Short and medium wave Radio agt UT (Suomen kesäaika) (h)
Aika tunti UTC (Suomen kesäaika) (h) 40 times UTC (Helsinki summer time) (h)

Radio satelliiteista - kiinteään vastaanottoon

INTELSAT 707 1 W Digitaalinen äänitähetyksen (DVB-MPEG-2) taajuuksella 2.9115 GHz (Deutsche Welle, Transponder 230). Kiertökorkeus 35 780 km. Lähetysaika 24 tuntia vuorokaudessa. Modulaatio QPSK. FEC 3/4. Synkronointi 6022 kHz. Laitteenominaisuus 300 cm - 408 cm.

INTELSAT 707 Digitaalinen äänitähetyksen (DVB-MPEG-2) taajuuksella 11.174 GHz. Kiertökorkeus 35 780 km. Lähetysaika 24 tuntia vuorokaudessa. Modulaatio QPSK. FEC 3/4. Synkronointi 6022 kHz. Laitteenominaisuus 300 cm - 408 cm.

ARISTAR Digitaalinen äänitähetyksen (DVB-MPEG-2) taajuuksella 11.174 GHz. Kiertökorkeus 35 780 km. Lähetysaika 24 tuntia vuorokaudessa. Modulaatio QPSK. FEC 3/4. Synkronointi 6022 kHz. Laitteenominaisuus 300 cm - 408 cm.

Here's YLE/Radio Finland's current time and frequency schedule.

"News and the good News," "This Date in History," "Eye on the World," music. (Jeffery, NY)

ALBANIA — Radio Tirana, **7160**, 0130 sign-on. (Newbury, PA) 0158 with IS. (Miller, WA) 0330 with ID, schedule. (Barrow, AZ)

ANGUILLA — Caribbean Beacon, **11775** at 1216 with Bible broadcast. (Miller, WA)

ARGENTINA — Radio Nacional, **11710** at 1810 in SS. (MacKenzie, WA)

ARMENIA — Voice of Armenia, **9965** in Greek at 2053 with ethnic music, mention of Armenia. (Newbury, PA) 0320 in SS with talks by man and woman. (Brossell, WI)

ASCENSION ISLAND — Radio Japan/NHK relay, **15220** at 0709 in AA. (Becker, WA) BBC relay, **6005** at 0449 and **7160** at 0648. (Becker, WA) **9825** at 0014 in SS. (MacKenzie, CA) On **11765** at 2230 with ID, into PP. (Brossell, WI)

AUSTRALIA — Radio Australia, **6020** at 1210. (Northrup, MO) **9500** at 1222 in CC; **17850** at 0317; **21740** at 0010. (Jeffery, NY) **9580** at 1500. (Newbury, NE) **9710** at 0607, **15240** at 0709, **15415** at 0707, **15515** at 0646, **17580** at 0646, and **127750** at 0623. (Becker, WA)

AUSTRIA — Radio Austria Int'l, **9655** at 0005 with news. (MacKenzie, WA) 0209 in GG. (Miller, WA) **17865** with "Report From Austria." At 1620. (Barton, AZ)

BELARUS — Radio Minsk, **7210** at

0200-0230 with news, ID, local folk music, off with ID, schedule, and address. Listed //**11670** not heard and no other parallels found. (Alexander, PA)

BOTSWANA — VOA relay, **7275** at 0313 with African news. (Brossell, WI)

BRAZIL — Radio Cancao Nova, **4825** at 1115 in PP. (Northrup, MO) Radio Gaucha, **11915** at 2350 with telephone interviews in PP. (Miller, WA)

BULGARIA — Radio Bulgaria, **9400** at 0024 with ethnic music, //**7375**. (Newbury, PA) **11700** at 0210. (Miller, WA) **17500** in SS at 1610. (Brossell, WI)

CANADA — Radio Canada Int'l, **15305** at 2321 with comedy show. (Miller, WA)

CHINA — China Radio Int'l, **11685** in RR at 1805. (MacKenzie, CA) **15210** at 1006, //**11730** which was better. (Montgomery, PA) **17720** (Lingshi), //**17605** (Beijing) at 0227 in CC. (Jeffery, NY)

COLOMBIA — Radio Nacional, **4955** at 0340 in SS. (Brossell, WI)

CONGO — Radio National Congolaise, Kinshasa, tentative, **15245** in FF at 1513. (Miller, WA)

COSTA RICA — RFPI, **15050** at 0234 and 0636. (Becker, WA) Radio Exterior de Espana relay, **17850** in SS at 1715. (Brossell, WI)

CROATIA — Croatian Radio, **9925** via Juelich, Germany, 0215 in Croatian. (Miller, WI) 0404 with news in EE. (Newbury, PA)



RAI, Italy, sent this blue, black, and gray card to Jeffery Muska, New Jersey.

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/iou/s
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies

CUBA — Radio Havana Cuba, **6000** in SS at 1225. (Northrup, MO) Radio Rebelde, **5025** in SS at 0741. (Becker, WA)

CYPRUS — BBC relay, **15180** at 1650 in AA. Big Ben and ID at 1700. (Brossell, WI) **15575** to Asia/Pacific at 0417 and **21470** to Africa at 1612. (Jeffery, NY)

DENMARK — Radio Denmark, via Norway, **15735** in DD at 1653, off at 1655. (Miller, WA)

ECUADOR — HCJB, **15115** at 1230 with

news. (Jeffery, NY) Radio Quito, **4920** in SS at 0737. (Becker, WA)

EGYPT — Radio Cairo, **9990** at 2117 with ID, times, frequencies, local music. (Newbury, PA) **12050** in AA at 0440 and 2240. (Brossell, WI) **15475** in AA at 0649. (Becker, WA)

ENGLAND — BBC, **9515**, (via Canada) **9515** at 1230; **9740** (via Singapore) at 1410; **21740** at 1410. (Northrup, MO) **9590**, via Delano, at 0003. (MacKenzie, CA)

EQUATORIAL GUINEA — Radio Africa, **15180** at 2255 with addresses, frequencies. (Miller, WA)

FINLAND — YLE/Radio Finland, **15400** in Finnish at 1452. (Miller, WA) **17660** in Finnish at 1440. (Barton, AZ)

FRANCE — Radio France Int'l., **15210** heard at 1709 in EE; **17800** at 0619; **17850** at 0615; **21620** at 1549 and **21685** at 1545, all in FF. (Becker, WA) **17605** in FF at 1605. (Barton, AZ) 1710 with sports news in EE. (Brossell, WI)

GABON — Africa Number One, **15475** at 1705 in FF. (Brossell, WI)

GERMANY — Deutsche Welle, **6145** at 0502 in GG; **9895** at 0700 in GG and **13780** in GG at 0720. (Becker, WA)

GREECE — Voice of Greece, **12105** at 0004 in Greek. (Miller, WA) **11645** in Greek at 0445. (Brossell, WI) **15630** in Greek at 0647. (Becker, WA)

GUAM — Trans World Radio/KTWR, **9820** in CC at 1251. (Jeffery, NY) **9865** with religious program at 1030. (Barton, AZ)

GUATEMALA — Radio Cultural, **3300** at 0720 in SS. (Becker, WA) Radio K'ekchi, **4845** at 0120 to 0256 sign-off, in SS and K'ekchi with religious talk, variety of local religious music, campesino music, religious organ music, phone talk. "La Voz Evangelica

de las Casas" ID and call letters mentioned. Off with vocal anthem. (Alexander, PA)

GUINEA — RTV Guineenne/Radio Guinea, **7125** at 0600 in FF/AA. ID as "Ici Conakry" and into possible Koran recitations. Back into FF at 0615. (Linonis, PA) **15310** in FF at 1245 with music, man announcer. (Jeffery, NY)

HAWAII — KWHR, **17780** at 0620 with religious broadcast. (Becker, WI) WWVH time station, **15000** at 0630. ID with Hawaiian mailing address. (Becker, WA)

HONDURAS — La Voz Evangelica, **4819** at 1125 in SS. (Northrup, MO)

HUNGARY — Radio Budapest, **9560** at 0100 with EE news, ID, DX program. (Alexander, PA) **9810** at 2300 in Hungarian. (Brossell, WI) **9835** at 0353 with Hungarian rock, addresses. (Newbury, PA)

INDIA — All India Radio, **15075** at 0343 with continuous music. (Jeffery, NY)

INDONESIA — Radio Republik Indonesia, **4755**. (Miller, WA) Voice of Indonesia, **15125** at 0350 in unidentified language, talk by man, brief music, talk by woman. (Jeffery, NY) **15149.8** at 2000 in EE with ID, frequencies, Indonesian news and commentary. (Burrow, WA)

IRAN — Voice of the Islamic Republic of Iran, **6065** at 0034 with sign-on, parallel **9022** announced. Feature on weapons inspectors in Pakistan. (Newbury, PA) **15084** in Farsi at 1910 with Western instrumentals. (Jeffery, NY) 2303. (Miller, WA)

IRELAND — Radio Telefis Eireann, **6155** (via UK) at 0134 with soccer or rugby play by play. (Newbury, PA) **11740** (via UK) at 1013 with ID as "Radio One." (Montgomery, PA) **21630** via Ascension, 1844 in EE with music and commercials. (Jeffery, NY)

ISRAEL — Gaili Zahel, **7345** at 0000 in Hebrew with news, possible phone-in program. (Linonis, PA) **11585** in HH at 0025; **17535** in



This Radio Denmark 1969 QSL to Jeffery Muska (NJ) shows the antenna at Radio House, Copenhagen, Denmark.

Sendezzeiten und Frequenzen

EUROPA

Nordeuropa
Rund um die Uhr
03.00 - 06.00 UTC
06.00 - 09.55 UTC
20.00 - 06.00 UTC

UKW

Sofia
00.00 - 05.00 UTC
05.30 - 09.30 UTC
10.50 - 13.00 UTC
18.65 - 19.30 UTC
39.95 kHz

Südwesteuropa

00.00 - 10.00 UTC
06.00 - 03.00 UTC
03.00 - 06.00 UTC
06.00 - 09.55 UTC
14.00 - 19.55 UTC
20.00 - 06.00 UTC

AFRIKA

Nordafrika/Westafrika

(jenseitig Kanarische Inseln)
00.00 - 10.00 UTC
00.00 - 10.00 UTC
07.00 - 03.00 UTC
04.00 - 14.00 UTC
20.00 - 22.00 UTC

Mittelafrika

Rund um die Uhr
06.00 - 10.00 UTC
10.00 - 12.00 UTC
13.00 - 19.00 UTC
19.00 - 22.00 UTC
20.00 - 22.00 UTC

Nordostafrika

02.00 - 03.55 UTC
04.00 - 06.00 UTC
06.00 - 08.00 UTC
10.00 - 14.00 UTC
14.00 - 18.00 UTC
18.00 - 20.00 UTC
20.00 - 22.00 UTC

Ostafrika

(jenseitig Madagaskar, Mauritius, Réunion, Seychellen)
02.00 - 03.55 UTC
04.00 - 06.00 UTC
06.00 - 08.00 UTC
09.00 - 14.00 UTC
14.00 - 19.55 UTC
18.00 - 22.00 UTC

Zentralafrika/Südafrika

04.00 - 06.00 UTC
06.00 - 08.00 UTC
09.00 - 14.00 UTC
18.00 - 22.00 UTC

ASIEN

Nahost

02.00 - 04.00 UTC
04.00 - 10.55 UTC
06.00 - 10.00 UTC
11.00 - 14.00 UTC
14.00 - 18.00 UTC
18.00 - 20.00 UTC

Südasiens

(einschließlich Malediven)
00.00 - 02.00 UTC
02.00 - 04.00 UTC
06.00 - 09.55 UTC
10.00 - 13.55 UTC
14.00 - 18.00 UTC

Mittelwest/Sri Lanka

10.00 - 14.00 UTC
17.00 - 20.00 UTC

Südostasien

00.00 - 02.00 UTC
06.00 - 08.00 UTC
08.00 - 10.00 UTC
10.00 - 12.00 UTC
12.00 - 14.00 UTC
14.00 - 18.00 UTC
18.00 - 21.55 UTC
21.00 - 00.00 UTC

Ostasien

11.00 - 14.00 UTC
22.00 - 00.00 UTC

Zentralasien

06.00 - 10.00 UTC
10.00 - 13.55 UTC
12.00 - 16.00 UTC

Nordostasien

10.00 - 14.00 UTC

AUSTRALIEN / NEUSEELAND

(einschließlich Polynesien und Hawaii)

05.00 - 06.00 UTC
06.00 - 08.00 UTC
08.00 - 10.00 UTC
10.00 - 14.00 UTC
18.00 - 21.55 UTC
22.00 - 00.00 UTC

AMERIKA

Nordamerika

00.00 - 02.00 UTC
02.00 - 05.55 UTC

Hawaii

Mittelamerika/Karibik

00.00 - 02.00 UTC

Südamerika

00.00 - 02.00 UTC
02.00 - 04.00 UTC
04.00 - 06.00 UTC
06.00 - 17.00 UTC
18.00 - 20.00 UTC
20.00 - 22.00 UTC
22.00 - 00.00 UTC

Gültig bis 28. Oktober 2000

Hinweis: Bei Empfangsproblemen können die Frequenzen benachbarter Regionen weiterhelfen. Aktuelle Frequenzangaben erfahren Sie auch über die Frequenzangaben im Deutschen Programm von DW radio und über DW online

mailbag. Gave EE schedule for 30 minute programs as 1030 to Australia on 12085, 1500 to South Asia on 12015 and 12085 and 2000 to Europe, also on those two frequencies. (D'Angelo, PA) 1029 with IS, into EE at 1030-1100. (Silvi, OH)

MOROCCO — RTV Marocaine, 11920 at 0006 in AA. (Miller, WA) 15345 at 1705 in AA. (Brossell, WI) VOA relay, 17895 at 1749. Communications World. (Newbury, PA)

NETHERLANDS — 9845, 0045- 0124 close. Very, very strong, after a reported fire at the Bonaire relay. At 0124 mentioned the fire again and apologized for frequencies being "messed up" and said EE at 0430 would not be on that evening as neither frequency for 0430 was operational. Said they did not know when 0430 would be operational again. IS at 0127 and into presumed SS. 15315, 0045-0125 via Bonaire or other site after reported fire at Bonaire. IS at 0127 and into presumed Dutch. (Silvi, OH)

NETHERLANDS ANTILLES — Radio Netherlands via Bonaire, 9845 at 0017. 21590 at 1830. (MacKenzie, CA)

NEW ZEALAND — Radio New Zealand, 15115 at 0745 with religious show. 0940 first day noted this frequency at this time. (Becker, WA) 17675 at 0315. (Jeffery, NY) 1845; local weather. (Barton, AZ)

NORTH KOREA — Radio Pyongyang, 7145 at 0840 in CC and 13670 at 1737 in KK with martial music. (Becker, WA) 9325 at 1640 in EE with talk and folk music. 9335 in FF at 1643. 11710 at 1701 in KK and 13670 at 1920 in EE. (MacKenzie, CA)

NORTHERN MARIANAS — KFBS/Far East Broadcasting Co., 9465 at 1740 with RR commentary. (MacKenzie, CA) Voice of America relay at Tinian, 9780 at 1245 with news. (Jeffery, NY)

NORWAY — Radio Norway Int'l, 11635 in NN at 0435. (Brossell, WI) 17505 with news at 1700. (Barton, AZ) 18950 in NN at 1400 with news. (Northrup, MO)

OMAN — Radio Sultanate of Oman, 9735 with news in AA at 2101. (Newbury, PA) 15355, tentative, 0334-0356 fade. Bee Gees and other old pops, man announcer with time check and partial ID "about 16 minutes before the hour on the FM service." (D'Angelo, PA) 0226 in AA. (Jeffery, NY) 0245-0405 plus, EE at 0300-0400. Mid-east music at 0245, Big Ben-type chimes at 0300, EE religious talk and introduction to Koran. Koran recitations in AA with EE translations and commentary on recited versus. EE news at 0315-0325 and "Good Morning, Oman" program with local and U.S. pops, local events and chatter by all female studio staff. Back into AA at 0400. Very good. (Alexander, PA) BBC relay, 15310 at 0433 to Asia/Pacific. (Jeffery, NY)

PAPUA NEW GUINEA — NBC, Port Moresby, 4890 at 1218. (Miller, WA) 9675 at 0820 with EE ID at 0840 with various pop songs, reggae. Nothing on 4890. IS and time pips at 0900, news by man, ID 0906, more news. Sports at 0909 and repeat of main points at 0910. Then man and woman announcers in

Deutsche Welle's current schedule. Fortunately, their signals are usually a lot stronger than their print is large!

EE at 1900. (MacKenzie, CA) 15615 in HH at 1715. (Brossell, WI) 17535 at 1500 in EE. (Linonis, PA) 1520 with news. (Newbury, PA) 1525 with news recap. (Barton, AZ) 1642 in FF; 17545 at 0640 in HH. (Becker, WA)

ITALY — RAI, 17710 at 0624 in II. (Becker, WA)

JAPAN — JYJ time station, 8000 at 0712 "beep, beep, beep." (Becker, WA) Radio Tampa/NSB, in JJ on 6055 at 0755, 6165 at 0825, 9595 at 0736, and 9760 at 0741. (Becker, WA) Radio Japan/NHK, 9505 at 1450. (Newbury, NE) 9505 at 1712, 9835 in JJ at 1750, 11910 in JJ at 1905. (MacKenzie, CA) 9530 (via French Guiana) at 0800, 17825 at 0308; 17835 at 0308; 17875 at 0303 and 21610 at 0240, all in JJ. (Becker, WA) 11705, via Canada, at 0027. "Hello From Tokyo." (Newbury, PA) 17825 at 0332 with interview program in EE. (Jeffery, NY)

JORDAN — Radio Jordan, 15435 in AA at 0703. (Becker, WA)

KUWAIT — Radio Kuwait, 11675 in AA at 0030. (MacKenzie, WA) 15110 in AA at 1350. (Northrup, MO) 15495 in AA at 15495, 15505 in AA at 1710 (Brossell, WI) 0647 and 2152 in AA. (Becker, WA)

LIBERIA — Radio Liberia Int'l, 5100 at 2340 to 2359 close, with EE/vernacular talk, U.S. pops, EE sign-off announcements, with ID and NA. (Alexander, PA)

LIBYA — Voice of Africa service, 15435

at 1724 in EE with ID "This is the Voice of Africa, broadcasting from the Jamahariya" and into EE news. Mixing with Saudi Arabia, also in AA. EE news also noted at 2028-2038, 2330-2340, 0130-0140, with strong, but slightly distorted audio at those times. No EE heard at 0030 or 0330, as previously listed. (Alexander, PA)

LITHUANIA — Radio Vilnius, via Juelich, Germany, 6120 at 0030 sign-on. (Newbury, PA)

MADAGASCAR — IBC Tamil, via Radio Netherlands relay, 17490 at 1503 in unidentified language. (Jeffery, NY)

MALI — RTV Malienne, 5995 in FF and local language at 0630. AA recitations and music. (Linonis, PA)

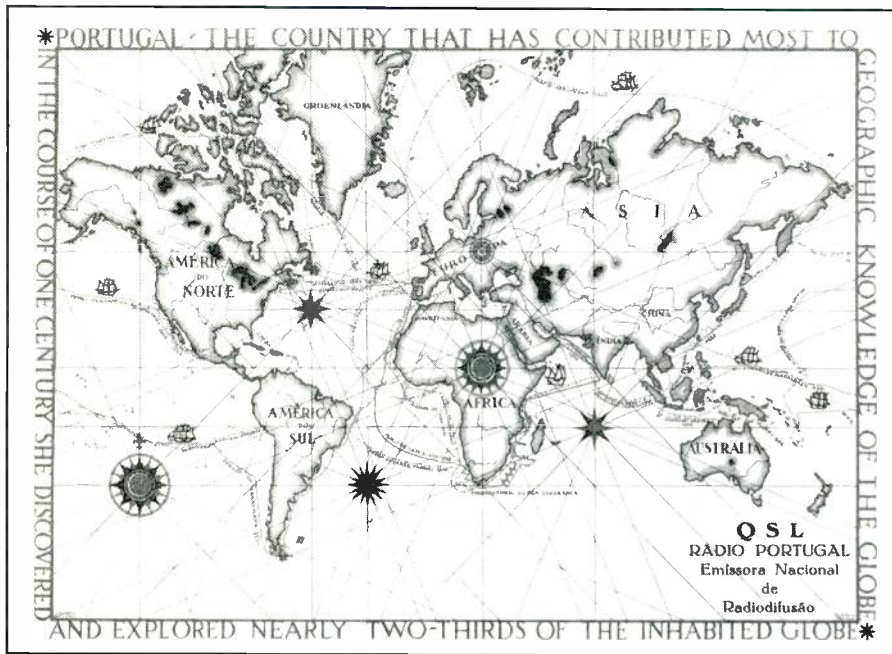
MALTA — Voice of the Mediterranean, 12060 at 1900-2000 with EE news, Euro-pops, ID, upcoming schedule changes. (Alexander, PA) (This is via Russia — Ed)

MAURITANIA — Radio Mauritania, 4845 at 0630 in AA with ID, presumed Koran. (Linonis, PA)

MEXICO — Radio Educacion, 6165 at 0340 in SS, with rock. (MacKenzie, CA) 0640 with mariachi music. (Linonis, PA)

MONACO — Trans World Radio, 9870 with a religious broadcast heard at 0744. (Becker, WA)

MONGOLIA — Voice of Mongolia, 12085 at 1049-1103 with woman hosting EE



This classy, oversized map QSL card was issued by Radio Portugal back in 1969. (Thanks Jeffery Muska, NJ)

CC. ID at 0930 with greetings and money exchange rates, stock markets. Still there at 1100 but very weak and not there at all the following day. (Montgomery, PA) Radio Madang, **3260** at 1106 with national news feed in Pidgin, //**3220** and **3335**. ID at 1107 and news feature about Madang. (D'Angelo, PA) 1115 with news in Pidgin, then island pops. (Montgomery, PA) Radio Manus, **3315** at 1103 with news in EE, time check for "10 minutes past nine," local music and beginning to fade. (D'Angelo, PA) Radio East Sepik, **3335**, 1042 with music and Pidgin talk to full ID at 1059, time check and NBC news, //**3220**. (D'Angelo, PA) Radio Eastern Highlands, **3395**, 1115 with local vocals, time check for "17 minutes past 9 o'clock" and ID at 1120 during EE talk segment. (D'Angelo, PA) Radio Simbu, tentative, **3355** at 1125. Severe het. Man in Pidgin with news. (Montgomery, PA) Radio Milne Bay, **3365** at 1050 with local instrumental music, man with talk and ID at 1059, news at 1100. (D'Angelo, PA) Tentative at 1125, very weak. Man in Pidgin, local pops. (Montgomery, PA) Radio Eastern Highlands, **3395** at 1056. Peaking at 1100 with man in local language. Local pops. (D'Angelo, PA) 1120 in EE with fades, U.S. pops. Clear past 1130. (Montgomery, PA) Radio Morobe, **3220** with ID at 1108, male and female announcers, Pidgin, island music, good to past 1115. (Montgomery, PA) Radio Enga, tentative, **2410** at 1125, above and below the noise floor. Man and woman announcers and local island music. (Montgomery, PA) Radio Gulf, **3245** at 1110, man and woman announcers in Pidgin, EE talks, mostly news. (Montgomery, PA) Radio Western Highlands, **3375** at 1125 in EE with

ID at 1127, into local news and back to country/western. (Montgomery, PA) Radio East New Britain, **3385** at 1115 with U.S. pops. Weak with fades. Tentative ID at 1118. (Montgomery, PA)

PERU — Radio Andina, **4995.6** at 1017. Man with talk and lots of IDs prior to ad string at 1025. All SS. (D'Angelo, PA) Radio Libertad, **5039.2** at 1008. Huaynos, man with ID, flute music. (D'Angelo, PA)

PHILIPPINES — FEBC Radio Int'l, **15095** at 1224 in unidentified language with talk by man, music. (Jeffery, NY) Radio Filipinas, **15190** at 1835 in local language with ID, news bits. (MacKenzie, CA) VOA relay, **15235** at 1935. Talk and phone interview, pops, ID and off. (MacKenzie, CA) **17820** at 0011. (Jeffery, NY)

PORTUGAL — RDP Int'l, **11745** in PP at 12550. (Newbury, PA)

PUERTO RICO — AFRTS, **6458.5 USB** at 0335 with news. (MacKenzie, CA)

QATAR — Qatar Broadcasting Service, **17895** in AA at 1715. (Brossell, WI)

ROMANIA — Radio Romania, **9570** at 0400 with local news. (Newbury, PA) 11940 at 2346. (Miller, WA) **17735** at 1715 with "World of Culture," ID, "Encyclopedia." (Brossell, WI) **17815** at 0030 in unidentified language. Talk by woman, ID, news. (Jeffery, NY)

RUSSIA — Radio Rossi, **5940** at 0804 and **11840** from Yuzhno-Sakhalinsk at 0807, both in RR. (Becker, WA) **17660** in RR at 1620. (Brossell, WI) Voice of Russia, **7125** at 0408 and **11695** at 1510. (Newbury, PA) **15470** at 0400 with news. (Burrow, WA) **15595** at 0430 with news in brief, "Moscow — Yesterday and Today." (Jeffery, NY) **17650** at 0403. (Hill, ID)

(Hope that time was converted correctly — please use UTC/GMT!) **17565** at 0315, **17595** at 0312, **17630** at 0311, **17645** at 2144 and **17660** at 0410. The latter via Vladivostok, all the others from Petropavlovsk. (Becker, WA) Magadan Radio, **7320** and **9530** at 0729 in RR, possibly a relay of Radio Rossi. (Becker, WA) Radio Tikhy Okean, **7175** at 0815 and **7210** at 0820, all RR, via Kharbarovsk. (Becker, WA)

RWANDA — Deutsche Welle relay, **15275** at 2319 with news discussion in GG. (Miller, WA)

SAUDI ARABIA — Broadcasting Service of the Kingdom, **11710** in AA at 0040. Man announcer and Koran. (MacKenzie, CA)

SEYCHELLES — Far East Broadcasting Assn., **11640** with religious broadcast in an unidentified language. (Miller, WA) BBC relay, **11730** at 0330 with news for Africa. (Brossell, WI) **15420** to Africa at 0409. (Jeffery, NY)

SINGAPORE — BBC relay, **9590** monitored at 1230 with news. (Miller, WA) **9740** at 1231 with Outlook." (Jeffery, NY) **17760** at 0621 with economic news. (Becker, WA)

SLOVAKIA — Radio Slovakia Int'l, **5930** at 0100 with news. (Linonis, PA) 0106 with ID, feature about educating hearing/language impaired children in Eastern Slovakia. (Burrow, WA) 0117 with ethnic music, listener reports read, IS. (Newbury, PA) **15460** at 0700 with IS, ID, news. (Becker, WA)

SOLOMON ISLANDS — Solomon Islands Broadcasting Corp., **5020** nightly after 0730, gets stronger as the sun set across the Pacific. 0830 personal messages relayed. (Becker, WI) 1118 with Australian Broadcasting Commission relay. //Australia — 9580. (D'Angelo, PA) 1135 with Bible broadcast. (Miller, WA)

SOUTH AFRICA — Channel Africa, **6135** at 0345 with "Off the Shelf," and world news at 0400. (MacKenzie, CA) **15215** at 0000 with news, weather, financial news. (Linonis, PA) **17870** at 1802 with news, "Network South Africa." (Burrow, WA)

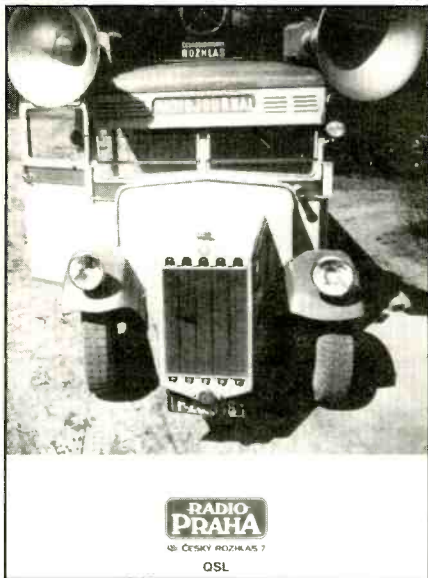
SOUTH KOREA — Radio Korea Int'l, **9650** via Canada at 1145 with report on Korean economy. (Barton, AZ)

SPAIN — Radio Exterior de Espana, **6055**, 0113 with feature about Kosovo, failure of British Rover manufacturing facility, ID, national and world news, "American Chronicles." (Burrow, WA) 0120 with "Radio Waves." (Linonis, PA) 0511 with feature on Carlos Santana. (Barton, AZ) **11680** in SS at 0035, **21700** at 1830 in SS. (MacKenzie, CA) **21610** in SS with classical music. (Jeffery, NY)

SRI LANKA — Sri Lanka Broadcasting Corp., **15425** with time pips at 0130, EE ID and announcements. (Paszkiwicz, WI) 0200 with instrumental pops, lots of IDs. (Linonis, PA) VOA relay, **15250** at 0220 with news. (Jeffery, NY)

SWEDEN — Radio Sweden, **9495** at 0206 with news in Swedish. (Miller, WA) 0200. Also 1245 in EE on 18960. (Northrup, MO)

SWITZERLAND — Swiss Radio Int'l, **9540** via Singapore, with correspondents



This Radio Prague card shows a Czech Radio "radio bus" in 1935! (Thanks Jeffery Muska, NJ)

reports at 1110. (Barton, AZ) 9905 via French Guiana at 0104 with news. (Burrow, WA) 0425. Also 17640 via Germany in AA at 1715. (Brossell, WI) 12010 via Singapore in GG at 1509.

SYRIA — Radio Damascus, 12085 at 2245 in AA with mix of music and talk. (Brossell, WI)

TAIWAN — Radio Taipei Int'l, 17805 via WYFR in CC at 2349. (MacKenzie, CA)

THAILAND — Radio Thailand, 13695 at 0038 with news in EE. (Newbury, PA) BBC relay, 15280 at 1240 with "Outlook." Also 17790 at 0015 with "One World." (Jeffery, NY) VOA relay, 9550 at 1745 with "Newsbreak." (MacKenzie, CA)

TURKEY — Voice of Turkey, 11655 at 0320 with "Editorial 2000" on famous sites and churches in Turkey. (Brossell, WI) 0240. (Hill, ID)

UKRAINE — Radio Ukraine Int'l, 9870 at 0402 with news, ID, "Ukraine Today." (Burrow, WA)

UNITED ARAB EMIRATES — UAE Radio, Abu Dhabi, in AA on 15265 at 1700. (Brossell, WI) UAE Radio, Dubai, 11885 at 0050 in AA, time pips at 0100. (MacKenzie, CA) 15395 at 1705 in AA. (Brossell, WI) 1330 with three minutes of news in EE. Much better on //21605. (Alexander, PA) 15400 at 0332 with EE news, Dubai weather, "Arab and Islamic Encyclopedia." (Jeffery, NY)

UZBEKISTAN — Radio Tashkent, 15200 at 1235 in unidentified language with religious program, talk by man and woman. (Jeffery, NY)

VATICAN CITY — Vatican Radio, 7305 at 0315 with sign-on in SS to South and Central America. (Brossell, WI) 9605 in SS at 0208. (Miller, WA)

VENEZUELA — YVTO time station, 5000 at 0410 with SS time announcements. (MacKenzie, CA)

YUGOSLAVIA — Radio Yugoslavia, 7115 at 0102 with news, ID, and commentary critical of U.S. and NATO. (Burrow, WA) 0112 with book review. (Newbury, PA)

That's everything for this month. A "thank you" of Everest proportions is extended to those who took the time to participate this time, namely Lee Silvi, Mentor, Ohio; Thomas Hill, Mountain Home, Idaho; Jack Linonis, West Middlesex, Pennsylvania; Bruce R. Burrow, Snoqualmie, Washington; David Jeffery, Niagara Falls, New York; Bruce Alexander, Mechanicsburg, Pennsylvania;

Robert Montgomery, Levittown, Pennsylvania; Ed Newbury, Kimball, Nebraska (also listening from PA); Stewart MacKenzie, Huntington Beach, California; Robert Brossell, Pewaukee, Wisconsin; Peter Becker, Clarkson, Washington; Richard A. D'Angelo, Wyomissing, Pennsylvania; Sheryl Paszkiewicz, Manitowoc, Wisconsin; Mark Northrup, Gladstone, Missouri; Rick Barton, Phoenix, Arizona; Mike Miller, Issaquah, Washington and Martin Spiva, Lyndhurst, New Jersey. Thanks to each one of you. ■



World's Most Powerful CB and Amateur Mobile Antenna*

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

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

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

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

Why Wilson 1000 Performs Better

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

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

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

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

The Best You Can Buy

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

*Inductively base loaded antennas
**Call for details.

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A Division of Lockheed Corporation
Burbank, California 91520

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

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

We have completed relative gain measurements of your model 1000 antenna using the K40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

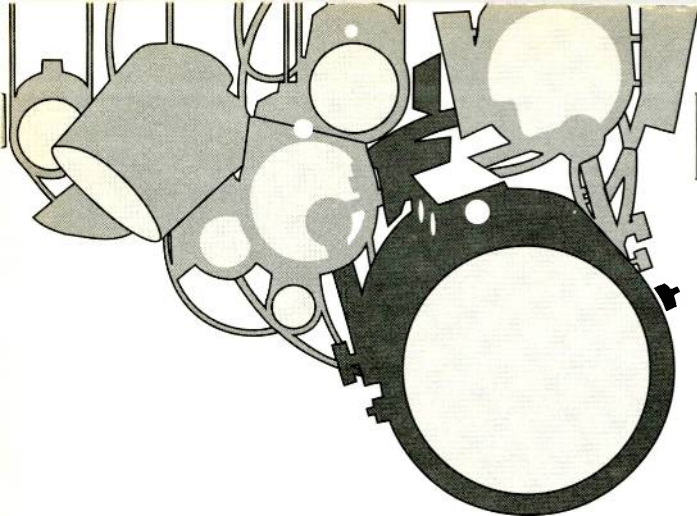
FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

Individual test results may vary upon actual use.

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FOR YOUR NEAREST DEALER
Wilson 1000

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Trunk Lip Mount.....\$695 Wilson 2000 Trucker.....\$595
Magnetic Mount.....\$795 Wilson 5000 Trucker.....\$795
500 Magnetic Mount.....\$995 Call About Fiberglass!!!
Wilson 5000 BaseLoad — NOW AVAILABLE!

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ANTENNA INC.
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East Moline, IL 61244



product BY HAROLD ORT, N2RLL spotlight

POP'COMM REVIEWS PRODUCTS OF INTEREST

The New C. Crane Company CCRecorder

Remember cassette tapes? How about those old reel-to-reel recorders that stored station programs and our QSOs? Kiss them and their memory good-bye, and enter C. Crane's new CCRecorder. Designed primarily for recording talkshows, it's a new digital hard drive machine that offers simplicity at the press of a few buttons. You can even record your favorite talkshows for up to a week with the easy-to-use-programmed codes. As if that's not enough, the recording times can be customized.

Basic Features And Operation

A 16-Vac wall transformer that plugs securely into the back of the (HWD) 4" x 4 1/2" x 9" three-pound unit powers the CCRecorder. The speaker portion of the unit is elevated off the main component box about 45 degrees for excellent user-directed audio from the 3 1/2" one-watt speaker. Sitting on your shack desk it takes up about as much room as a standard battery-operated cassette recorder, but the attractive CCRecorder is housed in a sturdy metal case.

Setup and operation is fairly straightforward, but you've got to read the manual on this high-tech recorder; I don't recommend out-of-the-box operation, although the company thoughtfully gives a "quick start" for the recorder in the well done manual. Familiarizing yourself with the functions only takes a few minutes — plus you'll quickly see all the superb features this gem of a recorder offers!

The power switch is located on the rear of the recorder; plug the power adapter into 120 Vac, then turn the unit on. The hard disk will spin-up and the unit will display the time on a red numeric display. If you need to correct the time, it only takes a minute or two; you can even "lock" the clock display so the time cannot be changed.

Ever wanted a recorder that *tells* you

its status? This is the one! Simply press the "Display" button while the recorder is idle and you'll hear the time, day, and mode status. While in playback mode, pressing the "Display" button you'll hear the session, display time, days to record, and recording source. How about this — when you use the quick setup codes this recorder even confirms the number on the display! It's like having a production assistant at your beckon call. To hear an ongoing count of live seconds, simply press and hold the "display" button.

Then there's the 90-minute sleep timer, stereo recording (it's factory-ready to record talk radio, but holding the "Vol Norm" button for one second before recording brings up the stereo light in the numeric display and now you're recording in stereo). The manual does correctly state that using stereo reduces the available recording space on the hard drive. Recording using the built-in microphone is also straightforward; press and hold the "Record" button, then press the "Mic" button. To stop the recording, press and hold the "Record" button again. Playing back the recording *can* get confusing if you're not careful. Unlike a conventional cassette recorder where you press the "Play" button (after first rewinding to either the beginning or specific location on the tape), the CCRecorder works like this: after you finish recording, and have stopped the machine, press the "Playback" button. The unit finds the most recent recording and plays it back. It will then continue to search for "events" in the portion of the hard drive called "Immed" until another one is found. Stop playback by pressing "Playback" again.

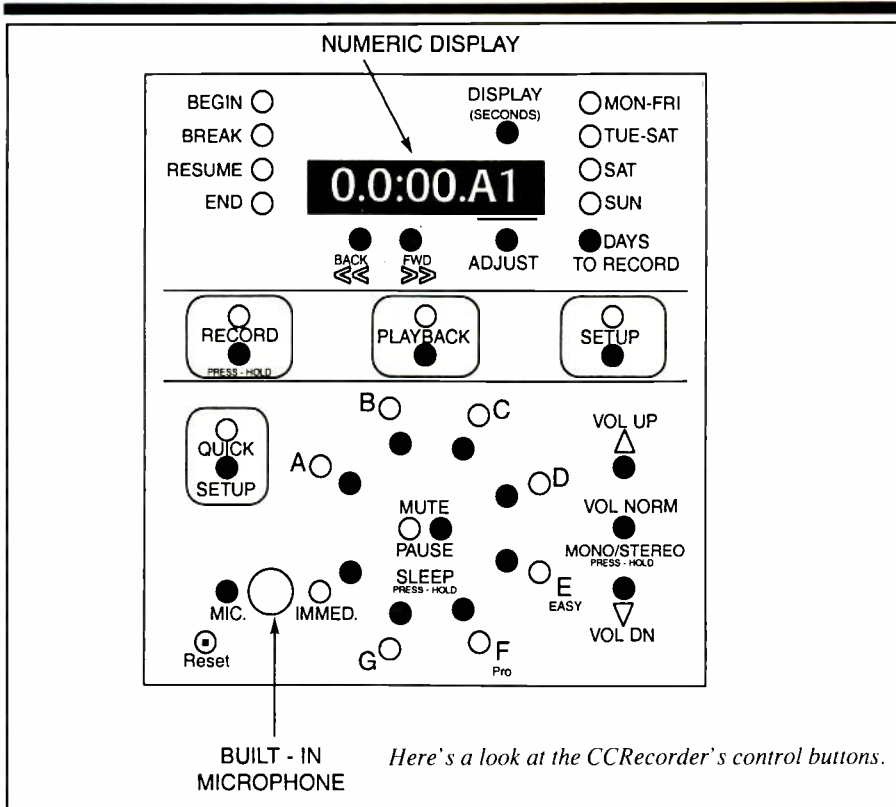
You can also record from an external audio source — your radio. The CCRecorder comes complete with a patch cord that plugs into the headphone-out jack of your radio or other device; the other end plugs into the recorder's "Radio Line In" jack. This is the feature I liked the most as I do a lot of unattended record-



The new CCRecorder from C. Crane Company, Inc. is a high-tech recorder that records up to 115 hours in monaural. It also includes a headphone jack for listening or output to another recording device.

ing from my shortwave receiver and scanner. Simply adjust the radio's volume — you can even hear it through the CCRecorder (or mute it if you wish) — press and hold the "Record" button until the red light comes on, then press any of the eight "sessions" — A, B, C, D, E, F, G, or Immed. While recording, the red recording light flashes and recording continues until you press and hold the "Record" button again or the disk becomes full (or a programmed end time is reached). Each separate session stores up to 15 events that are accessible anytime during playback by pressing the appropriate button multiple times during the playback to access "older" recordings. It's a lot like having access to 15 different recorders or instant access to 15 different cassettes — clearly light years ahead of any cassette machine used for our radio monitoring.

Recordings can be looped to playback continuously, and the superb display even reads "Loop" during the operation. You can easily fast scan — same as fast-for-



ward — through recordings in 60-second increments. Or you can scan in slower 10-second increments if you wish.

I recorded dozens of hours of continuous room recordings — the recorder specs say you can record up to 170 hours on monaural or 15 hours in full stereo, and I also set the CCRRecorder to automatically playback later in the day. Needless to say the auto-playback feature knocked my brother-in-law's socks off as he sat reading in a quiet living room, but his startled look was worth it! The audio was superb; even voices in the kitchen were picked up with reasonable clarity. The sound was much richer, even in mono, than a standard recorder, and in stereo, outstanding! The unit will store up to 240 separate recordings and with the seemingly endless hard drive capacity, the CCRRecorder amounts to nothing short of a fine station accessory and professional recording device. I used it with my Drake R8B and RadioShack PRO-2006 scanner with excellent results. There was no discernible audio degradation of the record-

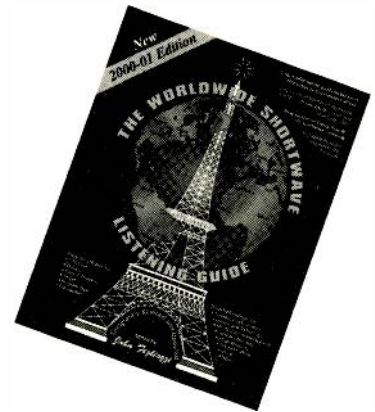
ed event, and best of all there are no cassettes to label and store; I kept a notebook of recordings so I could remember what was in each "event" in the CCRRecorder. Keeping a short note about several recordings is a lot easier than storing (and later trying to find) cassettes.

In short, I was impressed with the CCRRecorder — not just its high-tech 21st Century appearance, but it's excellent performance as well. Operation becomes intuitive after only a few minutes of use, and with the user-programmable function, you can set it to record (of course your receiver needs to be turned on) your favorite shortwave or other program when you're at work or on vacation. Hats off to the folks at C. Crane Company for another great product for radio enthusiasts! The CCRRecorder, which comes with a one-year limited warranty, is \$449 from C. Crane Company, Inc., 558 10th Street, Fortuna, CA 95540. Call them at 800-522-8863 or visit their Website at ccrane.com. Be sure to tell them you read about it in *Popular Communications*. ■

Online Documentation

The CCRRecorder's creator, Ed Strauss, tells us there's a great internally-bookmarked HTTP description of all the CCRRecorder's Quick Setup Codes (more detailed than the paper instruction booklet because of space limitations) at <http://www.netcom.com/~estrauss/quick.html> and there's also concise instructions (about 2-3 pages printed) revealing how simple the CCRRecorder is to use once you "get it" at <http://www.netcom.com/~estrauss/concise.html>. These online files are in addition to the fine illustrated printed instruction manual that the C. Crane Company provides with each recorder.

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the pirate's den

Focus On Free Radio Broadcasting

Pirate: Bill Clinton Is Aware Of 6955 kHz

Activity seems to have dropped off somewhat lately. Here's what we've got for you this time. Have you sent in your pirate loggings?

Radio Azteca, 6955 USB at 0005 to close at 0013. Bram Stoker with the "Bullwinkle" theme and mentioned different versions of his name. Mention of "Your station for nocturnal emissions." Rocky and Bullwinkle said "this is it" at sign-off. Also at 0128 with Rusty and Ortega and program 36. Address, talk of program listener's "fake" comments, talk about a reporter from (to? Ed) the ACE club, "Angry Man" segment. (Taylor, PA)

Radio Free Speech, 6955 at 1252 with various tunes and features, including mentions of both the Blue Ridge Summit and Belfast, NY addresses. Off at 1337. (Taylor, PA)

Voice of Anarchy, 6955 at 1737, mentioning that they were in Chicago. The operator called herself "Lucy Longwire." Another announcer gave Blue Ridge Summit address (P.O. Box 109, BRS, PA 17214). Various songs, talks, and parodies. Also mentioned that "'anarchy' was too political a word to be using over the air." Mentioned "Loretta Longwire," "Lucy Longwire," and "Linda Longwire." Signed off at 1822. (Taylor, PA)

Radio Garbanzo, 6950 at 2155 with ID, fake "GI" commercial. Address as P.O. Box 1, Belfast, NY 14711. Many sound effects. Off at 2157. (Taylor, PA)

Blind Faith Radio, 6955 USB, at 1637. Gave mailing address as P.O. Box 293, Merlin, Ontario, N0P 1W0, Canada. Dr. Napalm said not to send any dollars or postage stamps. (Taylor, PA) 1637 with various songs, including "I'm Burning for You," "Do What You Like," and "Crossroads." Sign-off was at 1700. (Dean Burgess, MA) 1643 with Eric Clapton. (Jerry Coatsworth, Ontario)

WYHP, 6955 at 1700 with ID, music by James Brown. (Taylor, PA) 1215 to 1229 close. Music and James Brownyard mumbling about something. (Coatsworth,

ON) Tentative at 0210 with Ravi Brownyard program. (Lee Silvi, OH)

WMLE, 6955 at 2321 with ID, instrumental music, many IDs, and uncopied E-mail address. Lost around 2348. (Taylor, PA)

Radio Metallica Worldwide, 6955 USB at 1625 with Jimmy and the Weasel, "Bill Clinton is aware of 6955 kHz," discussion of free radio, Dr. Tornado mentioned his 20,000-watt flame thrower. Off at 1622. (Taylor, PA)

Radio Bingo, 6955 USB at 1650 to close at 1655. Usual bingo game format. Again at 2205-2217 with the band Porno for Pyros, followed by a bingo game. Also Radio Metallica heard in there. (Taylor, PA)

WFMQ, 6955 SSB at 1811 to close at 1907. Mailing address given as P.O. Box 28413, Providence, RI 02908. Dedicated a song to Kurt Cobain, sound effects, percussion. Many address and ID announcements. (Taylor, PA) 0247 with the usual music and IDs. Also at 2250 with usual music and IDs. Another time at 0215. (Silvi, OH) 0228 playing the tunes "GE," "Run," and "December" by Collective Soul. Off at 0240. Heard another time at 0440 in USB with "Heart Shaped Box" and something by Radiohead and then four or five songs at once, one of which was "Love One Another Right Now." Off at 0500. (Burgess, MA)

Radio Three, 6955 USB at 1652 with rock, Sal Ammoniac talking about QSL info, reports go via the ACE Dialogues column. Then a sketch called "Master of the Fly Whistle." More rock and other tunes. (Taylor, PA)

Voice of the Runaway Marharishi, 6955 SSB heard at 0252 with laughing sounds and mention of an address for correspondence. Went off the air at 0257. (Taylor, PA)

WPNR (or WENR?), 6955 USB at 0005. This station normally uses WMPR call letters. ID, rock song, mention of Exotica Radio. Off at 0012. (Taylor, PA)

WLIS, 6955 SSB at 0102. Talking

about listeners Pat Murphy and Pat Marshal, an interval signal dedication to Travis Magee. Other interval signals played and mentioned this was program 10 — an all-request show. Off at 0109. (Taylor, PA) Also **6954vUSB** at 0123 with the best of Lounge Lizard Radio. A repeat of program No.10. 0139-0146 close. (Silvi, OH)

WNOE, 6954v SSB at 0119. The operator "stressed" the call so not to be confused with WMOE or WMLE? Caught just at sign-off. Also heard on **6954vUSB** at 0153 ending a song and off the air. (Taylor, PA)

WMOE, 6955 at 2308 and 2341 to 0001 on 6955 and presumed 0148 to 0154 on **6953.6 USB**. Also **tentative on 6955.3 USB or 6695.7 LSB** from 2323-2328. (Silvi, OH)

Reefer Madness Radio, 6955.3 LSB from 0309 to 0345, discussing the use of marijuana. Many IDs and the Belfast drop given. (Silvi, OH)

Voice of Captain Ron Shortwave, 6955 USB at 0141 with tune from Rage Against the Machine. Then gave E-mail address for reports: captainronswr@yahoo.com. Closed with "only you can prevent forest fires." Then he went into a QSO with Dr. Napalm of Blind Faith Radio, discussing QSLs, reception of the signal. This ended at 0150. (Burgess, MA)

KMUD, 6852 at 0133 to past 0329 with live calls from the world famous Mojave phone booth, including calls from non-listeners in Germany and Denmark. Also many listener calls, including a 14-minute one from me. Continued on 3450 from 0401 tune. They said a CBC TV crew was making a documentary about the phone booth. (Randall Ruger, CA)

Let's keep those logs coming my way, folks. Also, I really (really!) need photocopies of QSLs of currently active stations, so how about some help! As always, I appreciate your reports and your faithful cooperation.

See you next month with more pirate radio pickings! ■

BY EDWARD TEACH

Tap into secret Shortwave Signals

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

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

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

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

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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, Iraqi 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

Super Active Antenna

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

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

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED.

Switch two receivers and auxiliary or active antenna. MFJ-1024 \$139⁹⁵

6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$14.95.

Indoor Active Antenna

Rival outside long wires with this *tuned* indoor active antenna.

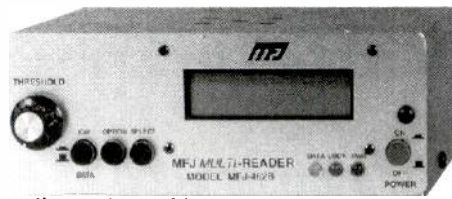
"World Radio TV Handbook" says MFJ-1020B is a "fine value... fair price... best offering to date... performs very well indeed."

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

Compact Active Antenna

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

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, \$14.95. 3 1/2x1 1/4x4 in.



-- all over the world -- Australia, Russia, Japan, etc. MFJ-462B \$179⁹⁵

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

Printer cable, MFJ-5412, \$9.95.
MFJ MessageSaver™

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

High Performance Modem

MFJ's high performance PhaseLockLoop™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference --

Eliminate power line noise!



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-1026 \$179⁹⁵

MFJ Antenna Matcher
MFJ-959B \$99⁹⁵

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

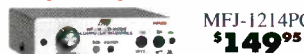
Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.
Dual Tunable Audio Filter
MFJ-752C \$99⁹⁵

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 \$99⁹⁵

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. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

CW, RTTY, ASCII Interface



MFJ-1214PC \$149⁹⁵
Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

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

High-Q Passive Preselector

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

Super Passive Preselector
MFJ-956 \$49⁹⁵

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
MFJ-1046 \$99⁹⁵

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-38 \$16⁹⁵

greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

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

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

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, \$14.95. 5 1/2"Wx2 1/2"Hx5 1/4"D inches.

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

Try it for 30 Days

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

MFJ Antenna Switches



MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. MFJ-1702C for 2 antennas. MFJ-1704 \$64⁹⁵ MFJ-1702C \$24⁹⁵

World Band Radio Kit

Build this regenerative shortwave receiver kit and listen to signals from all over the world with just a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands. MFJ-8100K \$69⁹⁵ kit MFJ-8100W \$89⁹⁵ wired

21 Band World Receiver

MFJ's MFJ-8121 new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. Sony® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size! MFJ-8121 \$39⁹⁵

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Prices and specifications subject to change. (c) 1998 MFJ Enterprises, Inc.

Pop'Comm's World Band Tuning Tips

August 2000

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	UTC	Freq.	Station/Country	Notes
0000	4800	Radio Buenas Nuevas, Guatemala	SS	0200	9605	Vatican Radio	SS
0000	4960	Radio Federacion, Ecuador	SS	0200	11640	Far East Broadcasting Assn., Seychelles	Unid
0000	7345	Galei Zahel, Israel	HH	0200	11655	Voice of Turkey	
0000	7365	Radio Marti, USA	SS	0200	11700	Radio Bulgaria	
0000	9655	Radio Austria Int'l	GG	0200	15250	Voice of America, via Sri Lanka	
0000	11705	Radio Japan/NHK, via Canada		0200	15355	Radio Sultanate of Oman	AA
0000	12105	Voice of Greece	GG	0230	17605	Central People's Bc Station, China	CC
0000	15215	Channel Africa, South Africa		0230	17615	Radio Free Asia, via No. Marianas	
0000	17720	China Radio Int'l	SS	0300	3380	Malawi Broadcasting Corp.	vern
0030	6065	Voice of the Islamic Republic of Iran		0300	4819	La Voz Evangelica, Honduras	SS
0030	6120	Radio Vilnius, Lithuania, via Germany		0300	4820	Radio Botswana	
0030	9400	Radio Bulgaria		0300	4931	Radio Costena, Honduras	SS
0030	9530	Radio Nova Visao, Brazil	PP	0300	4955	Radio Nacional, Colombia	SS
0030	11585	Kol Israel	HH	0300	7275	Voice of America, via Botswana	
0030	11675	Radio Kuwait	AA	0300	9735	Wales Radio, via Merlin Communications, England	
0030	11680	Radio Exterior de Espana	SS	0300	9737	Radio Nacional, Paraguay	SS
0030	11700	China Radio Int'l	SS	0300	9965	Voice of Armenia	SS
0030	11710	Broadcasting Service of Kingdom of Saudi Arabia	AA	0300	11920	RTV Marocaine, Morroco	AA
0030	11885	UAE Radio, Abu Dhabi	AA	0300	15400	UAE Radio, Dubai	
0030	13695	Radio Thailand		0300	17565	Voice of Russia	
0100	4845	Radio K'ekchi, Guatemala	SS/local	0300	17675	Radio New Zealand Int'l	
0100	4915	Radio Anhanguera, Brazil	PP	0315	7305	Vatican Radio	SS
0100	5930	Radio Slovakia Int'l		0325	7175	Voice of the Broad Masses of Eritrea	vern
0100	5940	Voice of Vietnam, via Russia		0330	4800	Radio Lesotho	
0100	6055	Radio Exterior de Espana		0330	6135	BBC, via South Africa	
0100	7105	Radio Tashkent, Uzbekistan		0330	6458.5	AFRTS, Puerto Rico	USB
0100	7115	Radio Yugoslavia		0330	7160	Radio Tirana, Albania	
0100	9560	Radio Budapest, Hungary		0330	7215	Trans World Radio, South Africa	vern/EE
0100	9665	Radio Prague, Czech Republic		0330	9580	Africa Number One, Gabon	FF
0100	9745	HCJB, Ecuador		0330	9835	Radio Budapest, Hungary	
0100	9905	Swiss Radio Int'l, via Fr. Guiana		0330	11730	BBC, via Seychelles	
0100	11710	RAE/Radio Nacional, Argentina	SS	0330	15075	All India Radio	
0100	15425	Sri Lanka Broadcasting Corp.		0330	17825	Radio Japan/NHK	
0130	7300	Radio Slovakia Int'l		0400	3300	Radio Cultural, Guatemala	SS
0200	3280	La Voz del Napo, Ecuador	SS	0400	4885	Radio Clube do Para, Brazil	PP
0200	4830	Radio Tachira, Venezuela	SS	0400	5000	YVTO, Venezuela (time station)	SS
0200	4920	Radio Quito, Ecuador	SS	0400	6010	Voice of Turkey	
0200	6000	Radio Havana Cuba		0400	7245	Radio Algiers, Algeria	AA
0200	7210	Radio Minsk, Belarus		0400	8000	Voice of Sudan (clandestine)	AA
0200	9495	Radio Sweden	Swedish				

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0400	9475	Radio Cairo, Egypt		1200	15115	HCJB, Ecuador	
0400	9570	Radio Romania Int'l		1230	4895	Radio Malaysia, Sarawak	unid
0400	9870	Radio Ukraine Int'l		1230	9515	BBC, via Canada	
0400	9925	Croatian Radio	EE/Croat	1230	9590	Radio Singapore Int'l	
0400	11850	Radio France Int'l	FF	1230	9780	Voice of America, via Tinian	
0400	15470	Voice of Russia		1230	15200	Radio Tashkent, Uzbekistan	unid
0400	15575	BBC, via Cyprus		1230	15280	BBC via Thailand	
0430	11635	Radio Norway Int'l	NN	1230	18690	Radio Sweden	
0430	11645	Voice of Greece	GG	1245	9820	Trans World Radio, Guam	CC
0430	12050	Radio Cairo, Egypt	AA	1300	9615	KNLS, Alaska	
0430	15595	Voice of Russia		1300	9705	Radio Mexico Int'l	SS/EE
0500	4770	Radio Nigeria		1300	11820	Radio Polonia, Poland	
0500	4850	Cameroon Radio TV	FF	1330	21605	UAE Radio, Dubai	
0500	5047	Radio Lome, Togo	FF	1400	9505	Radio Japan	
0500	5100	Radio Liberia Int'l	EE/vern	1400	18950	Radio Norway Int'l	NN
0500	6015	Radio Austria Int', via Canada		1400	21745	Radio Prague, Czech Republic	
0500	6145	Deutsche Welle, Germany	GG	1430	15400	YLE/Radio Finland Int'l	Finn.
0500	7210	Radiodiffusion du Benin	FF	1500	11695	Voice of Russia	
0500	7215	Namibia Broadcasting Corp.		1500	12010	Swiss Radio Int'l, via Singapore	GG
0500	7255	Voice of Nigeria		1500	15245	Radio National Congolaise	FF
0600	4760	ELWA, Liberia		1500	17490	IBC-Tamil, via Madagascar	unid
0600	4915	Ghana Broadcasting Corp.		1530	11745	Radio Portugal Int'l	PP
0600	6185	Radio Educacion, Mexico	SS	1530	21685	Radio France Int'l	FF
0600	7125	RTV Guineenne, Guinea	AA/FF	1600	17660	Radio Rossi, Russia	RR
0600	17710	RAI, Italy	II	1630	15735	Radio Denmark, via Norway	DD
0600	17780	KWHR, Hawaii		1700	13585	RDP Int'l, Portugal	PP
0630	4845	Radio Mauritania	AA	1700	15105	Voice of Oromo Liberation, via Germany	
0630	5995	RTV Malienne, Mali	FF	1700	15345	RTV Marocaine, Morocco	AA
0700	5025	Radio Rebelde, Cuba	SS	1700	15475	Africa Number One, Gabon	FF
0700	7120	Italian Radio Relay Service		1700	17505	Radio Norway Int'l	NN
0700	8000	JJY time station, Japan	JJ	1700	17605	Radio France Int'l	
0730	15115	Radio New Zealand Int'l		1700	17735	Radio Romania Int'l	
0745	9870	Trans World Radio, Monaco		1700	17850	Radio Exterior de Espana, via Costa Rica	SS
0800	4960	Radio Vanuatu	FF/EE	1700	17895	Qatar Broadcasting Service	AA
0800	5980	Radio Vlaanderen Int'l		1730	9465	FEBC-KFBS, Saipan	RR
0800	6055	Radio Tampa, Japan	JJ	1800	17870	Channel Africa, South Africa	
0800	6070	Voz Cristiana, Chile		1830	15190	Radio Pilipinas, Philippines	Tagalog
0800	7145	Radio Pyongyang, North Korea	CC	1830	21590	Radio Netherlands, via Bonaire	
0800	7175	Radio Tikhy Okean, Russia	RR	1830	21630	Radio Telefis Eireann, Ireland, via Ascension Island	
0800	9710	Radio Australia		1900	12060	Voice of the Mediterranean, via Russia	
0800	11815	Radio Brazil Central, Brazil	PP	1900	15084	Voice of the Islamic Rep. of Iran	Farsi
0800	11840	Radio Rossi, Russia	RR	1900	17535	Kol Israel	
0900	9585	Radio Globo, Brazil	PP	1900	21455	HCJB, Ecuador	
0900	9615	Radio Cultura, Brazil	PP	1930	15235	Voice of America, via Philippines	
1000	4840	Radio Amazonas, Venezuela	SS	2000	13700	Radio Netherlands	
1015	4996	Radio Andina, Peru	SS	2000	15150	Voice of Indonesia	
1030	3335	Radio East Sepik, Papua New Guinea	Pidgin	2030	15435	Voice of Africa, Libya	
1030	5300	Radio Superior, Peru	SS	2100	9735	Radio Sultanate of Oman	AA
1030	6135	Radio Santa Cruz, Bolivia	SS	2130	15505	Radio Kuwait	AA
1030	9865	Trans World Radio, Guam		2200	9625	CBC Northern Service, Canada	
1100	5020	Solomon Islands Broadcasting Comm.		2200	12085	Radio Damascus, Syria	
1100	9540	Swiss Radio Int'l, via Singapore		2230	15180	Radio Africa, Equatorial Guinea	
1100	9965	KHBN, Palau		2300	9810	Radio Budapest, Hungary	Hung.
1100	12085	Voice of Mongolia		2300	15275	Deutsche Welle, Germany, via Rwanda	GG
1130	3375	Radio Western Highlands, Papua New Guinea		2300	15305	Radio Canada Int'l	
1130	9650	Radio Korea Int'l, via Canada		2330	9695	Radio Rio Mar, Brazil	PP
1200	6020	Radio Australia		2330	11915	Radio Gaucha, Brazil	PP
1200	9470	Radio Free Chechnya, Russia	RR	2330	117805	Radio Taipei Int'l, via WYFR	CC
1200	9580	Radio Australia					
1200	9865	Radio Vlaanderen Int'l, via Russia	Dutch				
1200	11775	Caribbean Beacon, Anguilla					
1200	15095	Far East Broadcasting Corp., Philippines	unid				

product parade

BY HAROLD ORT AND R.L. SLATTERY

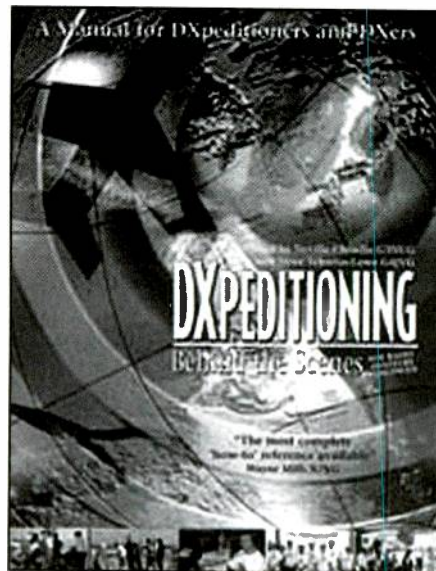
Review Of New, Interesting And Useful Products

DXpeditioning — Behind the Scenes

They learned so much from the Spratly Island (9M0C) and other DXpeditions that they wanted to share these experiences with the worldwide DX community. The result is this wide-ranging manual which has been written by members of the 9M0C Spratly team. It is not only written for the DXpeditioner, there is also a great deal to interest all DXers. There is much in this book about operating standards. It also gives some idea of what is involved in providing several bandcountry slots on several modes from a rare amateur DX location.

DXpeditioning Behind the Scenes has just been published. It is not a story of the DXpedition, but draws heavily on the

experiences at 9M0C and on many other DXpeditions. A wide range of topics is covered, including: Project Planning, Marketing and Public Relations, Licensing and Permits, Sponsorship, Preliminary Site Survey, Team and Management Structure, Equipment, Logistics, RF Matters, Technology, Propagation, Specialist Areas (RTTY, LF, 6 meters), DXpedition Manual, The Operation, Life Support and Environmental Considerations, Finance, After the Event, and QSLing. We believe that this book is a real "must" for all those interested in DXing. It is distributed worldwide by Nevada Communications, Unit 1, Fitzherbert Spur, Farlington, Portsmouth, PO6 1TT, UK (www.nevada.co.uk). Wayne Mills, N7NG, in his review commented "The well-crafted *DXpeditioning Behind the Scenes* offers



DXpeditioning — Behind the Scenes is a new book with great information for all DXers.

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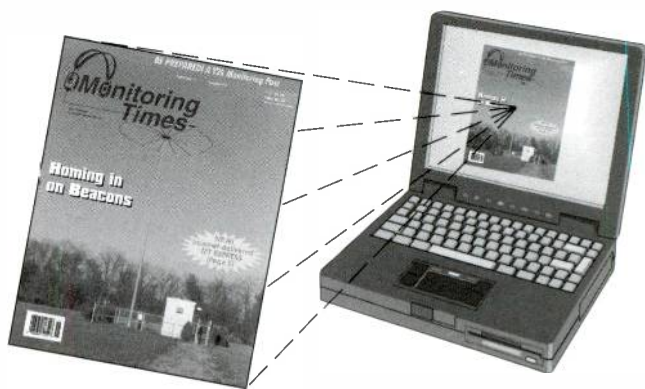
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We used the Bayco Work Light extensively during several northeast power outages with a solar panel array and found the construction to be outstanding

and battery drain to be minimal. The handy work light, Bayco Item #SL-412A, also has a top-mounted hook for easy hanging on door handles, nail-hooks or wherever you need 12 Vdc emergency light. The company also sells a 12 Vdc light (Item #SL-412) with excellent quality battery clips at the end of the 20-foot power cord.

For more information about the Bayco 12 Vdc Trouble Light, which retails for \$9.99, and their complete line of other lights, cord reels, and accessories, contact Bayco at 10425 Plano Road, Suite 400, Dallas, TX 75238 or phone 800-233-2155 or FAX 214-342-2899. Be sure to tell them you read about it in *Popular Communications* magazine.

Bayco was founded in 1984 with one product, a heavy-duty electrical cord storage reel. The company has grown to two divisions with over 200 products including ultra-violet leak detection products, extension cords, fluorescent work lights, light bulb changers, and high-quality halogen worklights.

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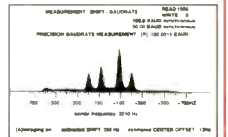
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the ham column

Getting Started As A Radio Amateur

Handling Interference Problems

This month's column is about an unfortunate consequence of modern civilization — interference. Unlike the good old days, modern hams are surrounded by RF devices and buried in inexpensive electronic goodies. And as hams, we even interfere with ourselves! Thankfully, most interference issues can be solved or minimized. Running low power is an excellent first step. If interference is really ruining your day, check out a recent copy of *The ARRL RFI Book*. This phone-book size reference is a comprehensive resource for fixing every imaginable interference problem in your home or mobile shack.

Guilty Or Care Free?

When interference rears its ugly head, who's to blame, anyway? And who is responsible for cleaning up the mess? The answers are varied. Before we examine specific solutions, let's look at a few interesting RFI facts:

- Hams must operate their transmitters in accordance with all appropriate FCC regulations. Make sure your station equipment is properly installed, has a good RF ground, uses a good low-pass filter at the station output, etc.

- Hams are not *required* to help their neighbors with RFI complaints that do not involve their transmissions (although they may elect to do so).

- The FCC considers telephones, VCRs, alarm systems, CD players, audio amplifiers (etc.) that receive RFI to be *improperly functioning* as radio receivers. These design inadequacies are manufacturer issues.

- The RFI susceptibility of consumer electronic devices is limited only by the manufacturers' voluntary compliance with committee-developed standards. The voluntary standards do not address operating the equipment in close proximity to powerful transmitters. Transmitter operators are not responsible for RFI in such situations.

- In general, equipment owners are responsible for proper operation of their equipment. As an example, if your neigh-



Ferrite cores from large to small. If RFI sleuthing is on your agenda, you'll probably be using these cores to build common-mode RFI chokes.

bors experience RFI from your properly licensed, engineered and operated ham station, they are responsible for any corrective measures.

- FCC regulations require that amateur transmitters not emit *spurious signals* that interfere with other *radio services*. This is the ham operator's sole *regulatory requirement* — and it doesn't apply to interference to non-radio consumer devices.

From a purely regulatory perspective, we're in the clear. If our stations are properly engineered, interference is mostly *their* problem, not *ours*. But in the real world we'll probably have to (or want to) be more accommodating.

First Things First

The first step in resolving RFI problems is to verify that your transmitter is the cause. After all, some other transmitter or RF noise source may be the problem. No matter what the specific interference, perform a few tests to see what bands, modes, and power levels are involved.

Most RFI problems aren't mode sensitive, but they're usually power related. That's why low-power operation is the

only universal RFI band-aid. Most RFI problems are also frequency related. This can help you find solutions and it gives you an opportunity to work other bands while that solution is in progress. To start your RFI-elimination project, here are some tips:

- Always use good engineering practices.
- Run low power.
- Erect the best possible antenna system (outdoor is better than indoor, higher is better than lower, etc).
- Provide the best possible RF ground for your antenna system. Use a counterpoise tuner or "artificial ground" if it helps.
- Add a high-quality low-pass filter to the output of your transmitter. The filter won't eliminate all types of RFI, but it will attenuate higher-frequency harmonics and spurious signals that might produce RFI.

RFI Basics

Remember that this column is a mere introduction to RFI issues, and there are several basic RFI categories:

- **Spurious emissions** (harmonics, mixing products, noise) and other

BY KIRK KLEINSCHMIDT, NT0Z

“... low-power operation is the only universal RFI band-aid.”

unwanted signals generated by your transmitter. Reducing transmitter power and using a low-pass filter can sometimes eliminate this type of interference.

• **Intermodulation and external rectification.** Poor-quality electrical connections (usually outdoors); corroded joints in downspouts, antenna towers or metal-sided buildings; bad solder joints, telephone systems and junction boxes and a whole host of similar items can radiate RF energy and harmonics when excited by your station's RF. These problems can be frustrating and difficult to track down.

• **Fundamental overload.** This is the most common culprit. Your transmitted RF (from your clean, perfectly engineered station) simply overpowers the affected device. What's more, your signal might be “getting into” the affected system in a variety of ways: antenna lead-ins, speaker wires, AC line cords, ground wires, to name a few.

RFI A La Mode

Your RFI cures will typically be aimed at one of two main culprits: differential-mode RFI or common-mode RFI. Basically, differential-mode RFI involves a transmission line such as the coax that runs from a TV antenna to a TV receiver. If the TV antenna receives its desired TV signals and your undesired ham signal, it will pass *both* signals on to the TV receiver through the coax (and the ham RF will interfere with the set). If you install a high-pass filter at the TV receiver's antenna terminals — a typical differential-mode RFI cure — the filter will attenuate the lower-frequency ham RF while passing the desired TV RF.

Differential-mode cures can be simple. Unfortunately, most RFI is a common-mode problem, where the interfering signal is arriving via both conductors (the coax center conductor and the shield braid) or all conductors (antenna leads, ground leads, speaker wires, ac line cords, DC power cables, etc). Determining specific interference modes may be necessary, as differential-mode cures won't work for common-mode problems, and vice-versa.

Common Cures

When RF from your station is adversely impacting some other device, the first

step in solving the problem is determining exactly how the RF is “being received.” Just because a TV set has an antenna, don't assume that the unwanted signals are getting in through the front door. Power cords, speaker wires, audio/video input and output cables and ground leads can also receive RF. Disconnecting the various “potential RFI antennas” is a good way to start the tracking process.

• **TVs and VCRs:** First, disconnect the coax or twinlead from the set's antenna terminals (or the antenna input on the VCR) and try a few test transmissions from your shack. If the RFI stops, you know that the problem is in the antenna side of the system and not in the power leads, speaker wires, or interconnecting cables. If the problem is being caused by harmonics of your transmitted signal or simple front-end-overload (differential-mode RFI), installing a high-pass filter (available at your local RadioShack store) at the set's antenna input (and/or a low-pass filter at your transmitter output) may be all that's necessary.

If the interfering signal is still a problem when a high-pass filter is in-line, or if the interference is present when the antenna is disconnected, unwanted RF is entering the system through the outside of the antenna lead-in, the power cable or some other interconnecting cable. This is usually common-mode RFI. If the set has A/V cables or speaker wires running to a stereo amplifier or other home theater components, disconnect these lines to see if the RFI situation changes. If it does, plugging them back in one at a time will often pinpoint the source of the problem.

RadioShack, your local ham radio store and various mail-order catalogs sell ferrite cores in several shapes and sizes to help you in your plight. Cleaning up my own RFI problems required quite a few cores! Treating signal cables, coaxial antenna leads, speaker wires, and power cords for common-mode RFI requires similar measures, so don't be shy about applying them to the AC line cord also.

To make a common-mode RFI choke, wrap a few turns of the cable, cord, or wire through an appropriately sized ferrite core as close to the chassis/connector end as practical, securing the windings with electrical tape if necessary. This will often reduce or eliminate the RFI and will let you know whether you're on the right track. Curing severe common-mode RFI may require chokes on several cables or interconnects (AC power, antenna, A/V inputs, etc).

• **Stereos and PC Sound Systems:** To determine whether the radio portion of the system is experiencing problems from harmonics or front-end overload, disconnect the antenna. If the interference disappears, install a high-pass filter at the antenna terminal (50-ohm for coax, 300-ohm for twinlead). If the RFI is still present, leave the high-pass filter in place and begin the search for common-mode culprits per above. Disconnect cables and speaker wires and reconnect one at a time to pinpoint the trouble spot(s) and apply/wind common-mode chokes as necessary. Speaker wires are often cut to convenient lengths that happen to correspond with quarter-wave ham antenna dimensions. Lengthening or shortening the speaker leads can sometimes help eliminate or reduce RFI.

For speaker-related problems, RF signals often enter the system via the speaker leads, which conduct RF energy to diodes or transistors in the audio amplifier circuits. The solid-state devices rectify the RF and mix the distorted signal into the amplified audio chain. Adding common-mode chokes often keeps the RF from reaching the amplifier circuits.

• **Telephones and related devices:** The most common way to clear up RFI that is being “received” via telephone lines is to install in-line filters or common-mode chokes at the service entry, at each telephone, and sometimes in the handset lines. These filters are available from mail-order vendors, retailers, and the phone company (sometimes). If components inside the telephone are receiving your RF directly, try reducing power and/or moving your antenna farther from the telephone. Or, get a different phone. If you can do without a modern convenience or two, pick up a 1970s-era touch-tone phone at the next flea market. Older telephones often perform better in RF-rich environments.

Some Final Thoughts

RFI is ham radio's “disease of civilization” and it will likely require treatment for the duration. Getting a leg up now will help ensure years of hassle-free operating. Good luck. Get busy. And get some ferrite cores! Your suggestions, letters, QSL cards, and photos are always welcome. Write to me at *Popular Communications*, “The Ham Column,” 25 Newbridge Rd, Hicksville, NY 11801. See you on the bands, and hopefully not your neighbor's TV! ■

plane sense

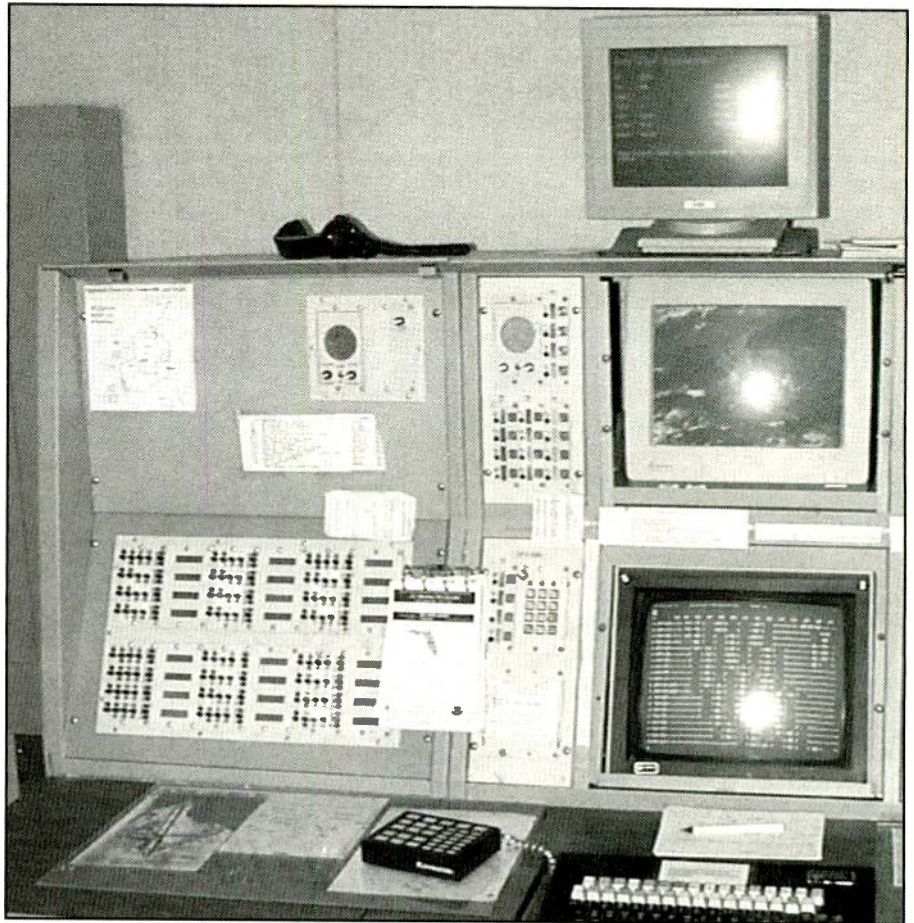
Your Link To Aviation Communications

Monitoring Flight Service Centers

I would like to thank you for the E-mails that I've received for my first two columns. I'm sorry that I have not been able to correspond directly with all of you, but I now know that the information I am providing is being used. I have had some suggestions about future articles as well as suggestions on improving the column.

Ron in Michigan made mention of monitoring NDB's in the LF band. Thanks, Ron. It got me thinking about IDing them, and I will address this issue in a future article. I've also discovered some frequency info from ICAO documents that I will relay in a later column. If I haven't said it before, thanks to you all.

The first three "Plane Sense" columns have dealt with some of the available resources of aviation frequencies. This is the first of four columns concerning just what air traffic controllers do, where they work, etc. Most people get a distorted view of air traffic control (ATC) from movies and TV programs. Let's face it — it is for the most part fantasy and fallacy of how ATC is portrayed. My wife will tell you she hates me watching any program or movie with air traffic control in it. When I do, I have one goal in living: take the movie or program apart. I hate saying it, but the producers spend millions on acting and writing, but almost nothing on reality. A few examples would be "Skyjacked" with Charlton Heston, "Die Hard" with Bruce Willis, and any film with the words "Iron Eagle" in the title. Of course, "Airplane" and "Airplane II" are in a category by themselves. That's not to say that they are all bad. Three good examples of films include the short segment in "Close Encounters of the Third Kind" filmed in the Indianapolis Air Route Traffic Control Center, the comedy "Summer Rental" starring the John Candy filmed in the Atlanta Air Route Control Center, and the recent "Pushing Tin" filmed on Long Island, NY. (That is, except for controllers standing at the end of a runway to get blown over by landing Boeing 747's).



The radios used in the Inflight position at the FSS.

There are four aspects to Air Traffic Control: Flight Service Stations (FSSs), Airport Traffic Control Towers (ATCTs), Approach Controls (RAPCONs, TRACONs, etc.), and Air Route Traffic Control Center's (ARTCCs or Centers). This "Plane Sense" column deals with the Flight Service Centers.

Most non-pilots look at Flight Service Stations and think of the old service stations in the 1950s or 1960s where you pulled up to a fuel pump and some guy in a police hat came out, filled up your Ford, washed the windows, checked the tires and oil, and did it without you leaving the comfort of your Mustang or Torino. That is not what is done at an FSS.

There are six or seven different positions that are manned at the FSS, but only two or three actually use radios to communicate with the pilot. Most of the work is pre-flight briefing, when a pilot would talk to a controller to get current and forecasted weather, information about navigational aid problems, and to file instrument and visual flight plans. While that seems rather light, it usually takes up to 70 percent or more of a typical FSS controllers time at work. The majority of this is done via telephone.

The NOTAM (Notices To AirMen) position has a controller formatting and dispensing messages about potential hazards to flying, such as radio tower lights

being inoperative, navigational aid failures, parachute jumping, runway and taxiway closures. Flight Data controllers check filed flight plans for the correct format, take weather from various control towers in the area, and notify Customs of nonscheduled inbound flights from foreign countries. But their primary duty is the start of search and rescue procedures when an aircraft is overdue or lost. Controllers whose sole duty is to observe weather and disseminate information about it occupy weather positions.

FSS And Radio

There are two or three positions, depending on the FSS, which transmit over the radio. The first is Broadcast, which are one-way transmissions. These notices are called HIWAS for "Hazardous Inflight Weather Advisory Service." The definition from the Airman's Information Manual glossary is "Continuous recorded hazardous in-flight weather forecasts broadcasted to airborne pilots over selected VOR outlets . . ." If no hazardous weather exists or is forecast then the following statement is made over the VOR's: "This recording prepared at (time) Zulu. There are no hazardous weather advisories within a 150 nautical mile radius of the HIWAS outlet. Pilot weather reports are requested."

Should a weather warning exist it may sound something like this: "HIWAS within a 150 nautical radius of Orlando, recorded at one-seven-zero-zero Zulu. An airmet for turbulence exists from Charlotte to Jacksonville to 50 west of Ormond Beach to St. Petersburg to 50 southwest of Albany to Choo Choo to Charlotte. For moderate turbulence from one-four thousand to the surface. Conditions ending by two-zero-zero-zero Zulu. Contact flight service or flight watch for additional details."

The Inflight position is manned 24/7 at all full-time FSSs. A typical Inflight position is shown in the photograph. At some stations, there may be two or more positions occupied at one time, depending on traffic. The photo shows me manning Inflight. The controllers monitor frequencies scattered throughout the FSS area, selected VORs, emergency frequencies of 121.5 and 243.0 MHz, and certain Airport Traffic Control Tower frequencies when selected towers close for the evening. During those hours, usually late night to early morning, the controller provides air-

port advisory services. Not all towers that close at night utilize this service.

These controllers provide the same services that the pre-flight controller gives as well as activating and closing visual flight rule flight plans and giving en route briefings to pilots concerned with hazardous weather along the route. Sometimes transmissions are made for pilots to contact an ATC facility when they cannot be contacted any other way. Traffic permitting, these controllers may

file flight plans, but that it not their primary responsibility. All controllers at the FSS may be required to utilize a Direction Finding (DF) unit to help locate lost or disoriented pilots. By using positions given by the pilot and a specially prepared Sectional Chart for the area (see the June 2000 issue for information on Sectionals) a controller can locate and suggest headings to get a pilot on the way to his intended destination, or at least a suitable airport in the case of

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Advance	Advance Air Charters	ADV
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Aeroprop	Aeroprop	APO
Air Alma	Air Alma (Inc.)	AAJ
Air Atlantic	Air Atlantic	ATL
Air Baffin	Air Baffin	BFF
Air Boats	Pacific Air Boats, Ltd.	PAB
Air Brousse	Air Brousse, Inc.	ABT
Air Canada	Air Canada	ACA
Air Club	Air Club International	CLI
Air Data	Avion Taxi (2695731 Canada Inc.)	ADQ
Air Dorval	Air Dorval Ltd.	ADT
Air Frontier	Rog-Air Ltd.	FAD
Air Future	Fortunair Canada	FXC
Air Huron	Garrison Aviation Ltd.	AHM
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Air Muskoka	Air Muskoka	AMS
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Air North	Air North Charter	ANT
Air Quantex	Quantex Environmental Inc.	QTX
Air Quasar	Aero Taxi	QAT
Air Roberval	Air Roberval	RBV
Air Sandy	Air Sandy Inc.	SNY
Air Sask	La Ronge Aviation Services Ltd.	ASK
Air Sorel	Air Sorel Ltd.	WHY
Air Spray	Air-Spray 1977 Ltd.	ASB
Air Star	Air Star Corporation	ASC
Air Thunder	Thunder Airlines Inc.	THU
Air Trader	ICC Canada Ltd	CIC
Air West	Air West	AWT
Aircoach	Air BC Ltd	ABL
Airsouthwest	Air Southwest	ASW
Airwave	Airwave Transport Inc.	AWV
Aklak	Aklak Air Ltd.	AKK
Albani	Albani Airways	BNI
Alberta	Alberta government	GOA
Alberta Citylink	Alberta Citylink	ABK
Algoma	Algoma Airways Inc.	AGG
Alkan Air	Alkan Air Ltd.	AKN
Altair	Altair Aviation (1986) Ltd.	ALQ
Ampere	Hydro-Quebec	APZ
Angus	Angus Aviation Ltd.	AAZ
Aquila	Aquila Air Ltd.	AQL
Arctic Wings	Arctic Wings and Rotors Ltd.	AWR
Armstrong	Armstrong Air Inc.	ARQ
Arrow	Arrow Aviation Ltd.	ARO
Astoria	Astoria Inc.	AOI
Athbaska	Athbaska Airways Ltd.	ABS
Atlantis Canada	Atlantis Transport., Ltd.	ATE
Aviation Amos	Aviation Amos M. ETJ. Inc.	AMJ
Avionair	Avionair Inc.	ANU
Awood Air	Awood Air Ltd.	AWO

United States

Baker Aviation	Baker Aviation, Inc. (Kotzebue, AK)	BAJ
Baltair	Baltic Aviation, Inc. (Denver, CO)	BLT
Baltia Flight	Baltia Air Lines, Inc. (Jamaica, NY)	BTL
Bancstar	Valley National Corp (Phoenix, AZ)	BNS
Bankair	Bankair, Inc. (West Columbia, SC)	BKA
Bankcheck	Priority Aviation Company, Inc. (Kansas City, MO)	BCK
Bar Harbor	Bar Harbor Airlines (Bangor, ME)	AJC
Barken Jet	Barken International Inc. (Salt Lake City, UT)	BKJ
Barnacle Air	Sundance Air, Inc. (Denver, CO)	BNC
Barracuda	Island Air Charters, Inc. (Ft. Lauderdale, FL)	ISC
Basler	Basler Flight Service, Inc. (Oshkosh, WI)	BFC
Beechnut	May Air Xpress, Inc. (El Dorado, AR)	MPX
Bemidji	Bemidji Airlines (Bemidji, MN)	BMJ
Bering Air	Bering Air, Inc. (Nome, AK)	BRG
Berry	Berry Aviation, Inc. (San Marcos, TX)	BYA
Big A	Arrow Airways, Inc.	APW
Big Apple	Trans International Express Aviation (Jamaica, NY)	BAP
Big Isle	Big Island Air, Inc. (Kailua-Kona, HI)	BIG
Big Sky	Big Sky Airlines (Billings, MT)	BSY
Bighorn Air	Bighorn Airways, Inc. (Sheridan, WY)	BHR
Bird Air	Bird Leasing, Inc. (North Andover, MA)	BIR
Biscayne	Miami Air International, Inc. (Miami, FL)	BSK
Bison-Air	Boise Interagency Fire Center (Boise, ID)	BIN
Blackhawk	Blackhawk Airways, Inc. (Janesville, WI)	BAK
Blackjack	Atlantic Airlines (Orlando, FL)	BAK
Blue Goose	East Kansas City Aviation, Inc. (Grain Valley, MO)	EKC
Blue Horizon	Blue Horizon Travel Club (Cincinnati, OH)	BLH
Blue Max	Cherokee Leasing, Inc. (Orlando, FL)	CBM
Blue Ridge	Atlantic Coast Airlines (Sterling, VA)	BLR
Blue Sky	Direct Air, Inc.	DIA
Blue Steak	Jetstream International Airlines (Erie, PA)	JIA
Boeing	Boeing Commercial Airplane Group (Seattle, WA)	BOE
Borealis	Air Aurora, Inc. (Sugar Grove, IL)	AAI
Bowman	Bowman Aviation, Inc. (Fort Wayne, IN)	BMN
Box Kar	Civil Air Patrol, South Carolina Wing (Columbia, SC)	BKR
Boxer	Redding Aero Enterprises, Inc. (Redding, CA)	BXR
Branson	Eclipse Airlines, Inc. (Chantilly, VA)	BRN
Buff Express	Buffalo Express Airlines, Inc. (Buffalo, NY)	BRX
Buffalo Air	Buffalo Airways (Waco, TX)	BVA

Canada

Bastion	Connectair Charters, Ltd.	BSN
Bearskin	Bearskin Lake Air Service, Ltd.	BLS
Blue Flame	Westcoast Energy	BLK
Bluebird *	Collingwood Air Services Ltd.	BLE
Bluenose	I M P Aviation Services, Ltd.	BLU
Bonair	Bonair Aviation, Ltd.	BNR
Boomerang	Air 500, Ltd.	BRM
Bordair	Bordaire, Ltd.	BOF
Borek Air	Kenn Borek Air, Ltd.	KBA
Bradley	Bradley Air (Charter) Services, Ltd.	BAR
British Columbia	Government	BCG
Brock Air	Brock Air Services, Ltd.	BRD
Buffalo	Buffalo Airways, Ltd.	BFL
Business Air	Business Air Services (Toronto), Ltd.	BAM

* Bluebird is also the callsign for Finnavigation O/Y in Finland.

an emergency. The in-flight controller has the capability of using most any frequency at his disposal to give this "DF steer" to the pilot, not just the usual emergency frequencies.

The other position, which is not at all FSS's, is the flight watch position. This is basically an in-flight position but deals with high-altitude pilots, not the smaller, slower aircraft that fly at low altitudes.

What You'll Hear

When a pilot activates his flight plan, he would call an FSS saying: "St.,

Petersburg Radio, November 12345 transmitting on 122.1 and monitoring the Lakeland VOR." The controller may respond, "November 12345, St. Petersburg Radio. Go ahead." Pilot: "November 345 is airborne at one-six-four-two Zulu off of Winter Haven and would like to activate my flight plan to Valdosta, Georgia." FSS: "November 345, activating flight plan at four-two. Bartow altimeter three-zero-zero-niner."

The controller calls the flight plan up on his computer, changes the proposed departure time to actual departure time and activates the flight plan. This infor-

mation is transmitted via landline to the appropriate FSS, in this case Macon, Georgia, with the estimated time of arrival at his destination. Let's say that this flight-plan's estimated time enroute is two hours and 15 minutes. The receiving controller is expecting the aircraft's arrival at 1857 Zulu. The pilot is given an extra 30 minutes to arrive. If this pilot does not close his flight plan by 1927 Zulu then he is considered overdue and search-and-rescue procedures begin at the destination FSS, but that's a different story.

When a pilot closes his flight plan he may say, "Macon Radio, November



The Inflight position in use. This fellow is columnist Bill Hofer.

12345 transmitting and receiving 122.8. I have Valdosta in sight and would like to close my flight plan." FSS: "November 12345, Macon Radio. Closing flight plan at this time. Have a good day."

During the hours the inflight position is providing airport advisory services (AAS), the controller is monitoring the local control and ground control frequencies. The inflight person does not "control" the aircraft, and cannot clear an aircraft for take-off or landing, but gives information about known movement of aircraft near the airport or on the taxiways. These frequencies may not be as busy or as exciting as other ATC frequencies, but nonetheless are as important as any other frequency in use by controllers.

Next month we'll take a look at Airport Traffic Control Towers. See you then. ■

Frequencies

New

Galena — Edward G. Pitka Sr. Airport, AK (GAL)
CTAF 352.05 MHz simulcast with 123.0 MHz
Military Operations 373.2 MHz, 391.2 MHz, 352.05 MHz

Groton — New London, CT (GON) ATCT: 304.6 MHz

LaGrange — Fayette Regional Air Center, TX (3T5)
AWOS-3: 124.175 MHz

Louisburg — Franklin County Airport, NC (LHZ)
Instrument Landing System
Localizer 109.35 MHz

Stockton, CA (ECA)
Oakland FSS — Enroute Flight Advisory Service — 122.0 MHz

Changed

Hampton — Langley AFB, VA (LFI)
Clearance Delivery 271.3 MHz changed to 257.625 MHz

Knob Noster — Whitman AFB, MO (SZL)
ATIS: 273.5 MHz changed to 239.025 MHz

Redmond OR (RDM)
AWOS-3: 135.75 MHz changed to
ASOS: 119.025 MHz

Get Out.

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Clandestine Radio Intrigue, And Becoming A Member Of The SSB Network

“Clandestine radio broadcasting is a field which encompasses media, espionage, and politics. Because of the illegal nature of these stations within their target countries, the identities, sources of funding and even broadcasting locations are oftentimes hidden. Yet in many cases the story behind their operations are much more intriguing than their programs — if their stories ever become public, of course.” (Quoted from the Clandestine Radio Intel (CRI) Website).



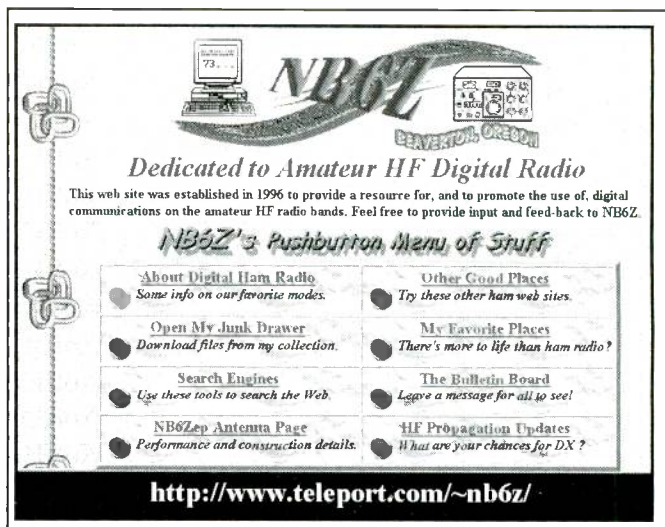
If Clandestine Radio intrigues you, then CRI is THE Website for you!

From Afghanistan to Western Sahara, “Clandestine Radio Intel” (CRI) has it covered. Broadcast schedules, frequencies, briefings — it’s all there! Widely considered as the leading expert on clandestine radio in the United States, CRI’s Webmaster Nick Grace C. offers his perspective: “Ever since I began listening to shortwave radio 15 years ago, I’ve found the intrigue, mystery, and challenge of clandestine radio to be the most exciting and fulfilling aspect of the listening hobby. Hearing a weak and muffled signal from a distant radio station caught up in the heat of war is one thing. But being able to place what you’re hearing into the greater context is a great deal more. These people truly believe in what they’re doing and they’re risking not only their own lives but the lives of their families and close friends.”

The CRI Website is designed and maintained by Nick Grace C., Washington, DC, with support from Martin Schoech, Germany, and Armando F. Mastrapa of New York. If you’re interested in Clandestine Radio, the CRI site is for you. Don’t miss it! Visit <http://www.qsl.net/yb0rmi/cland/>.

Amateur HF Digital Radio

Richard Griffin’s, (NB6Z) “Dedicated to Amateur HF Digital Radio” site is a great resource for learning about TOR, AMTOR, FACTOR, FACTOR-2, G-TOR, CLOVER, RTTY, PSK31, HF PACKET, HELLSCHREIBER, MT63, and more. In Richard’s words, “If you have browsed to this page looking for some basic information on getting started with PSK31, or other digital communications, you have found the right place! If you are hoping to add some new life and excitement to your hobby, then you have chosen the right subject. As an introduction to the HF digital modes, or inexpensive upgrade for your



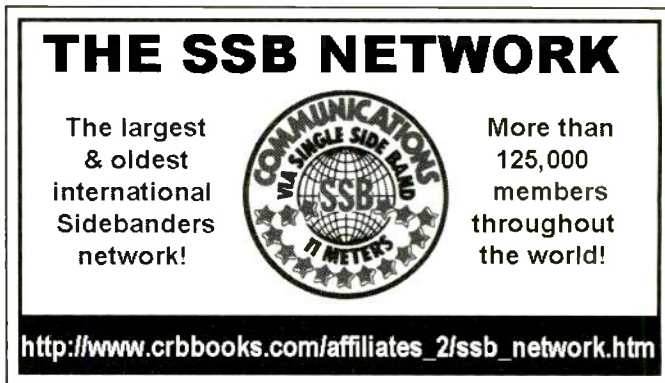
A great site to learn about Digital Amateur Radio.

digital operations, the information here is a starting point for operating the fastest growing modes of keyboard to keyboard communications.”

If you’ve been thinking about “digital” or wondering what all the excitement is about, don’t miss this extraordinary resource at <http://www.teleport.com/~nb6z/>.

CB SSB Operations

Here’s a resource that many CBers should find of interest. The SSB Network has over 125,000 worldwide members, and it appears to be one popular 11-meter Sidebanders resource! According to the information posted at their site, a onetime lifetime membership fee of \$10 gets you a detailed and useful operating guide, SSB Net Notes, information on the inside tricks and



Joining the SSB Network is a worthwhile \$10 investment.

BY ERIC FORCE <eric@dobe.net>

CB and Related Homepages

Welcome to 757's CB Page
"The Crazy CB Nut from North Carolina"

Retailers and Manufacturing

<http://members.tripod.com/jam757/cb.html>

If you're into CB, check out 757's page.

operating techniques for maximum SSB communications enjoyment, operating frequencies, Q-codes, AM-to-SSB lingo conversion, and more. The SSB Network accepts affiliation from responsible & serious 11-meter SSB enthusiasts, newcomers, old-timers, even future Sidebanders, and FM operators. Looks like something worth checking out. Visit http://www.crb-books.com/affiliates_2/ssb_network.htm.

General CB Resources

From Gaston County, North Carolina, comes "757's CB Resource Page." Need the URL of a CB Retailer? Manufacturer? Other enthusiasts' Web pages and resources? You'll find them all here. Lots of pointers on a fast loading makes for very nice resource. Take a peek at <http://members.tripod.com/jam757/cb.html>.

Radio-Controlled Models Super Site

Interested in Radio-Controlled Models? If so, the "HobbyPeople®" site is for you. Complete with getting started tutorials for R/C Cars, Planes, and Trucks, you'll find tools, sup-

Hobby People



<http://www.hobbypeople.net/>

A super resource for Radio-Controlled Model hobbyists.

plies, and parts for just about any R/C product you can think of. Also provided is a separate section (click "The Hobby Community" link) to access over 2600 model related links including over 1000 model club sites! You can also request a FREE printed catalog plus order online if desired. HobbyPeople® appears to be an excellent resource for the R/C and general hobby community. Check 'em out at <http://www.hobbypeople.net/>.

Morse Telegraphy

"The Telegraph Office," by Neal McEwen, K5RW, is one of those rare sites akin to a good novel — once you get into it, it's hard to put down. Whether you are a collector, historian, or just have a casual interest in the many facets of telegraphy, you will

The Telegraph Office



A Tribute to Morse Telegraphy
and

Resource for Wire and Wireless Telegraph Key
Collectors and Historians

<http://fohnix.metronet.com/~nmcewen/ref.html>

If it has to do with Morse Telegraphy, you'll find it here!

definitely find something of interest. Even if you currently have *no* interest in telegraphy, visit *this* site and you will — guaranteed! Neal says he has "many, many resources."

Folks, the volume of quality information, illustrations, photos, and links to other resources at this easy to navigate site is just plain AWESOME! I have little doubt that you would be able to find information about that old telegraph key or other related artifact you have. "The Telegraph Office" truly IS, as the site's banner states, "A Tribute to Morse Telegraphy." This is not a don't miss site, it's a don't miss *experience!* Be sure to visit <http://fohnix.metronet.com/~nmcewen/ref.html>.

Radio Direction Finding

Get it straight from a Pro — Joe Moell (KØOV). Find everything you ever wanted to know about Radio Direction Finding at Mr. Moell's "HOMING IN — All About Radio Direction Finding (RDF)" site. Joe, a registered professional electronic engineer and active amateur radio enthusiast since age 11, has over 30 years of experience designing radio-frequency circuits and systems for broadcast, communications, and radar, ranging from near-DC through microwave frequencies. He has designed new devices for radio direction finding and has written about RDF and other topics for almost every ham radio publication in the USA. In February 1998, the American Radio Relay League (ARRL) appointed him as the USA's first ARDF Coordinator, to promote international-style foxhunting. In June 1999, he was appointed by the International Amateur Radio Union (IARU) as the first Region 2 (North and South America)

All About Radio Direction Finding (RDF)



<http://members.aol.com/homingin/>

Everything you ever wanted to know about Radio Direction Finding — and more!

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<http://www.zdnet.com/downloads/toolkits/antivirus/tlk1299.html>

Get up to speed on Computer Viruses at this ZD Page.

ARDF Coordinator. Needless to say, here's a RDF resource you can take to the bank. It's another don't miss site at <http://members.aol.com/homingin/>.

Electronic Kits

Remember Heathkit? You probably do if your hair, like mine, has grayed a little (make that a LOT!). There's also a fair chance you've also enjoyed building their kits. While the days of Heathkit are now just pleasant memories, there are several companies currently producing electronic kits. One of them, TEN-TEC, well known for their line of commercial and military radio equipment offers a line of relatively inexpensive (mostly receivers and transceiver related) kits that may be of interest. Have a look at <http://www.tentec.com/Tkits1.htm>.

Note: As mentioned, there are several companies engaged in making electronic kits. If there were sufficient interest in the subject, I'd be happy to compile a comprehensive list of companies. Drop me an E-mail with your thoughts.

Internet Broadcasting

Is traditional AM/FM/TV/Shortwave broadcasting on the way out? Will the radio spectrum soon become a wasteland of "space noise" having been replaced by Streaming Media and Internet Broadcasting? I think NOT! The folks who might have you believe that are probably the same ones who *swore* advances in computer technology were going to reduce paper consumption. I don't know about you, but I've probably purchased more printer paper in the past couple of years than I'd have used in a lifetime *before* personal computers. In a future column, we'll explore this "new" technology in depth but for now, check out the VOA's (Voice of America) site for some interesting "Communications World" broadcasts hosted by Dr. Kim Andrew Elliott, plus links to many other VOA resources. The RealAudio Player is required. A *free* player can be obtained from <http://www.trsc.com/cw/>.

PC Virus Tip

As I was wrapping up this month's column the "I Love You" (E-mail) virus was the "talk of the town." Yeah, it's really sad how some people get their kicks by using their talent to hurt rather than help. Hopefully, the day will come when these jerks are faced with some SIGNIFICANT penalties and "hard time" for their efforts. Anyway, here's the tip: In general, you should never open any E-mail attachment without first scanning it with an antiviral program. Today, some of the most common types of viruses are hidden in MACROS used for Word Processing or Spreadsheets. Files with extensions like .EXE, .COM and .BAT are also prime candidates for hosting a multitude of Viruses, Trojan Horses, and Worms. Even



Communications World

<http://www.trsc.com/cw/>

You'll find some Interesting Broadcasts at VOA's Communications World Site.

if you know the party who (supposedly) sent the E-mail, don't let your guard down. Many of these "new" E-mail attachment type viruses are sent *without* the knowledge of your friend. These types of viruses seek out the victim's (your friend's) E-mail address book(s) and automatically send new, virus laden E-mail attachments to everyone in the address book. Be Safe — use that antiviral program regularly.


For more information on viruses in general, and the tools to protect yourself, visit the Ziff-Davis Antivirus Toolkit page at <http://www.zdnet.com/downloads/toolkits/antivirus/tlk1299.html>.

Another tip: Contrary to what some would have you believe you, (your computer) CANNOT be infected by simply *reading* an E-mail. It's the binary or macro attachments and downloads that you need to worry about. And then, even if you do receive an infected E-mail attachment (or download an infected executable file) you still can't be "hurt" UNLESS you OPEN the file and RUN/USE it. If you routinely use an antiviral program (with current virus data) to scan all unknown files, the chances of your computer being infected will be reduced to near zero. You really DON'T need to panic over the possibility of being hit by a computer virus. Just use some common sense, an Antivirus program, and all should be OK. I've been active with PCs from the very beginning (20+ years?), have downloaded thousands of files, received thousands more E-mails and attachments and have had my system(s) infected with a virus, I think, three times in all those years. In every case, it was *my* stupidity that got me into trouble.

Well, it looks like we're out of space again so we'll head back to the barn. Thanks for tuning in. Keep those comments and suggestions coming! And, don't forget to visit the *Pop'Comm* Website at <http://www.popular-communications.com/>. Until next time, 73! ■

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Trunking, Tips, Techniques, And Mods

ARC-8200 Software For The AR-8200 Scanner

Recently, Art from St. Louis wrote to say that he had gotten a brand new AR-8200 handheld. He asks if he needs software to go with it.

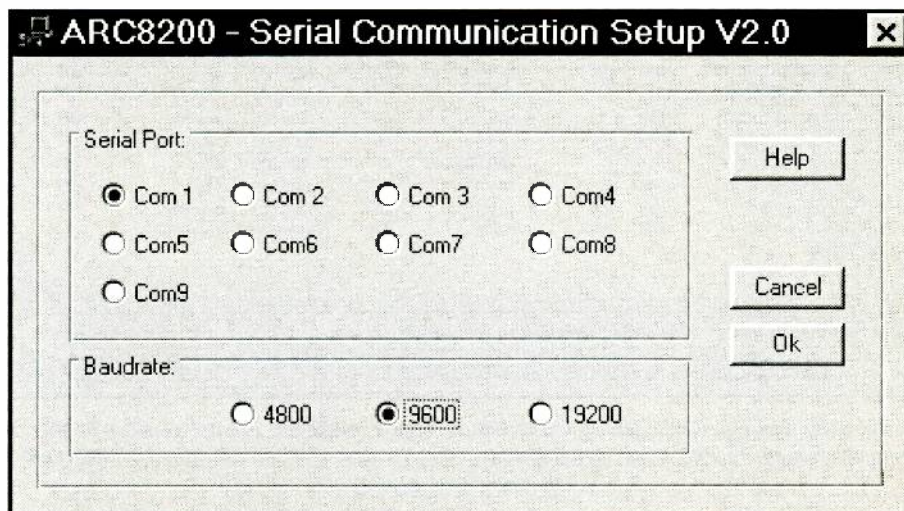
Of course, you don't need software, but you might find it handy. While software can be used to fully control the AR-8200, I've found, like most handhelds, that what I really want is a quick and easy method of loading memories. This month, we'll take a look at one of the premier packages for dealing with the 8200.

The AOR AR-8200 is a very sophisticated and, by necessity, somewhat complicated receiver. All sorts of options and settings are buried within many menus and submenus. While nobody doubts the status of the AR-8200 as one of the top-of-the-line handheld receivers, many find its operation a bit challenging. Even if you master the many commands and menus, the thought of programming 1,000 frequencies and settings to fill up the memory is not a fun prospect. Then there are the alphanumeric tags that can also be assigned to each memory location on the 8200. Now there's a project for a rainy week.

The Software Solution

As a result, many AR-8200 users look for a software solution. You may remember from our review of the AR-8200 that it comes complete with a computer interface (just add cable and software). The software from AOR is adequate for many operations, but there is always room for a third party application. ARC-8200 is such a third party application from Butel Telecommunications Software.

The ARC stands for Advanced Radio Control. ARC-8200 supports only the AR-8200. The company makes a few other programs for other receivers, but they are all special purpose. This approach allows them to concentrate on the features of the radio at hand rather than trying to bend the software around to fit



The communications setup only has to be done once for all of ARC-8200's modules. As you can see, it's pretty easy as long as you know which port is connected to the radio.

what's already been programmed for another receiver. The result is a very capable and relatively easy to use program.

The program is divided into several modules that make up the whole. You will find that you hardly use some modules, while spending considerable time in others. For the most part, this will be dictated by how you choose to use the program. Let's take a quick look at the modules and see how they operate.

Band Plan Manager

The Band Plan Manager is truly a unique application. Not many computer-controlled radios allow you to tinker with the band plan of the receiver, and very few programs make it easy to do. Band plans are used to determine what mode the radio should be in when it's on a particular frequency, and even what frequencies are valid in a particular range. For instance VHF frequencies are usually tunable 5 kHz apart, although stations are normally 15 kHz apart. But on UHF, the spacing is 12.5 kHz, so the 5 kHz steps would not work. This information is

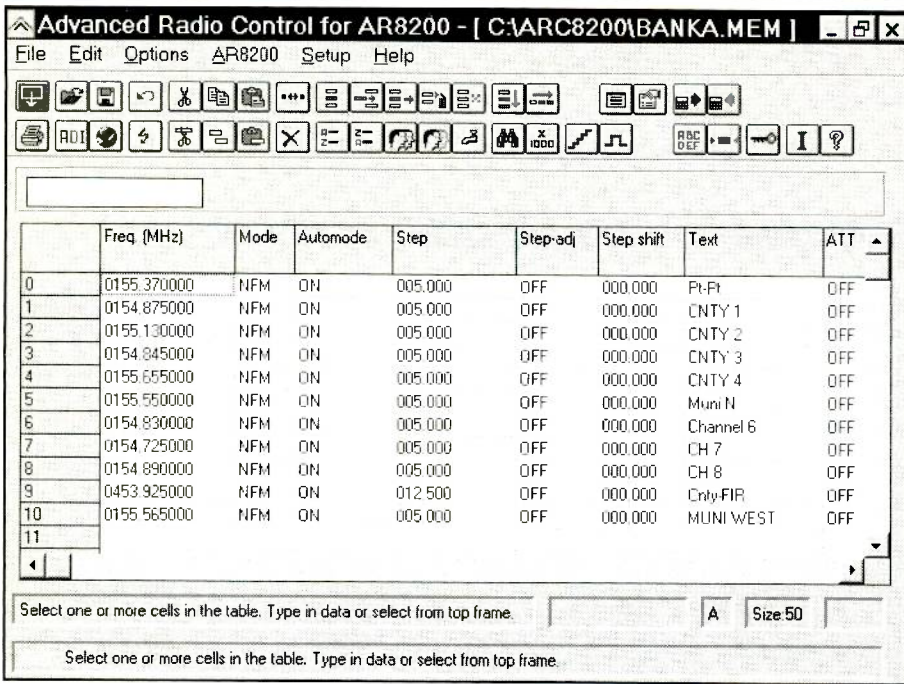
already included in every scanner you own, but most of the time it's not adjustable. The AOR series allows you to get access and fine-tune these settings for your area. Make sure you save the factory originals in a file before making too many changes — just in case.

Unfortunately, 15 kHz is not one of the selectable step sizes from the pull-down menu, but it can be entered directly. No doubt this will be updated in a future revision of the ARC-8200.

Communications Setup

Here's a module you probably won't use much. It simply provides a way to tell the software what COM port and settings to use to find your radio. Once set, these parameters are used by all the other modules any time communications with the receiver is necessary. This is actually the first module you'll need to use, and then once communications have been established with the radio, you're all set.

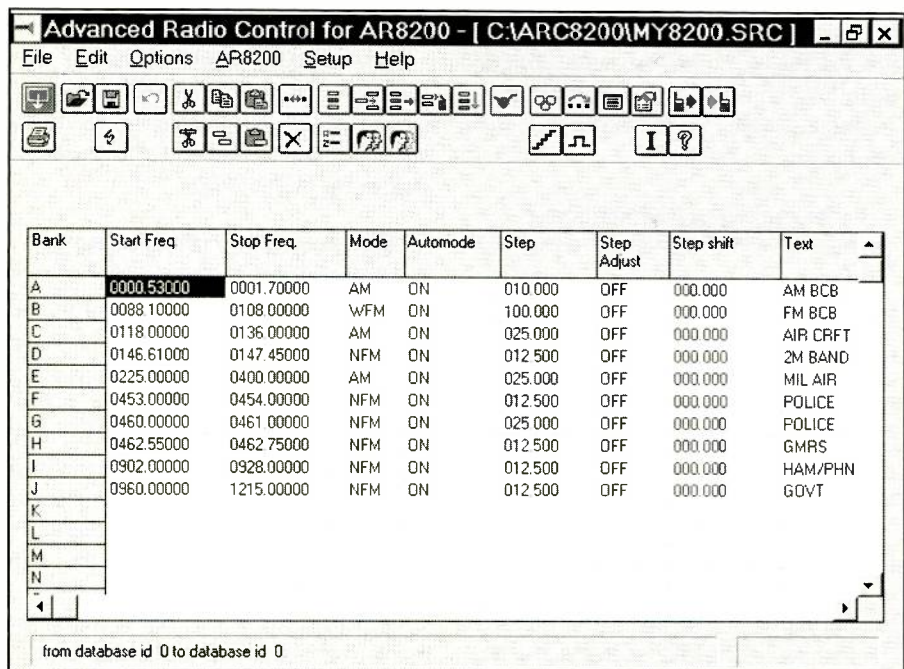
In most cases, you'll be all set up and ready to go, but once in a while there's a problem getting things to work. Many



ARC-8200's most powerful feature is this handy memory manager. Frequencies can be entered quickly and easily with a variety of options. Once loaded, you can download to any bank in the radio very rapidly.

developers tell me that their number one problem with user support is the connection to the radio. There are a lot of places, particularly in Windows™, that serial communications can get interrupted. First, check to ensure that you are in fact using the COM port you think you are. Also double-check the communications

speeds both in software and the radio. Nine times out of ten, you'll get a good connection the first time. If not, then you may need to look at other software in your system to see if there's anything interfering. Of course, we also have to make sure the cable is correct, but the AR-8200 requires a special cable so most likely



Managing search banks has never been so easy. Also store them on your computer's hard disk for later recall.

you'll be forced to use that one in this case. Troubleshooting communications problems can be a frustrating experience, but worth it in the end.

FastLog Utility

FastLog allows you to search a range of frequencies and log the results to disk. Any activity identified during the search is dumped to a log file that can later be imported and edited. A great search tool as long as you're connected to the computer. Once logged, the data can be imported back into memories.

Memory Bank Manager

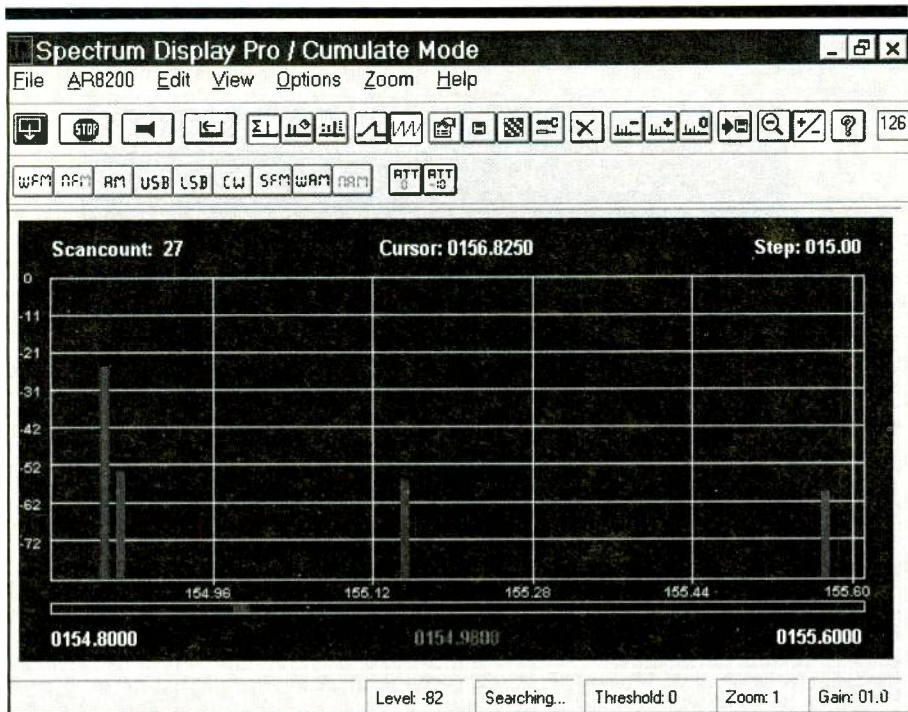
Probably the most important function for a handheld receiver is the ability to quickly and easily manage memories, particularly on a radio like the AR-8200 with 1,000 them! The ARC-8200 Memory Bank Manager is the tool for this task, and it does a good job.

Each bank is loaded and stored as a separate file in the Memory Bank Manager. While perhaps not quite as convenient as loading all the banks in a single file, it does allow for much more flexibility. What was in Bank A today can easily be put in bank J tomorrow if it's convenient.

Frequencies are entered into a "table" which stores all of the settings that the radio stores in each memory. While there is a lot of data there, you do not necessarily have to fill in all the blanks. Once you've entered the desired settings for frequency and name, there is a menu command called Create Valid Data, which will look through the table and fill in anything necessary, or enter and correct any errors in data entry.

There is also an "Easy Fill" option that will allow you to set any of the parameters for any of the memory channels or a range of channels quickly. It might be easier to start here with the options you want every channel to have and then just change the data as necessary. These two features make data entry a much less daunting task.

Movement around the grid is accomplished with the arrow keys, which is fairly easy once you catch on. In the newest version, the tab and enter keys are also supported, which I found to be much more "comfortable." Earlier versions did not fully support these keys and made move-



Here's a sample of the spectrum display run over about five minutes on a slow day. Placing the cursor on any of the vertical lines will tell you the frequency.

ment much more tedious. If you have an older version, you should upgrade just for this convenience.

Read Serial Number

Read Serial Number is the module you'll use the least. This is used to read an electronic serial number for your receiver which is used to register the software. ARC-8200 is available for download in demo mode at www.butel.nl. If you decide to register and purchase the software, you'll receive a registration code that removes limitations placed on the demo program. Once completed, and your registration code is returned, you should not have to use this module again.

Search Bank Manager

One of the neat features of the AR-8200 scanner is its ability to store multiple search ranges. There's a somewhat complicated set of keystrokes you can enter on the keyboard to access and set these ranges up. However, once I discovered ARC-8200's search bank manager, I can see no reason to ever do this by hand again. It just makes it too easy.

The search bank manager presents a table that looks much like the memory banks manager, except with data for

search ranges. These are lettered A-T in both upper and lower case for access to the 40 search banks of the 8200.

Search bank linking can also be controlled from this module for complete management of the 8200's search options.

Spectrum Analyzer

Many computer control programs feature the ability to generate a spectrum display, or in other terms, a graphical display of signal strength across a range of frequencies. You enter a starting and ending search range, and the program steps through the available frequencies, plotting a graph. The stronger the signal, the higher on the graph the line will be drawn. If you're familiar with a spectrum analyzer, this is exactly the display that is being imitated.

ARC-8200 features a spectrum analyzer module, but with many differences. Like most programs, it will make a pass through the range and graph what it finds. ARC-8200 calls this a "real-time spectrum," and it can be convenient for search operations, or if you're looking for other activity in a particular range. You can also search over time and generate a "cumulative" display.

ARC-8200 also has a unique "Hit Count" mode. Instead of charting signal

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strength, this one graphs the number of hits on active frequencies. You have to let it run over some time, but it will very quickly and visually display active and not so active frequencies in your search range. I had a function like this on an older program, and found it much more useful than the standard spectrum display for locating new frequencies, and tracking activity on known channels. Give it a try and see what you think.

VFO Control

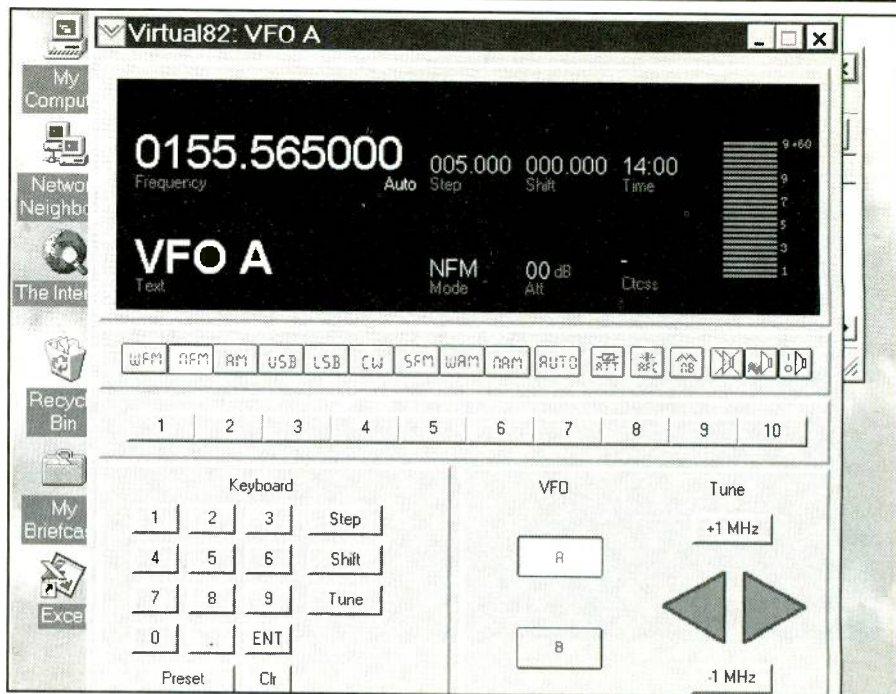
Our final module is the VFO Control. This graphically displays the frequency and mode that the radio is operating in, and allows you to change mode, frequency, and even memorize ten presets for quick recall. Operating under computer control, this would be an excellent feature. With a handheld, however, I'm not sure how much actual use it would get. It's also worth remembering that Butel makes a very similar program for control of the AR-5000 where this VFO module would be extremely convenient. You may find that you use the 8200 under computer control more than I do and will also appreciate the VFO control module on the handheld.

One minor annoyance on the VFO module is that the keypad is duplicated on screen for frequency entry. Unfortunately, you can't use the keyboard to enter frequencies directly. This might not prove a problem, depending on the computer you're using, but on the small laptop I had the software on, it would have been more convenient to type on the keyboard than use the pointer.

Check It Out!

If you own an AR-8200, you owe it to yourself to check out this excellent system. It's available for download at www.butel.nl. You can purchase the program via E-mail quickly and conveniently. I have not found a more complete or easier to use control program for the AR-8200. Give it a try — you've got nothing to lose!

While you're there, check out Butel's other software offerings. Their AR-5000 control program looks excellent, and I am anxious to get it up and running once I get this article completed. Stay tuned for further details.



Here's the on-screen VFO control. Ten presets are available too, so it's like having 10 VFO positions.

Also of interest, they have a utility called the Web Catcher. This program allows you to find a page of frequencies with your web browser and then it will extract the frequency information into something usable. This function is also built into ARC-8200.

What's The Frequency, Ken?

I have gotten a number of letters and E-mails lately asking about frequency information and why we don't run frequency tables for this or that city/county/state, etc. The reason is because I don't have reliable sources of frequency information for anywhere but St. Louis. And more importantly, with the vast frequency resources available these days, you can find better and more accurate frequency information much faster than we can possibly hope to attain with the long lead times to publication.

I also prefer to run things of interest to large numbers of readers. I remember not all that long ago receiving my issue of several monthly magazines only to find that they had chosen to run a frequency list for someplace I wasn't, and didn't have any interest in going. So there was nothing in that issue of particular interest, and another month's wait was at hand. That's fine,

and if done evenly, I suppose eventually everyone would get a turn.

In years past, the magazines and newsletters of clubs were your best source for frequency information. Times have changed, I believe, and for the better. There are many excellent frequency references out there which are much more accurate than I could ever maintain for you!

However, being a scanner nut myself, (ahem) I completely understand that some frequency information is in order. There are many frequencies that are nationwide, or might be of particular focus, but for a larger group. The railroads come to mind as a prime example of this. These railroad frequencies are allocated nationwide. If you have a list of them, and you have an interest, you can see what's active in your area. Not all that long ago, we ran a list of Western New York frequencies in conjunction with a letter explaining how one reader was able to locate new frequencies and organize multiple radios. Those applications make sense to me. We'll continue to run things like that. And if you have a list for your area, send it in! I can't promise that we'll use it, or all of it, but if there's room, I'm game.

This leads me to my solution to the dilemma. (You knew there was a catch to all this, didn't you?) Let's play this game in reverse. I'll give you a frequency, you monitor it (if you don't already) and tell

ME what's on it where! One of the many things I've learned since writing this column is that many listeners don't venture outside their frequency list, regardless of how small or inaccurate it may be. There's a lot out there to listen to, and frequency by frequency, we'll give you some reason to check them out in your area.

No frequency goes unused for long! If there isn't something right in your town, there's probably someone else licensed on that frequency within 75 or 100 miles that you may or may not be able to hear. Some of the frequencies may be things you're not interested in, and that's fine too. You'll have built your frequency list up by one if you play along. Of course, you can always get ahead of the game and check out other frequencies too.

Once you find activity, see if you can identify who it is. Check all the standard references; Police Call, *Monitor America*, Percon's CD-ROM, or any of the multitude of CD-ROM collections for that matter. Send in what's on in your area. We'll run a sampling of the info as space permits. To add a little incentive to kick things off, we'll put all the people who submit entries into a hat and periodically (quarterly) pull out one lucky winner to receive a three-month subscription extension.

This Month's Frequency

In honor of the Radio Listener's Conference which meets every Thursday night on AOL in the Radio Communications Forum (keyword SCAN), let's pick the official Listener's Conference frequency of **154.845**. The reason this is our official frequency, is that so many of the

participants we've discovered have that frequency in their scanners as one of primary interest. In fact, one person claims that this is the only frequency he listens to, but he has four or five scanners, each with several hundred channels, so we're not quite sure.

Find out what's on **154.845** in your area, and send it along. You can E-mail to

armadillo1@aol.com, or via regular mail to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Please put **154.845** on the envelope or in the subject of the E-mail so that I'll be able to separate contest mail from regular questions and info. Of course, we're still looking for your other questions and suggestions too! Until next month, Good Listening! ■

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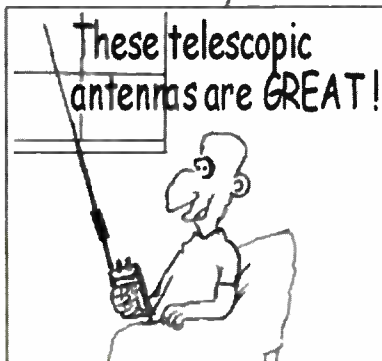
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broadcast dxing

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Where In The World Is Roumoules, France?

The Radio Monte Carlo and TransWorld Radio broadcasts from Roumoules, France at 1467 and 216 kHz are a popular target of transatlantic DXers. Some DXers have the urge to log this as Monaco rather than France because of the Radio Monte Carlo programming. Reports here in the Broadcast Loggings section have been listed as France. So where is Roumoules, anyway?

Roumoules, France isn't listed in any of the major world atlases you might find at the bookstore. Although it's a primary mediumwave and longwave transmitter site, you won't find it on the maps in the 2000 *World Radio TV Handbook* (WRTVH). The coordinates aren't listed either. Further research led me to the 1997 WRTVH, where the Roumoules coordinates are listed as 06.09E/43.47N, somewhere in France between Nice and Marseille about 100 kilometers east of Monaco. It would seem to be enough distance to justify logging this station as France rather than the much sought-after Monaco, despite the Radio Monte Carlo moniker.

Location, Location, Location

For many that enter the broadcast DXing hobby, geography is more than a passing interest. Half the fun of DXing is learning where broadcasts emanate. Some locations can be a challenge to find. Others aren't always as they appear. Such as in the case of Roumoules, France versus Monte Carlo.

Closer to home, AM radio stations licensed to New York City have been the focus of many debates over location. For example, the WABC New York 770 transmitter is located in Lodi, New Jersey. Similarly, the WSAI Cincinnati, Ohio, 1530 transmitter is located in Covington, Kentucky "on a bluff 450 feet above the Ohio River, 6 miles downstream from Cincinnati" according to a QSL. So is WABC counted as New York or New Jersey, and WSAI Ohio or Kentucky? Typically, DXers will go

WABC MUSICRADIO 77 abc

1330 AVENUE OF THE AMERICAS, NEW YORK, NEW YORK 10019

This is to verify that you were listening to WABC 770 KC

TIME: 8:00PM EST DATE: 3/3/77

TRANSMITTER LOCATION: Lodi, New Jersey

POWER: 50 KW Non-Directional—Gates MW—50/GE HI Level

TOWER HEIGHT: 648 ft.

Many thanks for your communication.

Winston H. Loyd
Chief Engineer

A blast from the past. WABC, New York QSL card indicates the Lodi, New Jersey transmitter location.

according to the station's city of license, although for a difficult-to-catch state like New Jersey others may take advantage of the transmitter location. There are many more instances where the city of license and transmitter location crosses state lines, especially where large cities border neighboring states.

Like Radio Monte Carlo, Radio Vaticana at 1530 and 1611 kilohertz is another example of where location crosses international boundaries. Since the Vatican City State only covers about 0.44 square kilometers or 0.17 square miles, it's hard to imagine that there would be enough space for a high power transmitter site. However, the 600 kilowatt 1530 transmitter is listed in Citta del Vaticano, while the 100 kilowatt 1611 transmitter is in Santa Maria di Galeria, Italy, according to *Long and Medium Wave Stations in Europe, North Africa, and Middle East* by Herman Boel. So perhaps 1530 should be logged as Vatican and 1611 as Italy? Regardless of how you count them, there's nothing like the intrigue and challenge of sorting through geopolitical

boundaries and researching station locations. The geography aspect of the hobby is a great way to introduce your daughter or son to the fascinating world of DXing.

The Mystery Is Solved

So what about the Roumoules, France? The mystery was finally solved with the *Euro-Travel Atlas: France* published by American Map. Roumoules is located near Lac de Ste. Croix in the Alps du Provence of France. This lake is large enough to appear on most atlases. By the way, if you really want to log Monaco, there is a station within the borders at 702 kilohertz with 40 kilowatts of power, a challenge for even the most seasoned transatlantic DXer.

Better Than The WRTVH

Long and Medium Wave Stations in Europe, North Africa, and Middle East by Herman Boel has fast become the preferred reference for transatlantic DXers. Through collaboration with experts in the

BY BRUCE CONTI <BAConti@aol.com>

field like Steve Whitt of Medium Wave Circle, Jorge Garzon of Medi DX, and DXers throughout Europe, the compilation is updated on a regular basis to provide the most authoritative and accurate information available from a single source. Radio stations are sorted by frequency and country. The frequency list has extensive program schedules, and the country list includes station mailing addresses. *Long and Medium Wave Stations* is only available on the Internet, downloadable for free as a PDF file requiring Acrobat Reader 3.0 minimum. The author does request corrections or updates for future editions and asks for small donations to support the publication. With the new DX season fast approaching, now's the time to check it out. Visit Herman's DX Homepage at <<http://gallery.uunet.be/hb/>> to learn more about this outstanding publication.

News In Brief

Art Bell has officially retired from the airwaves. Listen for Mike Siegel to continue the search for the truth on Coast-to-Coast AM. KABC Los Angeles 790 and WABC New York 770 broadcast the audio from "Who Wants to Be a Millionaire" while the television quiz show was blacked out by Time Warner cable due to a contract dispute with ABC/Disney. Despite the blackout, the ABC television network topped the ratings, beating CBS, Fox, and NBC combined. WWKB Buffalo, New York, continues to simulcast Kiss 98.5 FM, except when carrying Buffalo Bisons baseball play-by-play and syndicated religious programs. English broadcasts have been reinstated at **Danmarks Radio, Denmark on 1062 kHz**. News can be heard in English at 0740 and 2100 UTC, with the best chance for North American reception on the East Coast in December.

QSL Information

540 KWMT Fort Dodge, Iowa, verification letter and window sticker in 18 days, signed by Barry Walsh, CE. Address: 540 A St. or P.O. Box 578, Fort Dodge, IA 50501. (Procop, OH)

950 KNFT Silver City, New Mexico, a nice verification letter in 25 days after follow-up along with a T-shirt, signed Deniene Brown (no title). Address: 5 Race Track Road, Box 1320, Silver City, NM 88062. (Martin, OR)

1150 WELC Welch, West Virginia, QSL certificate in nine days, signed by

Changes New Call

Changes New Call	Location	Freq.	Old Call
KBUG	Honolulu, HI	1170	KOHO
WOBX	Wanchese, NC	1530	WOBK
KHTL	Albuquerque, NM	610	KSVA
KSVA	Albuquerque, NM	920	KHTL
WRCR	Spring Valley, NY	1300	WLIR
WQOP-FM	Dora, AL	92.5	WZJT
KQIX	Texarkana, AR	107.1	KTWN-FM
KLUK	Needles, CA	97.9	KNKK
WRRX	Gulf Breeze, FL	106.1	WZRO
WQKQ	Carthage, IL	92.1	WNKK
WGFB	Rockton, IL	103.1	WRWC
KSWI	Atlantic, IA	95.7	New
WCZW	Charlevoix, MI	107.9	New
WTNM	Water Valley, MS	105.5	WLPX
KCMM	Belgrade, MT	99.1	New
KPGB	Pryor, MT	88.3	New
KVGS	Laughlin, NV	107.9	KLUK
WOBX-FM	Manteo, NC	98.1	WBGI
WNPM	Portsmouth, OH	107.5	New
WWPJ	Pen Argyl, PA	89.5	New
KATX	Eastland, TX	97.7	KEAS-FM
KUSJ	Harker Heights, TX	105.5	KYUL
WCKP	Putney, VT	91.9	New
KXAA	Cle Elum, WA	93.7	New

John Sidote, Chief Operator. Address: P.O. Box 949, Welch, WV 24801. (Procop, OH)

1240 WBES Dunbar, West Virginia, verification letter, WBES window sticker, and bumper stickers for Electric 102.7, WQBE-AM, and WQBE-FM in 44 days, letter signed by Randy Justice, CE. Address: 817 Suncrest Place, Charleston, WV 25303. (Procop, OH)

1280 WADO New York, New York, verification letter and business card in 24 days, signed by Richard Ross, CE. Mr. Ross said that the on-air personality I heard in my report, Gerson Borrero, read my letter on the air because he was

delighted to be heard in Ohio. Address: 485 Madison Ave. 3rd floor, New York, NY 10022. (Procop, OH)

1570 WGSR Fernandina Beach, Florida, nice QSL letter in nine days for taped report, with photos of studio and old 5 kW transmitter. Apparently, when I heard them they just boosted from 30 watts (night) to their PSA of 500 watts. Currently, they run 5 kW days with a CP for 10 kW. Signed Dick Boekeloo-CE. Address: 707 Dade Street, Fernandina Beach, FL 32034. This is my 18th Florida MW QSL. (Martin, OR)

1620 WTAW College Station, Texas, QSL card in 18 days, no signature. Heard

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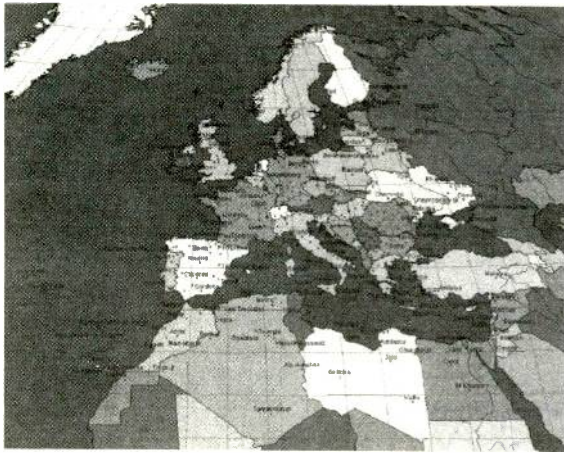
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Long and Medium Wave Stations in Europe, North Africa and Middle East



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Long and Medium Wave Stations In Europe, North Africa And Middle East is an outstanding reference for Transatlantic DXers.

station before call change, card said first broadcast with WTAW calls was on 4/5. Address: P.O. Box 3248, Bryan, TX 77805. (Procop,OH) A beautiful full-color QSL card in 25 days, not signed, but all other info included. Address: 2700 Earl Rudder Freeway South, College Station, TX 77845. (Martin, OR) Received very nice unsigned full data QSL card sent in an envelope (to protect it from the USPS QSL chewer) in 23 days for report and \$1. Address: PO Box 3248, Bryan, TX 77805. (Griffith, CO)

1660 WMIB Marco Island, Florida. QSL card and business card in seven days. Signed by Phil Beckman, Operations Manager. Address: 601 Elkcam Circle, Suite B, Marco Island, FL 34145. (Procop,OH)

1670 WTDY Madison, Wisconsin, letter and window sticker in 10 days, signed by Roy Simmons III, Engineer/ WTDY. Address: P.O. Box 2058, Madison, WI 53701. (Procop, OH)

1700 KQXX Brownsville, Texas, prepared letter in 368 days, signed Sandra Conche (no title). Address: 1050 MacIntosh, Brownsville TX 78521. This has been the toughest QSL to get out of an X-bander. Thanks to Gary Jackson for the verie signer. The only one left to QSL is KBDJ 1650. (Martin, OR)

Broadcast Loggings

Marc Manis opens this month's selected logs with an update from the Sunshine State; "I thought you might be interested in news of a new AM signal in the Orlando, Florida, market. It is

WORLD, licensed to Altamonte Springs and broadcasting on **660 kHz** with a power of 1 kW day and night, utilizing a three-tower array. Currently, WORLD is broadcasting AP Network News 24/7, interrupted only by its legal ID at the top of the hour. This is the second frequency here to bear the WORLD call letters. Back in the '70s/'80s, WORLD was a longtime black/urban station at 1270 kHz. A new urban FM killed it. 1270 is now Spanish. Also, there was a format change in Daytona Beach. WKRO (93.1 MHz), an alternative-rock station known as The Crow, is now country. Many believe this was done in anticipation of local market leader WGNE's (98.1MHz, also known as "98 Frog") impending sale to Mega Communications, who would most likely go Spanish, creating Central Florida's first commercial Spanish FM."

Now the loggings. All times are UTC.

216 TWR Monaco, Roumoules, France at 2350 talk in French, through beacons. (Connelly, MA)

549 Les Trembles, Algeria, at 0044 woman in Arabic, then jazz organ and drum music; excellent, by far the loudest transatlantic signal below 738 kHz. (Connelly, MA)

660 4VI Radio Lumiere, Port-au-Prince, Haiti, French Cerole Reggae music program. (Gitschier, Cuba)

770 RJR Spur Tree, Jamaica, "There She Goes" by Sixpence None the Richer promo for Sound Bites Entertainment News show later in the evening at 6:35 p.m., Excedrin ad, the RJR Network Triple-Combo Advertiser's Package (ad package for three R-J-R stations) station promotional announcement, etc. parallel 720 kHz. (Gitschier, Cuba)

940 WINZ Miami, Florida, "Supertalk 940" slogan heard, weak signal but no fading noted, only light QRM from a presumably Cuban station using time ticks. (Gitschier, Cuba) The time station was likely Radio Reloj, Cuba.

1110 WUHN Springfield, Massach-usetts, poor in very heavy splatter from WTAM, at 1016 with country music. (Procop, OH)

1206 Kol Israel Reshet Bet, Haifa, Israel, tentative monitored at 0026 with apparent Hebrew teletalk show, poor. (Connelly, MA)

1410 WIQR Prattville, Alabama, fair with splatter from WHK 1420, talk show, long infomercials, ID at 0600 only gave call letters. (Procop, OH)

1422 DeutschlandRadio, Heusweiler, Germany at 2321 parallel 756 kHz with woman in German; to good peak over probable Algeria, and at 0009 symphonic music; poor to fair. (Connelly, MA)

1467 TWR/RMC Roumoules, France at 0405 approaching transmitter site dawn enhancement, classical music. (Conti, NH)

1540 KMPC Los Angeles, California, received with One-On-One Sports and ID at 0659, mentioned the only 24/7 sports station in Los Angeles. (Martin, OR)

1540 ZNS-1 Nassau, Bahamas, "Good Morning Bahamas" program and ZNS Headline News at 1115, good signal. (Gitschier, Cuba)

1570 KVTK Vermillion, South Dakota, fair on top with ID "KVTK Vermillion... Cool 1570" into news monitored at 0959, listed as 71 watts at night. (Martin, OR)

1690 WPTX Lexington Park, Maryland, good on top at 0759, "News Talk 1690, WPTX Lexington Park" into network news. (Martin, OR) Formerly WMDM.

Thanks to Mark Connelly, Ron Gitschier, Patrick Griffith, Marc Manis, Patrick Martin, and Michael Procop. 73 and good DX! ■

clandestine communiqué

Tuning In To Anti-Government Radio

Congo Crisis Spawns Clandestine Station, And Anti-Castro Broadcasts On WRMI

The seemingly endless turbulence in the Congo has finally spawned a clandestine broadcaster. **Radio Liberte, Voice of the Congolese Liberation Movement**, has taken to the air, broadcasting on **15725**. Programs are in French, with a little English now and then. The ID, which includes mention of “Voix de la Liberte du Congo” at times appears also to be identifying as Radio Canal Liberte and/or Radio Tele-Liberte. The schedule seems somewhat variable, beginning a few minutes past 1800 and running through until a few minutes past 2300. Most North American receptions have been at poor levels, with modulation levels also quite low. The station is said to be broadcasting from the town of Gbadolite in Nord Ubange, Equateur Province. Not by coincidence, this is where the Ugandan-backed rebel movement is headquartered. The mailing address is P.O. Box 411884, Craighill 2024, South Africa. You can even E-mail them at support@congo.co.za. The always shaky political situation in the Congo, not to mention shifting allegiances, leave some question as to how long this one may be with us. By the way, there reportedly is another Congolese rebel station on the air, operating from Bukavu, pn 6713.

The National Radio of the Democratic Arab-Saharan Republic is being heard on **7470** in Arabic and some Spanish, IDing as Radio Nacional Saharai. The schedule runs from 0700–0800 (except Fridays) and 1800–2300, both in Arabic. Then there’s Spanish from 2300–0000. In Wisconsin, Sheryl Paszkiewicz caught them from 2328 to 0000 close, with North African vocals backed by guitar and national anthem at sign-off.

The ever fascinating **New Star Broadcasting Station** (also known as New Star Radio) has been heard again — at 1430 and 1500 on **8300, 11430, and 15388**, with a woman reading numbers in

Chinese. Martin Spina in New Jersey has heard one of the **Radio Free Chechnya** transmissions (via St. Petersburg) on **15605** at 1115, with music and talk in Russian. (These broadcasts use the facilities of the Russian government.)

Radio Voice of Radio Jammu Kashmir Freedom (Sada-I-Hurriyat-I-Jammu Kashmir for the locals) is operating on **5101**, with sign-on at 1330, running until 1430, with language strings of Urdu, Kashmiri, Hindi, and an English ID at close. This station probably uses extremely low power. Still, North Americans DXers might have a slight chance of hearing it during the depth of the winter season.

La Voz de la Resistencia, operated by the FARC guerrillas in Colombia, is still heard now and again on **6261**. The best time currently would be their segment around 1130, as opposed to the late afternoon broadcast which is unlikely to perform in North America during the summer months. Lately, the station has suffered intentional interference from a broadcast calling itself El Pueblo Responde, believed to be operated by the Colombian army/government, which tries to combat the guerrilla message. “Responde” operates within a few kilohertz of “Resistencia,” although it is not on the air consistently.

Anti-Castro broadcasters continue to use **WRMI-Miami** as part of their efforts to weaken the Cuban dictator. **La Voz de Alpha 66** is currently scheduled Monday–Friday at 0000 and 0930. La Voz de la Fundacion airs Monday through Saturday at 1000–1200 and 2300–0000.

Foro Militar Cubano is on Saturdays at 1900 and Sundays at 1400, and **La Nueva Voz de Cuba** broadcasts on Sundays at 0400, all on **9955**. All the programs are a half hour in length, except for La Voz de Fundacion, which runs for two hours and one hour respectively in its time slots. QSLs for all of these broadcasters are issued by

WRMI, 8500 SW 8th St., Suite 252, Miami, FL 33144.

The Voice of Peace and Democracy of Eritrea is the mouthpiece of the People’s Democratic Forces of Eritrea and is aired through the facilities of another clandestine, the Voice of the Tigray Revolution, operating from Mekele, in Tigray province, Ethiopia. It is on the air in local languages from 0315–0400 and 1420–1500, both on **5500 and 6325**. The 0315 broadcast should be fairly easily heard in North America since the Tigray station has been quite widely heard on the 5500 frequency during its nighttime SW broadcasts.

Also involved on the Ethiopian clandestine scene is the **Voice of the Oromo Liberation**, which is aired via German government transmitters at Juelich. Broadcasts are on Thursday and Friday from 1700–1800 on **11795**.

If you like playing tag with your radio, the anti-Iranian station **Voice of the Mojahed** is a worthy opponent. The station operates from 0227 to 0530 and again from 1427 to 1832. They may (or may not!) show on these variable frequencies: **5350, 5650, 6250, 6450, 6850, 7050, 7450, 7850, 8350, 8850, 9350**. All the broadcasts are in Farsi.

The Voice of Iraqi Kurdistan is operating on **9495** (in addition to **4085**) from shortly after 0400 (on 9495) to 0645. This frequency is a lot more likely to produce results than 4085, an area the Kurdish clandestines seem to be particularly fond of. Unfortunately only East Coast listeners have any kind of chance at those low four-megahertz channels.

Once again, let’s mention how much we appreciate your continued input and support! Loggings of clandestine stations and broadcasts, schedules and QSL and address information are much appreciated, as are copies of QSLs or other material received from these broadcasters.

Thanks again! Until next month, 73 and good hunting! ■

BY GERRY L. DEXTER

ARRL's Silly Comments And Cobra's Excellent 148 NW ST

One of the most interesting things to happen to CB radio in some time is *Pop'Comm's* own Alan Dixon applying to the FCC to have the 155-mile rule thrown out. He submitted a petition for rulemaking to the FCC for "Amendment of Section 95.413(a)(9) CB Rule 13 Prohibition of Communications or Attempts to Communicate with Citizens Band Stations More Than 250 Kilometers (155.3 Miles) Away."

As FCC rules currently stand, it is illegal to communicate with a station more than 155.3 miles away. You could be fined for violating something that is entirely the result of a natural phenomenon. When the earth's ionosphere is charged up, local signals can bounce off it and travel long distances. It's not something you have control of. As the 11-year sunspot cycle moves through its peak, it can be easier to talk hundreds of miles than to talk to a local station just a few miles away — on legal power.

Now, here's the weird part: the American Radio Relay League — America's premier ham radio organization — has objected to Dixon's proposal. Here's some of what they said, interspersed with my comments:

ARRL: The Dixon proposal seeks to redefine the purpose of the CB Radio Service by allowing long-distance communications.

CB Scene: Really? There isn't any "allowing" about it. Long-range propagation happens with or without anyone's permission. You would think that an organization that sponsors DX contests on the HF bands would know this.

ARRL: The CB Radio Service was designed for short-distance communications to allow for frequency re-use and shared use of the fixed channels. The CB band was never intended for the long-distance communications advocated by the Dixon Petition.

CB Scene: Agreed. Unfortunately, someone, in their infinite wisdom, located the CB Radio Service in a frequency range in which long-range propagation occurs, even when operating at FCC-mandated power levels.



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ARRL: The Dixon proposal is contrary to the fundamental purpose of the CB Radio Service.

CB Scene: Yeah, but so are the frequencies on which CB is located.

ARRL: The Dixon proposal would interfere with the orderly enjoyment of the airwaves and would encourage the use of illegal power amplifiers.

CB Scene: Popycock! What interferes with the orderly enjoyment of the airwaves is long-range propagation, which comes and goes on the CB frequencies and which cannot be prevented. And power amplifiers, well, lots of people "shoot skip" without them.

ARRL: Long distance HF communications are readily available in the Amateur Radio Service.

CB Scene: They certainly are. They are also readily available in the CB band, which was taken from the ham radio HF bands, remember?

Frankly, I don't get it. Why would an organization that is as technically astute as the ARRL raise such technologically illiterate objections to Dixon's proposal?

Here's what I wrote to the FCC regarding Alan's proposal regarding RM-9807:

As a CBER for decades and a columnist for two national radio hobby magazines and a licensed amateur radio operator (KB2GOM),

I believe that rescinding the 155-mile limit on CB communications is simply the common sense thing to do, for several reasons:

1. It takes "off the books" a rule that is simply ill-conceived and contrary to natural phenomena. Long-range propagation of CB signals occurs because ionospheric conditions allow them — when the "skip" is in, it is sometimes easier to talk hundreds or thousands of miles on a legal signal than it is to talk 5 or 10 miles. Even lower power limits scarcely make a difference — just ask any radio ham who engages in QRP operation. No rule that the FCC can conceive, write, or enact can prevent that. The FCC might just as well write a rule that it will never rain on the weekends; it would make as much sense.

2. Enforcement of the current rule is unworkable. You would have to prove that the illegal long-range communication has taken place and locate the station involved. This is a silly waste of already limited resources.

3. If the FCC were serious about enforcement of this rule, it could have done something about the hundreds of Puerto Rican stations that already use Ch. 9 — reserved for emergencies and traveler's assistance — to "shoot skip." Since the FCC has not done so, I presume it doesn't care about the 155-mile limit rule. Why retain a rule that you don't intend to enforce anyway?

4. Removal of the rule "decriminalizes" those who talk more than 155 miles. See all of the above.

I understand that ARRL has objected to removing the 155-mile limit because it would

put CB in competition with ham radio. These comments should be disregarded for two reasons. First, this is a CB matter, not ham radio. ARRL has no standing to comment. Second, since the CB service was created from frequencies that were previously part of the amateur radio 11-meter band — a “DX band” — CB is, de facto, in competition with ham radio. Only relocating the entire CB service can change that. If CB stays where it is, this is a non-issue, since it cannot be changed.

The National Association of Broadcasters (NAB) has objected because illegal amplifiers cause interference. This proposal is not about power limits. NAB’s objection is specious and has nothing to do with the issue at hand.

In short, you have a rule that was dumb to start with because it runs contrary to natural phenomena and enforcing it would be difficult and cumbersome at best. Do the right thing — make this inappropriate rule go away.

Sincerely,
Jock Elliott

CB Editor, *Popular Communications*

So, here’s what we really have here: the CB band was placed in the wrong frequencies to fulfill its intended purpose for short-range communications. Sometimes, when the sunspot cycle is at its minimum, short range communications work just fine. But when the ionosphere permits it, long-range propagation simply happens, and nothing can be done to prevent it.

It seems to me that there are only two sensible alternatives: (1) do away with the current distance limit on CB communications or (2) relocate the entire service to frequencies where long range propagation doesn’t happen or is very rare.

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Cobra has added to its NightWatch line with the 148 NW ST. It’s Cobra’s 148 AM/SSB sideband mobile chassis with the NightWatch glow-in-the-dark faceplate and Cobra’s SoundTracker system.

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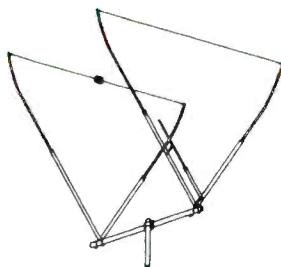
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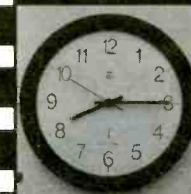
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position switch for controlling the noise blanker and automatic noise limiter. Next to that is a two-position switch for selecting between CB and PA functions, followed by a three-position switch for selecting meter functions. Next, there is a switch for selecting USB, AM, or LSB operating modes and a switch for adjusting tone. These are followed by LEDs for indicating transmit and receive and SoundTracker operation. Below these LEDs is a button for activating the SoundTracker system. At the upper right of the front panel is the channel indicator.

Beneath the channel indicator, in the lower right corner, is a larger channel selector knob. Next to it is the NightWatch dimmer knob, followed by a knob for the SSB clarifier. That is followed by the microphone gain control, a concentric knob for RF gain and SWR calibration, and another concentric knob for volume and squelch. On the back panel of the rig are an antenna connector, power connector, and connectors for a PA speaker and an external speaker.

All the goodies aside, what really sets this rig apart is its ability to operate in single sideband (SSB) mode. An ordinary AM signal consists of a carrier and two identical sidebands that contain the sound

of your voice. The carrier, however, contains no information whatsoever. It simply exists to provide the AM CB receiver at the other end of the conversation something to lock onto and it wastes half the power.

What a sideband CB allows you to do is to eliminate the carrier and to choose one of the sidebands to use for communication. This has the effect of concentrating your signal (to nearly four times the power), and most of the time you can talk nearly twice as far with a sideband rig as you can with AM. For sideband to work, you have to be talking to another sideband station that is operating on the same sideband (upper or lower) and the same channel. You also need an additional control, called a clarifier, that allows you to fine-tune the receive frequency. Without it, the signals can sound unintelligible. But trust "Uncle Jock" on this one: if you haven't tried sideband, you're gonna love it!

The performance of this radio is classic Cobra 148 — excellent audio on both receive and transmit. In addition, the SoundTracker system can reduce noise on receive and, in certain situations, boost transmitted audio. Suggested retail price of this new CB is \$179.95.

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 SEPTEMBER 2000
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how I got started

Congratulations To Scott Verity, KC2FBV, Of New York



Scott Verity, KC2FBV of Massapequa Park, New York, with puppy Tasha.

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. If you're E-mailing photos, please send them in a separate E-mail with your name in the "subject" line.

"Still, I owe a great deal of thanks to Walter, KA2RGI, Dave, N2UHR, and cartoonist Robert Beasley, K6BJH. They have shown me the challenging side and the fun side to amateur radio."

Our August Winner

Pop'Comm reader Scott Verity, KC2FBV of Massapequa Park, New York, says, "In February 1999, concerns over Y2K sparked my interest in emergency communications. Not satisfied solely with CB radio and shortwave listening, encyclopedia research led to QST magazine, which led in turn to the ARRL Website. The ARRL Website led to a local club (Great South Bay A.R.C (www.gsbarc.org) whose hamfest I attended. In late March, I joined their classes midway through and passed my first test on April 25, Marconi's birthday.

I currently have a Yaesu FT-50 HT and an FT-90 mobile serving as my home station. Even though I'm the 'kid' in the club, they've always made me feel welcome and I appreciate it more than they'll ever know. Still, I owe a great deal of thanks to Walter, KA2RGI, Dave, N2UHR, and cartoonist Robert Beasley, K6BJH. They have shown me the challenging side and the fun side to amateur radio." ■

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utility radio review

News, Information, And Events In The Utility Radio Service Between
30 kHz And 30 MHz

This Month's Marine Services Theme Column, And UTE Logs

With the height of summer now upon us, a great deal of boating and shipping radio communication activity is now taking place across the LF and HF dial. With summer also comes rapid changes in weather conditions, so we are going to be looking at digital weather services that you may be interested in monitoring that transmits up-to-date WX information.

I am going profile NAVTEX, as well as some related marine weather services. In particular what I am going to be looking at is GMDSS, or Global Marine and Distress Safety System, and what safety communication it provides to mariners.

Before getting into that topic, I would just like to say that the UTE logs are starting to come in. It always takes a bit of time to bring a new column up to speed, and I would like to thank everyone for their patience as I got things established here. Each month from now on we should be seeing larger lists of loggings.

We also have the first edition of our reader's correspondence. You will find that we are going to have a very international following here at the URR. E-mail and letters have been coming in from Europe, Russia, and South America.

We tend to forget the fact that radio monitoring is a worldwide hobby, and I am hoping to show you through the pages of this column just how diverse Utility loggings can be. There is a lot of traffic to be copied out there, and each continent has its own vantagepoints.

I will also be profiling our first UTE monitoring station. That honor goes to **Jorge Aloy of Argentina**. It is important that readers of this column come to know who is out there making the contributions to the monitoring hobby that makes it an interesting pastime.

I want to do these profiles on a monthly basis, so please send in a picture of you at your station with a bit of history about your utility monitoring interests. I don't care if your rig is big or small, expensive or not, just as long as the picture shows you enjoying yourself is enough for me to consider it for publication in your column.

The **spectrum survey** also continues, with this month looking at the UTE stations you can hear in the **150 to 300 kHz LF range**. Beacons primarily, and many people are dedicated to tracking them down and logging them — and we welcome those logs in this column! There are other services found here that are worth tracking down and monitoring as well, and these will be introduced here.

Check the end of the column for next month's theme, and requests for reader's contributions for that topic.

Don't forget that I also have a personal Webpage with a section dedicated to this column located at <http://www.provcomm.net/pages/joe>. You can join an on-line discussion group at that Website so that people with an interest in utility radio can have a place to share information.

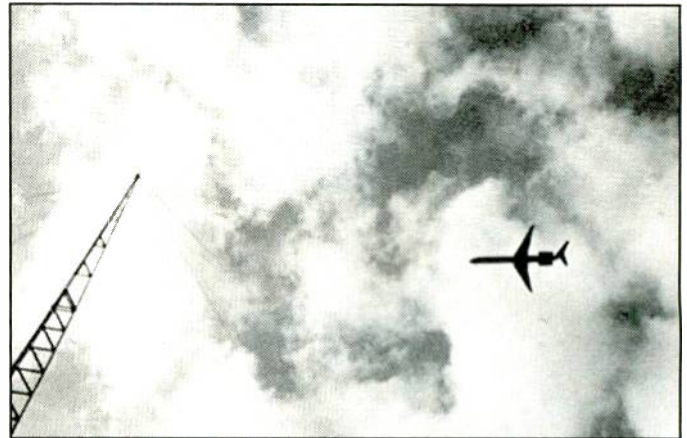


Photo 1 — Jet using NDB to navigate.

For those who wish to contact me by mail, you can do so through *Popular Communications* mailing address listed at the front of the magazine. I also have U.S. mailbox that you can send cards and letters to, and it is located at PMB: 121 1623 Military Rd., Niagara Falls, NY, 14304-1745.

Now that the housekeeping duties are over with, on to the real stuff!

GMDSS — What Does It Mean To You?

One of the principal concerns for any marine activity is safety. While human beings have used open water and rivers for transportation for millenniums, it is still a foreign environment to us. When things start to go wrong when one is out on water, things go wrong very fast and often with tragic results.

One of the blessings of this modern age is our comprehensive system of radio communications and navigation. While there are many different types of communication systems available, some are still relatively new and not well understood.

In this month's column, I am going to review three very effective radio communication mediums used in today's marine services as part of the Global Marine and Distress Safety System (GMDSS). These are NAVTEX, Radiotelex, and Weather Fax. We will look at NAVTEX in more detail in this column.

First, why must we understand the regulations and protocols associated with GMDSS? Why are they so important to those people who monitor utility radio? There are several reasons, the most important being how some technologies are going to impact upon our ability to monitor marine services over the next few years.

Station	ID	Time of transmission (UTC)
Kodiak	J X	0300, 0700, 1100, 1500, 1900, 2300, 0340, 0740, 1140, 1540, 1940, 2340
Astoria	W	0130, 0530, 0930, 1330, 1730, 2130
San Francisco	C	0000, 0400, 0800, 1200, 1600, 2000
Cambria	Q	0045, 0445, 0845, 1245, 1645, 2045
Marianas	V	0100, 0500, 0900, 1300, 1700, 2100
Honolulu	O	0040, 0440, 0840, 1240, 1640, 2040
Boston	F	0045, 0445, 0845, 1245, 1645, 2045
Portsmouth	N	0130, 0530, 0930, 1330, 1730, 2130
Savannah	E	0040, 0440, 0840, 1240, 1640, 2040
Miami	A	0000, 0400, 0800, 1200, 1600, 2000
San Juan	R	0200, 0600, 1000, 1400, 1800, 2200
New Orleans	G	0300, 0700, 1100, 1500, 1900, 2300

While it is doubtful that radio monitoring of utility services will be prevented in the same way that it now is with cellular telephone signals, the ability to receive a UTE signal is going to become more complex. Much of this will have to do with the impact that automated radio systems are currently being mandated by law.

As of February 1, 1999, the requirements for voice watch keeping were changed, no longer requiring the mandatory monitoring of certain radio channels and frequencies. Likewise, the U.S. Coast Guard is stating that MF and HF voice watches may not be maintained in the near future.

What we may eventually see is a system of Digital Selective Calling (DSC). When this takes place, only those stations equipped to use DSC will be able to communicate with each other. The value of such a system is the elimination of human error, and the efficient use of the radio frequency spectrum. Such systems will also be connected to a Global Positioning device, so that the location of a ship in distress could be found instantly and with pinpoint accuracy.

These new systems will also be information rich for their users. This will be due in great part to the introduction of reliable text based transmission system, such as NAVTEX. Using fixed frequency receivers, instant weather, and notice transmissions can be easy for non-technical people to receive.

With such changes in technology coming up rapidly upon us, it would be wise to begin understanding their use and operation now.

What Is NAVTEX?

NAVTEX is a direct-printing service designed to deliver navigational and meteorological warnings and forecasts, as well as urgent marine safety information to ships. It has been in operation by the U.S. Coast Guard since 1983, starting in Boston, Massachusetts.

It operates on **518 kHz** only, and while there are two other internationally recognized frequencies of **490 and 4209.5 kHz**, there are no current plans to use them in North America. All NAVTEX stations in the United States are operated by the U.S. Coast Guard and it is a major element of the Global Marine and Distress Safety System (GMDSS).

The service uses specially designed receivers that currently cost between \$800 and \$1500 and have an approximate useful

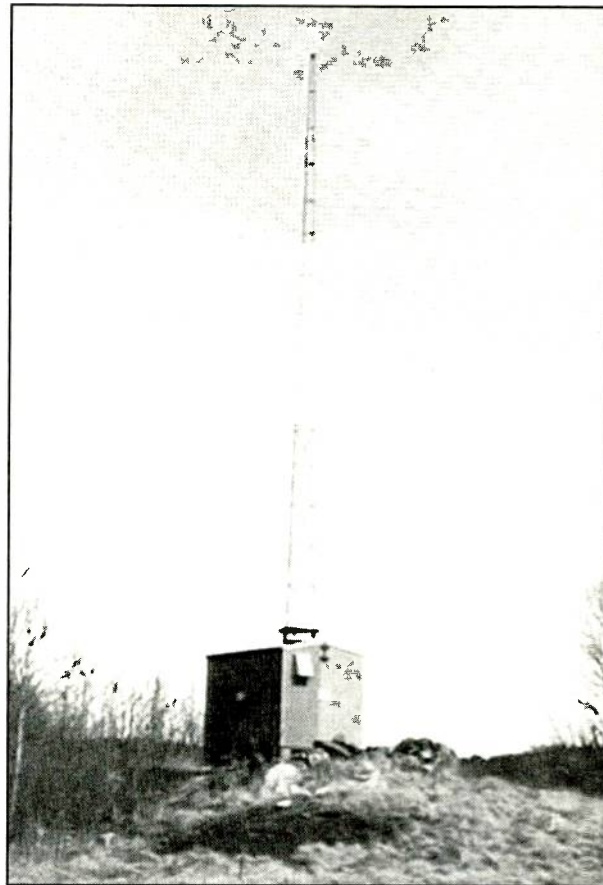


Photo 2 — A typical NDB with transmitter housed in small shack beside vertical antenna.

range of 200 nautical miles from shore. Future technology will be based on handheld units with LCD screens, and ones that will be hooked directly to a personal computer via an RS232 cable. These future units are expected to cost between \$250–\$400.

NAVTEX is an automatic system that employs a printer to display the transmitted text (there is no speaker component with the receiver). All are based on a narrow-band direct printing 7-unit forward error correcting (FEC or Mode B) transmission. It employs an 100-baud FSK modulation, with a frequency shift of 170 Hz. The center frequency of the audio spectrum applied to a single sideband transmitter is 1700 Hz. The receiver 6 dB bandwidth needs to be between 270–340 Hz in order to be effective in countering RF disturbances found in the LF band.

What makes NAVTEX transmissions robust is that each character is transmitted twice. The first transmission (DX) of a specific character is followed by the transmission of four other characters, followed by the retransmission (RX) of the first character takes place, allowing for time-diversity reception of 280 ms. This allows for a high level of error correction under the most adverse of reception conditions, which is not found in more traditional digital modes such as RTTY.

This method of transmission is also used by Amateur Radio service (AMTOR). However, it is unclear if AMTOR software can be used to demodulate NAVTEX transmissions at this time.

Potentially NAXTEX can be used to transmit information about the following:

- Navigation information
- Storm/Gale warnings

Transcribed Weather Broadcasts

There is also an interesting LF source for transcribed weather broadcasts in Ontario Canada. Here is a good DX challenge.

1L 300 Dutkewych Point Ontario WX every 15 minutes during Navigation season

NMN — Portsmouth

kHz COAST STATION	kHz SHIP STATION	Schedule (UTC)
4212	4174	On request
6316	6264.5	2300-1100
8428	8388	24 HRS
12592.5	12490	24 HRS
16819.5	16696.5	24 HRS
22389.5	22297.5	1100-2300

NMO — Honolulu

kHz COAST STATION	kHz SHIP STATION	Schedule (UTC)
4212	4174	On request
6316	6264.5	On request
8429.5	8389.5	24 HRS
12589	12486.5	24 HRS
16819.5	16696.5	On request
22389.5	22297.5	Daytime

NMC — Pt. Reyes CA

kHz COAST STATION	kHz SHIP STATION	Schedule (UTC)
4215.5	4178	On request
6323.5	6272.5	Nighttime
8426	8386	24 HRS
12585	2482.5	24 HRS
16812.5	16689	24 HRS
22382	22290	Daytime

HF SSB

- Weather forecasts
- Piracy warnings
- Distress alerts

Currently, the information is primarily focused upon weather, and in 1999 the National Weather Service began to issue a new series of forecast products specifically tailored to fit the broadcast ranges of the U.S. Coast Guard NAVTEX transmitters on the CONUS and Puerto Rico.

I've included a list of U.S. Coast Guard stations transmitting NAVTEX signals.

The use of a dedicated NAVTEX is relatively simple. All one needs to ensure is that sufficient paper is in the receiver in order for it to print received messages and to have the unit turned on. Once it is on all one needs to do is program in the letter name of the NAVTEX transmitting stations as is shown on the above list.

The received information is printed in a format similar to that used in standard RTTY/SITOR transmissions (see **Figure 1**). Each message starts with a start of message function (ZCZC) followed by a space, then four "B" characters that provide status codes. That is followed by the text of the message, then the end of message function (NNN).

As with any technology, being dependent upon any one method of safety is an unwise practice. NAVTEX is simply one part of the entire Global Marine and Distress Safety System (GMDSS) and works best when used in conjunction with other technologies or practices.

What NAVTEX does offer, however, is a low maintenance method of having text-

Marine Voice Weather Broadcasts

As not everyone is set up to demodulate digital broadcasts, here is a sample list of some of the available SBB WX activity covering all of the coasts in North America.

Station	GMT	Description	Freq. kHz	Station	GMT	Description	Freq. kHz
				NMR	1505	Carib/Puerto Rico weather	2670
				PJC	1305	Caribbean/SW N Atlantic	8725
				WOM	1300	offshore/Carib weather	4363, 8722, 13092 17242, 22738
				NMR	1210	Carib./Puerto Rico weather	2670
				WOO	1200	East coast	4387, 8749
NMN	2330	high seas forecast	6501, 8764, 13089	NMN	1000	New England to Caribbean	4426, 6501, 8764
WOM	2300	offshore/Carib weather	4363, 8722, 13092 17242, 22738	WAH	1000	offshore/Caribbean weather	4357, 4381, 6510
VOJ	2237	North Atlantic	598	NMN	0530	high seas forecast	4426, 6501, 8764
NMC	2230	high seas West Coast	4426, 8764 13089, 17314	NMN	0400	New England to Caribbean	4426, 6501, 8764
NMR	2210	Carib/Puerto Rico weather	2670	NMR	0305	Carib./Puerto Rico weather	2670
NMN	2200	New England to Caribbean	6501, 8764, 13089	WAH	0200	offshore/Caribbean weather	4357, 4381, 6510
WOO	2200	East Coast	4387, 8749	NMN	0130	high seas forecast	6501, 8764, 13089
Herb	2000	Southbound II	12359	VCO	0040	St. Lawrence	2749
CJH 22	1907	St. Lawrence	2598	VAJ	0105	Pacific Coast	2054
WAH	1800	offshore weather	4357, 4381, 6510	XLK	0835, 2310	Alaska	4125
NMN	1730	high seas forecast	8764, 13089, 17314	VFR	2310	East Arctic	2514, 2582, 4363, 6513
NMN	1600	New England to Caribbean	6501, 8764 8764, 13089	VFA	0235	West Arctic	2558, 4363, 6218
				VOLMET	24 hr.	24-hour aviation weather, NY	3485, 6604 10051, 13270

U.S. Coast Guard HR Radio Telephone (SSB) Monitoring

The following is a list of HF distress and safety watch keeping schedules and the frequencies being monitored by U.S. Coast Guard station.

kHz SHIP	kHz COAST STATION	NMN	NMN/NMF	NMG
4134	4426	2300-1100	2230-1030	24 HRS
6200	6501	24 HRS	24 HRS	24 HRS
8240	8764	24 HRS	24 HRS	24 HRS
12242	13089	1100-2300	1030-2230	24 HRS

PORTPATRICKRADIO

SHIPPING FORECAST

2130 ON FRIDAY 27 AUGUST 1999

THE GENERAL SYNOPSIS AT MIDDAY

LOW 100 MILES NORTH OF FAEROES 999

MOVING AWAY NORTHWARDS. HIGH

BISCAY 1023 EXPECTED PORTLAND 1026 BY

MIDDAY TOMORROW. LOW WEST

FINISTERRE 1017 SLOW MOVING AND

FILLING 1021 BY SAME TIME

THE AREA FORECASTS FOR THE NEXT 24

HOURS ISSUED BY THE MET. OFFICE

AT 272000 GMT

ROCKALL

SOUTHWEST 4 OR 5 BACKING SOUTH 6 OR 7.

RAIN OR SHOWERS. MODERATE OR

GOOD

SOUTHEAST ICELAND

VARIABLE 3 BECOMING SOUTH OR SOUTHWEST

5 OR 6. RAIN. GOOD BECOMING

MODERATE OR POOR

NNNN

Figure 1 — An example NAVTEX transmission printout.

based information available as an advisory when needed. While not required by law, many are suggesting that an installed NAVTEX system be left on at all times so any important information won't be lost.

Because the system is automatic, it will only operate when information is sent, so that the power requirements will always be very low. At minimum, the suggested turn-on period before leaving dock is four hours in order to ensure that any important information is captured well in advanced.

Obviously, the system is only as good as the information one has in hand at any given time. This is the key advance in the technology over others, such as SITOR (NBDP). SITOR is similar in many respects to NAVTEX but does not offer all of the same functionality such as avoiding repeated message.

If you wish to obtain more information on NAVTEX, please

contact your local U.S. Coast Guard station, or visit their site on the Internet at: <http://www.navcen.uscg.mil/>. This U.S. Coast Guard Internet site also provides important information about LORAN, GPS, and other radio-based navigation aids.

Please note that the Canadian Coast Guard also offers a NAVTEX service, and currently provides the only NAVTEX service on the Great Lakes. More information on this service will be provided in future columns.

HF Radiotelex (SITOR Or Narrow-Band Direct Printing)

For those who do not have current access to NAVTEX equipment, it is still possible to monitor U.S. Coast Guard SITOR transmissions. Here is a list of current stations, schedules and frequencies that are guarded by the U.S. Coast Guard for emergency transmissions.

Weather Service Resources

A very good summary source for any of the topics covered in this month's column can be found in *Weather Radio* by Anthony R. "Tony" Curtis, K3RXX \$14.95 + \$3 s/h from Tiare Publications P.O. Box 493 Lake Geneva, WI 53147. It gives you a complete overview that also includes HF, VHF, and satellite sources. A complete survey of many worldwide weather services, including Russian, Indian, and Chinese marine weather broadcasts. A frequency list that ranges from VLF to UHF is included in the book.

Reader's Letters

We are starting to get some of the first correspondence into the column, and as you can see the sampling is very international in flavor, as the letters show.

I have included contact information as well, if you wish to contact clubs and individuals themselves. I am certain that many would welcome correspondence from *Pop'Comm* readers on topics relating to UTE monitoring.

"I have forwarded your announcement to our monthly magazine editor and Weekly DX E-mail newsletter Editor of Kanto DXers Circle. Best of luck with the new column. Nobuo Takeno, Kanto DXers Circle, Tokyo Japan. Contact <http://www.asahinet.or.jp/~ms8n-tn/>.

"Greetings from the ASWLC and SCADS. We wish you much success with the new column in *Pop'Comm* magazine. Both clubs will do their best in giving publicity to your new column."

"Your E-mail letter to the ASWLC will be given to all members present at our next meeting on May 6th and at the following SCADS meeting on May 20th. I feel sure that you will get some reporters from our area of southern California. Again, welcome to the community and good success with your column."

Stewart H. MacKenzie — WDX6AA

"World Friendship Through Shortwave Radio Listening." Contact the ASWLC as <http://www.ocnow.com/community/groups/shortwaveradio> and SCADS at <http://www.ocnow.com/community/groups/radiocommunications>.

"I wish you much success with the new column! I'll print

Non-Directional Beacons

200	AOC	Arco, ID	250	YTJ	Terrance Bay, ON
201	CZE	Clarksville, AZ	251	PRO	Perry, IA
203	BXR	Siren, WI	251	BR	Brainard, MN
204	JAU	Jacksboro, TN	252	SMS	Sumpter, SC
205	XZ	Wawa, ON	253	GB	Marshall, MN
206	GLS	Galveston, TX	254	ENY	Ashland, WI
207	YNE	Norway House, MN	255	GAZ	Globe, AZ
208	OYN	Nome, AK	256	HBZ	Herber Springs, AR
209	HCD	Hutchinson, MN	257	YXR	Earlton, ON
209	IB	Atikokan, ON	257	RNH	New Richmond, WI
210	IOB	Mt. Sterling, KY	258	ZSJ	Sandy Lake, ON
211	ORG	Orange, TX	259	PBY	Kayenta, AZ
212	SSQ	Shell Lake, WI	260	YAT	Attawapiskat, ON
212	MPZ	Mt. Pleasant, IA	260	OLZ	Oelwein, IA
214	CHX	Choix, MEXICO	260	SUW	Superior, WI
215	AOA	Alabaster, AL	261	SKU	Newburgh, NY
216	CLB	Wilmington, NC	262	CTM	Chetumal, MEXICO
217	LOP	Lakeport, CA	263	CQR	Chandalar Lake, AK
218	RL	Red Lake, ON	264	SZT	Sandpoint, ID
219	YMG	Manitou- wadge, ON	265	LHC	Arlington, TN
220	RBJ	Tucson, AZ	266	MS	Minneapolis, MN
221	FX	Fort Lauderdale, FL	267	HET	Henryetta, OK
222	FDR	Frederick, OK	268	ACU	East Kurupa, AK
223	YYW	Armstrong, ON	269	UDE	Delta Station, MB
224	MO	Moosonee, ON	269	ISB	Sibley, IA
225	DN	Dauphin, MA	270	TPF	Tampa, FL
227	SL	Storm Lake, IA	271	HXO	Oxford, NC
227	DXX	Madison, MN	272	YQA	Muskoka, ON
228	BCZ	Butler, AL	272	GP	Grand Rapids, MN
229	SD	Louisville, KY	272	ULM	ULM, NM
230	HSB	Harrisburg, IL	273	DOM	Dominica, Dominican Republic
230	ZUC	Ignace, ON	274	YPM	Pikangikum, ON
230	HPT	Hampton, IA	275	AMW	Ames, IA
230	BI	Bismarck, ND	275	AV	Winnipeg, MB
232	GP	Gaspé, PQ	276	YEL	Elliot Lake, ON
233	OEO	Osceola, WI	277	ACE	Homer, AK
233	QN	Nakina, ON	278	NM	Matagami, PQ
234	JTM	Sutton, WV	278	AHH	Elliot Lake, ON
235	RW	Rocky Mount, NC	278	XWY	West Union, IA
236	DO	Minocqua, WI	279	CQX	Chatham, MA
236	DEH	Decorah, IA	280	SLX	Slate Creek, AK
236	GNI	Grand Isle, LA	281	XWY	Alexandria, MN
237	EZF	Federicksburg, VA	282	GWF	Lancaster, CA
238	MMK	Meriden, CT	283	SCO	Scobey, MT
239	BBB	Benson, MN	284	PQN	Pipestone, MN
239	VO	Val D'Or, PQ	284	QD	The Pas, MB
240	BVS	Mount Vernon, WA	287	ME	Memphis, TN
241	VKX	Friendly, MD	288	CME	Ciudada Del Carmen, Mex.
242	YMY	Ear Falls, ON	289	YLQ	La Tuque, PQ
243	IAK	Palatka, FL	290	AOP	Rock Springs, WY
244	TH	Thompson, MN	290	TVK	Centerville, IA
245	FS	Sioux Falls, SD	291	9Q	Amos, CND
245	YZE	Gore Bay, ON	292	MIQ	Maiquetia, Venezuela
246	DFI	Defiance, OH	293	CJJ	Cresco, IA
247	YLH	Lansdowne House, ON	294	BMC	Brigham City, UT
248	WG	Winnipeg, MB	296	ARF	Albertville, AL
248	GGI	Grinnell, IA	299	KKA	Koyuk, AK
249	LYD	Houston, TX	300	SPF	Spearfish, SD
250	FO	Flin Flon, MB			

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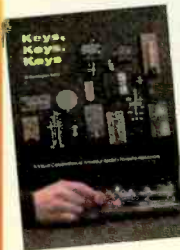
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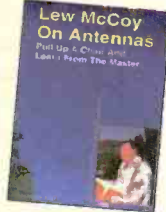
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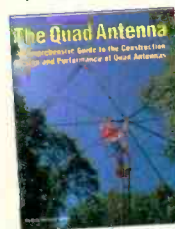
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your entire message in The LOWDOWN and put it on the members-only Web page, just in case anyone still checks there (we haven't had any news to put on it in a long time). I'll also put a slightly condensed version on the LW Message Board, if that's OK."

73, John Davis LongWave Club of America, <http://www.lwca.org/>.

"I will publish your letter in our magazine, 73's and good luck."

Jonny Augustsson (SM6WYA) for the Swedish DX Federation at <http://www.sdx.org/sdxfee.html>.

"Best of luck with your new column, and I have passed along the pertinent details to my readers in today's News section! 73 & Strong Signals,"

Rich Wells N2MCA at <http://www.strongsignals.net/>.

"I forwarded the news about your utility column to all of our Internet members (approx. 350) and I will publish it into EL DIAL issue of May 2000. Hasta la vista y suerte!"

Pedro Sedano, Madrid, España for Association of Spanish Shortwave Listeners at <http://www.aer-dx.org/>.

"Many thank yous for contacting us, here at the 'end' of the world! We are the biggest SWL/DX group in Spanish Speaking South America. A big and good group also exists at Brazil (contact: <dxcp@dxcp.com.br>). Both of us have some UTTY DXers. DX is not popular here like in USA or Europe, for many reasons (expensive receivers for people with salaries of \$300, \$500 U.S. a month with a high cost of living). But we'll feel happy to contribute to your column at *Popular Communications* (I was a subscriber for several years). So, I'm passing your E-mail to some friends of mine that DX UTTY and also I'll publish your UTTY tips in our DX bulletin CONEXION. We have a regular UTE column and in CONEXION DIGITAL, our weekly electronic E-mail bulletin (It includes a EE section, ask to: neramo@arnet.com.ar).

So, I hope some LA UTE DXers can show their results at that great magazine. To link exchange (we also have a web page) contact neramo@arnet.com.ar. Well, I hope all this is of some help and I wish to you the very best! Anything you need from here, I'll be happy to help. Excuse my English writing! I taught myself!"

Jorge Aloy, LU 097-0102

"Hello from Siberia! Thank you for your message. I visited your Website yesterday. And I shall try to participate with my logs/tips. Also, I shall tell my colleagues about your message. 73,"

Feodor Brazhnikov P.O. Box 3036, Irkutsk-59, 664059, Russia. "P.S. I like cats too!"

The Irkutsk DX Circle is at <http://www.irkutsk.com/radio>.

From Soy socio del GRP (LA Plata- Argentina). "I can collaborate with you in your column of DX Ute en *Popular Communications*. Please keep in touch with me. Regards."

Victor Castaño P.O. Box 10.613 Sucursal 60 Montevideo URUGUAY castor@adinet.com.uy.

"We wish you all the best for your new UTE column. Unfortunately, the research for and production of our international guidebook and CDs and CD-ROMs leaves no extra time

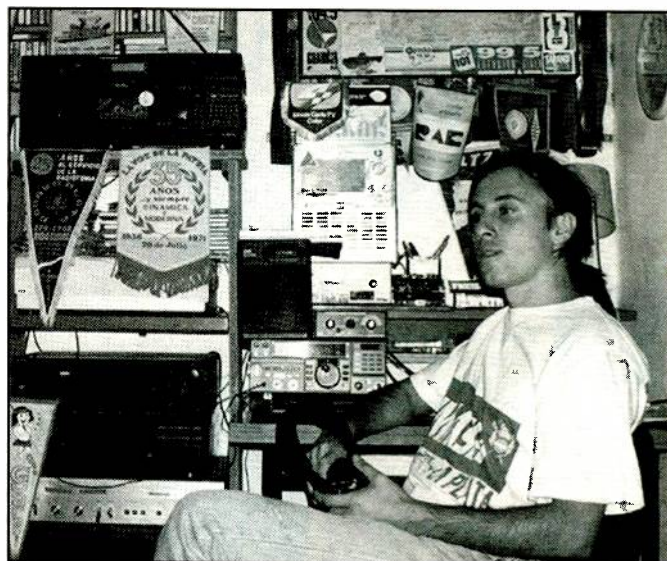


Photo 3 — Jorge Aloy at his monitoring station in La Plata, Argentina.

for contributions elsewhere. However, our hot frequencies Webpage is usually updated daily or several times a day with the very latest screenshots made with the most modern digital data analyzing/classification/decoding equipment available. No other radio monitoring service, let alone those sleepy equipment manufacturers, provides such a unique service. Best wishes,"

JK Klingenfuss Radio Monitoring Hagenloher Str. 14 D-72070 Tuebingen, Germany. <http://ourworld.compuserve.com/homepages/Klingenfuss/>.

Spectrum Review: 150 kHz To 300 kHz

The Low Frequency range of the radio spectrum has always provided an interesting listening ground for those who are willing to put up with noise and interference. While ground-hugging characteristics of VLF radio is not as pronounced here, propagation is certainly different from that found in the medium and high frequencies.

At one time there was a lot more activity in this range of frequencies than there is now. The burst of digital code from the Ground Wave Emergency Network (or GWEN) could be heard at one time, along with a number of commercial stations. Now the primary residents are power companies who use these frequencies for telemetry and signaling.

The actual transmissions are made along the wires that carry high voltage electricity, and if you live near a power corridor you may be able to pick up voice and digital signals that have leaked off these lines.

The vast majority of signals that you can hear in this range of frequencies are Non-Directional Beacons. NDBs exist to provide navigation to aviators and mariners. This system of radio navigation has been in place since the early days of radio, and is a very simple type of navigational aid, compared to GPS, Loran, VOR, DME, and ILS systems. While once the standard for air navigation, NDBs are not used for major airports anymore. Still, NDB still dot the country due to their reliability.

Many radio monitors who specialize in DX listen to NDBs because they offer a steady and identifiable stations in the Low Frequency bands. There are plenty of targets to choose from as

Reader Profile

Jorge Aloy, LU 097-0102

Member:

Conexion/Grupo Radioescucha Platense
Box 465 — 1900 La Plata — Argentina

Receivers:

ICOM IC-R71A (HF/MW)/Harman/ Kardon hk710 (FM)
TV: Scientific Atlanta early '80s cable converter (w/ fine tuning)

Antennas:

- MW Loops / "T2FD" (balun 11:1) 12,5 m. long. (all tuned by an active ATU MFJ 1045c)
- FM "Hibrid" Yagi-Uda 11 elem. (6m over roof)
- TV Log periodic with 22 elements (7m over roof)

Jorge is very active in the Argentinean DX circles, and should be a regular contributor to this column in the upcoming months.

stations a full time hobby. Listed below are some of the top websites for clubs and enthusiasts. Starting from these sites it is very easy to find all of the information you need to find the proper equipment

Long Wave Club of America — <http://www.lwca.org/>

Canadian Nondirectional Radio-beacons — <http://ftp.bruderhof.com/ka2qpg/>

U.S. List by LWCA member Jack Sippel — http://www.mindspring.com/~longwave/aero_db.htm

Robert Kramer's Longwave DX page — <http://hometown.aol.com/rkdx/index.html>

Jill's shortwave and longwave page — <http://dybka.home.mindspring.com/jill/radio/longwave.html>

South American Beacons — <http://www.unetsul.com.br/py2pll/>

Universal Radio's LW DX page — <http://www.dxing.com/lw.htm>

Another good source of beacon information are VFR charts for aviators that are available through various aviation sources, as well as navigation charts for mariners.

Reader's Logs

3658.0: SLHFB-V, Khiva, hrd in faint CW at 1857. Non-stop 'V's.

4014.0: The Backward Music station, XM, hrd at 2021.

4073.0: Moscow Time Signal, Moscow, M18, Russia, sending TS, such as 2022, 2022 (UTC+4 hrs) in CW at 2022.

4331.0: 4XZ, Haifa, Israeli Navy, M22, Israel, sending V-Mkr in CW at 2043.

4461.0: The Cuban "atencion" nbrs, Cuban Intelligence, V2, Cuba, hrd in progress and faint AM at 1420.

4575.0: Unid stn 6PXJ Rptng "V ABYZ DE 6PXJ" over and over in CW at 1348.

4625.0: The Buzzer, S28, Russia, hrd in AM at 2055.

4646.0: SLHFB-V, Khiva, Russia, hrd in CW at 1353. VVV followed by a pause of a few seconds.

4878.0: SLHFB-V, Khiva, Russia, hrd in CW at 1354. Non-stop 'V's.

5154.0: SLHFB-F and K, Vladivostok and Peteropavovsk Kamchatsky on the

well. The frequencies and call signs are found in airport and naval charts.

The majority of NDBs use tone modulated Morse identifiers. These are generally two to three letters sent continuously. American and Canadian NDB are different in that the Canadian stations have a long dash between the identifier, and sometimes use numbers as well as letters.

There are differences as well between marine and aviation NDBs. Marine stations operate only during navigation season and broadcast a single letter in Morse code three times per cycle.

What the NDB represents most is a good test of a receiver's antenna and receiver's ability due to their relative low power and the propagation characteristics of the LF spectrum.

Technically all a non-directional beacon represents is a simple, but rugged radio transmitter operating between 200 kHz to 480 kHz in the Longwave band. Its job is simply to send out a continuous signal, a "carrier," which is often modulated with the station's identification, in Morse code. This code helps the monitoring station confirm that they are tuned to the right frequency.

To use these signals as navigation devices, you need an ADF or Automatic Direction Finder, which simply consists of a needle hooked to a special receiver which points toward the NDB.

Most NDB are housed in a small building next to the antenna array (See Photo 2). There are three primary components found in each of these stations. The first component is the radio transmitter, and these operate between 10 to several hundred watts depending upon their role in

the navigation system. The second component of the NDB station is the antenna tuner. The antenna tuner couples the transmitter to the antenna so it can radiate its signal efficiently. The final component of the NDB station is the antenna.

The antenna on most NDBs, as with most low frequency stations, is extremely important and is the part most likely to be compromised during NDB station design. Its physical dimensions will always be smaller than are actually required to be efficient.

Due to the wavelengths involved, it would be impossible to have a full-sized antenna. However, with modern engineering, and given the fact that the radio wave are to be sent in all directions at once, rather than one direction, these compromises are not critical.

Target NDB Frequencies

The stations listed here are only a fraction of the stations that are available today. These have been chosen due to their geographical location or their historic importance. Many have been on the air since the beginning of radio navigation. Some Canadian and offshore beacons have been included in this abbreviated list. Thousands of NDB exist around the world and represent some interesting DX challenges.

Longwave Monitoring Resources

Many groups and individuals have made the monitoring and logging of NDB

north side of Khabarovsk, hrd in CW at 1200.

5435.0: ART, E10, Mossad, Israel, hrd in USB at 2030.

5435.5: Unid stn L9CC Rptng "V CP17 DE L9CC" over and over in CW at 1148.

5870.0: North Korean/YL nbrs hrd in AM at 1000 // 4770kHz.

6270.0: ULX, E10, Mossad, Israel, hrd in US at 2030.

6498.0: The Cuban Cut CW nbrs, M8, Cuba, in progress at 1222.

6767.0: The Cuban Cut CW nbrs, M8, Cuba, in progress at 1210.

6826.0: The Cuban "Atencion" nbrs, V2, hrd in faint AM at 0920. On another day, The Cuban Cut CW nbrs, M8, hrd in CW at 1217.

6907.0: The Russian Man nbrs, E6, Russian Intelligence, hrd in powerful AM at 1200.

6986.0: ART, E10, Mossad, Israel, hrd in USB at 2100.

7019.0: Unid Slavic nbrs hrd in AM at 1104 w/ heavy QRM from amateur CW stns. The carrier was on at 1104. Weird OM opr Rptng 3FG's ID for 3 mins, then

into 5FG's, ended at 1117. It's better to hear this stn in LSB mode. This is an intruder on 40m amateur band. This stn hrd every Thursday at 1104. Not listed in ENIGMA, WUN and Spooks.

7039.0: SLHFB-F, Vladivostok, Russia, in CW at 1118.

7583.0: The Cuban "Atencion" nbrs, V2, hrd in faint AM at 1020.

7811.0: VLB2, E10, Mossad, Israel, hrd in USB at 1445.

8127.0: CIO2, E10, Mossad, Israel, hrd in USB at 2145.

8136.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1019.

8495.0: SLHFB-F, Vladivostok, hrd in CW at 1000.

8641.0: SYN2, E10, Mossad, Israel, hrd in USB at 1445.

8805.0: PCD, E10, Mossad, Israel, hrd in USB at 1530.

9153.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1017.

9230.0: The Cuban "Atencion" nbrs, V2, hrd in faint AM at 1035.

9238.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1019.

9328.0: The Cuban Cut CW nbrs, M8, hrd in CW at // 10529kHz.

9332.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1021.

9725.0: The New Star Radio, V13, Taiwan, hrd in powerful AM at 0900.

10125.0: CIO2, E10, Mossad, Israel, hrd in USB at 2145.

10126.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1131.

10345.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1108.

10446.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1109.

10529.0: The CIA Counting nbrs, E5, hrd in AM at 1300 // 9328kHz.

10715.0: The Cuban Cut CW nbrs, M8, hrd in CW at 1105.

10872.0: SLHFB-F and K, Vladivostok and Peteropavovsk Kamchatsky on the north side of Khabarovsk in CW at 1019.

11430.0: The New Star Radio, V13, Taiwan, hrd in powerful AM at 0900.

13264.0: Shannon Volmet, Ireland, hrd in USB at 2147.

13528.0: SLHFB-F and C, Vladivostok

Tuning In (from page 5)

it or not, who do you think will get the proverbial knock on the door from Uncle?

In the final analysis, it really *doesn't* matter what *I* think, *Art Bell* thinks, or *you* think about the Freeband. What matters is that if you're operating a transmitter in what's perceived to be the "Freeband," you're in someone else's radio territory. I certainly wouldn't like it if an unlicensed operator came up on my local 2-meter repeater or on WCBS at 880 kHz. Rest assured that most folks would call *that* major league illegal and the feds would be on the operator like flies on a picnic. Is a Freebander, then, a badboy radio operator who decides to come up on 2-meters simplex, or on the Troy, New York 2-meter repeater? Apparently not. "Freeband" is a magical area on *HF* where some folks have claimed squatter's rights. But remember that while neither of us wrote the law, we also have a right to *our* opinion — and perhaps an obligation to warn operators that the FCC is on a roll. And the seriousness of the offense is most certainly going to be tempered, weighed, and balanced in this logical thinking, democratic society with the lawful response used to right the wrong, or in some cases, rewrite the law to reflect a change in public sentiment.

In the meantime, we'll keep reporting on Freebanding in *Pop'Comm* because there's sufficient interest in the subject. It's not our intention to sit in judgement of Freebanders, but merely to pass along the message from the FCC that Freebanding — however it's defined — still pegs the FCC's angry meter, perhaps more than my repeated warnings did some radio operators. You can hold onto your money, or give it to the feds. ■

PopComm P.O. (from page 6)

interest in citizens band radio. I asked my wife where my two mobile units are (packed away somewhere in the cellar in a box) and did find my CB magnetic mount antenna and it still looks operational. Maybe I'll give it a try (when I find at least one of the mobile radios) in the future.

Sincerely,
Ken Windyka
Springfield Massachusetts Area

Thoughtful Ham

Dear Editor:

Your December 1999 "Loose Connection" column really rang clear here for me. Last month when going to place the latest acquired book on the shelf it became quite apparent I was out of room. A quick cursory inventory found a number of these I wouldn't be opening again on a regular basis. It was at that point that I remembered how when I first became interested in shortwave radio and later on in ham radio, my local library always had to request books from neighboring communities. The books were in nearly new condition so I took them in. Now our town has the start on a nice collection of basic electronic and radio hobby books, and what the heck, if I ever need them again they'll be available there. The librarian was very impressed with the gift. The thought of them being available to help any budding hobbyists was great. Now when I attend hamfests if I find a great deal on a book I don't think twice as I know I'll always have a shelf available for it!

73's,
Jon Oldenburg, KB9VFD
Appleton, Wisconsin

and Moscow, hr in CW at 1300.

13750.0: The New Star Radio, V13, Taiwan, hrd in powerful AM at 0900

13906.0: The CIA Counting nbrs, E5, hrd in AM at 1200 // 15732kHz.

14577.0: The CIA Counting nbrs, E5, hrd in AM at 1200 // 16198kHz.

14648.0: 4XZ, Haifa, Israeli Navy, sending V-Mkr in CW at 0630.

14750.0: CIO2, E10. Mossad, Israel, hrd in USB at 1345.

14892.0: High Pich Polytone stn, XPH, tonal numbers, hrd in AM and progress at 2015.

15732.0: The CIA Counting nbrs, E5, hrd in AM at 1200 // 13906kHz.

15980.0: CIO2, E10, Mossad, Israel, hrd in USB at 2145 // 10125kHz. First time I've ever encountered CIO on this freq. Used to be EZI. On another day usual EZI, Mossad, hrd at 2200 in USB.

16198.0: The CIA Counting nbrs, E5, hrd in AM at 1200 // 14577kHz.

16332.0: SLHFB-C, Moscow, hrd in CW at 1253.

17966.0: CIO2, E10, Mossad, Israel, hrd in US at 1145.

18415.0: 8BY, French Intelligence, Saint Assise near Paris, hrd in CW at 1440.

18481.0: 4XZ, Haifa, Israeli Navy, sending V-Mkr in CW at 0648.

19715.0: EZI, E10, Mossad, Israel, hrd in USB at 2200.

20048.0: SLHFB-C and S, Moscow and Alkhagensk, hrd in CW at 2253. On another day SLHFB-S and P, Alkhagensk and St. Petersburg, hrd at 0939.

21930.0: EZI, E10, Mossad, Israel, hrd in USB at 1400 // 19715 // 23740kHz.

23740.0: EZI, E10, Mossad, Israel, hrd in USB at 1400 // 19715 // 21930kHz. (Takashi Yamaguchi of Nagasaki, Japan)

10780.0: KING 11 (Moody AFB 71RQS C-130): Cape Radio 1756z USB pp DSN 460-7112 (Moody King Ops); is RTB, 20 min. out, injured pj has been taken by Jacksonville Fire-Rescue for medical attention. Planned AR is cancelled. 11/Apr/00 (ALS) AL STERN Satellite Beach, FL.

Contributors

Al Stern — Satellite Beach, FL

Takashi Yamaguchi — Nagasaki, Japan

Closing Comments

Your column, as you can see, is starting to take shape. Again I thank everyone

for his or her patience during this time of development and growth.

Next month even more logs will be published as a number of contributions came in just after deadline and could not be included this month. Again, your contribution, even if it is only one, is wanted and appreciated.

Next month's theme is aviation services. Time to E-mail me your suggestions or contributions. There is a lot of aviation activity all over the world, with the majority being in English — so there is no excuse not to catch some good traffic.

The spectrum survey will also continue, next time looking at the area near the bottom of the Broadcast Band.

We also need more reader profiles. Send along a picture of you at your station's controls. These can be either original or digital. Likewise I welcome QSL's, but please send either a digital scan or a good photocopy rather than the original.

Until then, may all your monitoring be successful, and may all your QSL requests be answered! ■

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FCC Actions Affecting Communications

Selective Availability Discontinued For GPS Satellites, And Vehicle Radio Privacy

There's still plenty of action to report from Washington before the late summer lull when Congress recesses and bureaucrats take their long-awaited family vacations. Selective Availability has finally been discontinued for the Global Positioning System satellites. Recently, President Clinton announced that this deliberate degradation of civilian GPS signals was ended at midnight of Monday, May 1, 2000. Those of you familiar with GPS receivers and GPS tracking are probably well aware of the accuracy limitations of consumer GPS receivers up until now. The Department of Defense and the Coast Guard have long enjoyed the full benefits of unadulterated GPS accuracy, while civilian users had only access to signals several times less accurate.

The decision to set GPS signal degradation to zero was made jointly by the Interagency GPS Executive Board (IGEB), the President, and Secretary of Defense Cohen, and was announced in a White House press release on May 1. The U.S. Commerce Department is executive secretariat to the IGEB. Civilian users had previously been "guaranteed" accuracy of only a 100-meter radius with Selective Availability activated, according to the IGEB. The organization goes on to say that civilian users may now expect an estimated error of only 20 meters or better. Your existing GPS receiver is now significantly more accurate. The purpose of Selective Availability was to give U.S. and allied military forces a "navigational advantage in times of crisis or conflict," according to the IGEB. Given this, the military has evidently been in a nearly constant state of crisis and conflict, since Selective Availability has reportedly been deactivated only once, in 1994, since its inception circa the early 1980s!

The elimination of GPS degradation comes none too soon. It may surprise

some to discover that military-level accuracy had been denied to *public safety* agencies all these years. "Civilian" is a relative term. At the federal level, the term refers to individuals and agencies other than active military personnel, the Coast Guard, the Commission Corps of the Public Health Service, and possibly a handful of other smaller agencies. At the local level, civilians are customarily those other than public safety personnel, and of course, military. Regardless, for purposes of determining Selective Availability, the federal government had taken a broader view of what constitutes "civilian." Law enforcement professionals, firefighters, and emergency medical personnel had thus been relegated to the dumbed-down version of GPS. Nothing in the press releases from either the White House or the IGEB addresses this negligence up to this point, or why our dedicated public safety personnel and their mission-critical operations had been considered any less important than military personnel and operations.

The Administration in 1996 committed to discontinuing the use of Selective Availability by 2006. As it turns out, that time has come now. The capability remains of selectively "denying" GPS signals on a "regional" basis when needed for national security purposes, according to the White House. Still, annual assessments of the discontinuance of Selective Availability will be conducted until 2006. Two new civilian GPS signals are planned to enhance commercial service, and unspecified new features will be available on some 18 new GPS satellites awaiting launch or in production.

Protecting Radio Hobbyists?

How about an anti-scanner law that actually *protects* consumers, including radio hobbyists? Have I been spending

too much time in Jimmy Buffett's Margaritaville? Not at all. Back on February 10, Senator Frank H. Murkowski of Alaska introduced S. 2057, **The Motorists Privacy Act of 2000**. We're not referring to reception of audio signals here. We're not talking about ordinary frequency counters either. The Senator is concerned with electronic measurement units (EMU's), described as shoebox size units designed to identify what broadcast radio stations are tuned in by passing motorists. These devices are allegedly mounted on highway billboards and at entrances to stadiums and concert locations. As anyone technically knowledgeable would guess, EMU's measure the IF oscillator emissions from automobile broadcast receivers. I need not elaborate on the privacy concerns raised by this sort of data gathering. Senator Murkowski does assert that "when private enterprise or the government begin to monitor radio or television usage, without the knowledge of the citizen, then a line is crossed that can only lead down the path to Big Brother" also, "when a citizen is sitting inside of his or her car, there is a 100 percent expectation of privacy that what is said and listened to is private." While citizens may not have a realistic expectation of privacy when speaking on a cellular phone, they certainly do regarding their choice of radio stations to *listen* to.

The Senator goes on to point out that as EMU's are used to target passing cars, they can possibly be installed in neighborhoods to likewise monitor what various households are watching on television. However, S. 2057 seeks only to prohibit EMU's operation in relation to passing vehicles. The bill would amend Part I of Title III of the Communications Act of 1934 (47 USC §301, et seq.) with a new Section 308. As of press time, S. 2057 awaits action in the Senate. ■

BY ALAN DIXON, N3HOE/KST8678 <n3hoe@juno.com>

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the loose connection

Radio Communications Humor

Imagine If He Worked Someplace Dangerous

In an effort to raise my standards to the low end of the poverty level, I thought I might do something outstanding at work. Keeping things running well is fine, but it's never noticed. I needed something impressive — something *visible*. I would fix the deteriorating foam on the feedhorn of our 30-foot satellite dish.

Dave and I had kicked this idea around for a long time, and we always came up with the same conclusion — we could *probably* do it, but we might rent a cherry-picker, buy a few gallons of expanding foam (which neither of us had ever used before), and botch the whole job. Doing that would *also* create something highly noticeable, but we mustered some courage and ordered the two-part expanding-foam mix from a marine supply. When it arrived, we bought the other paraphernalia necessary to make a mold, mix and pour the stuff, then rented what turned out to be an extremely risky “all-terrain scissors-lift” which could only be moved by jerking your entire spinal column out of alignment, then picking yourself up off the platform and taking a look to see if you ran into anything expensive, but I digress.

Dave, who is my senior and is usually right, said he would back my efforts, help in any way short of going aloft with me, and be my right hand during the entire operation. It was my project, and he would be Tonto no matter what happened. A lot happened.

The first time the rental company delivered the lift, they brought one that would only move if it were driven on smooth, low-pile carpet. The driver saw the steep, tree-lined hill, the narrow gate at the bottom and the sharp turn necessary to avoid crashing the darned thing into our equipment shelter and told us we'd need the all-terrain scissors-lift. Funny, we told him —that's what we ordered, so why did he bring this one? Just following orders, he said.

The following day, the all-terrain version came. The driver was to meet me there at 9 a.m., unload it, and show me how to operate it. When I arrived at 8:30, the lift sat at the curb with the keys in the “ignition,” and not a hint of how to make it go. It used a joystick with a rocker switch on top — the rocker switch turned

the wheels right or left, and moving the joystick fore and aft made the thing lunge in the appropriate direction. So long as you had the control box hooked to the right end of the thing — otherwise the controls were reversed. Driving it with the controls hooked to the side railing proved to be harder yet.

I got the thing near the beginning of the steep path to the uplink gate, but even my foolhardiness has its limits and I called the rental company to send an expert to maneuver the thing down the hazardous pathway. Words cannot express how glad I am for that decision. The pro — a genuinely good equipment handler — got the thing stuck four times, axle-deep in the mud from a week of rain, tore up some 150 feet of daffodils and lawn, and left all the petals and mud piled onto a sidewalk. I eventually dug him out with a 4WD pickup and he got the thing inside our compound. He asked me to ask for Fred when I called to get the thing out. “Thanks, Fred,” I said.

“Oh, I'm not Fred. I'm Larry. I told you to ask for Fred because he's a know-it-all and I'm gonna love to see him try to get this thing out of here.”

Next came the test of the expanding-foam mix. While we waited for the professional grade stuff to arrive, we had practiced with homeowners' grade mix that expanded three times its original size. We had filled molds, cut the molds away, and were pretty successful. We didn't think that a 10:1 expansion ratio would be much of a big deal, so in the 60-degree air-conditioned equipment shelter, we mixed a trial batch and poured it into a box. It filled the box nicely, and took about three minutes to expand to 90 percent of its final size. Piece of cake.

Our first “pour” into the three-foot cylindrical mold was not mixed adequately and never expanded more than three-times its original volume. It cured quickly in the hot sun and hardened into a misshapen glob. I hacked away at the protruding parts until it was smaller than our mold, then put the mold back in place while Dave and I prepared to mix the next batch. We wore chemical-resistant gloves, because the stuff sticks to you, gets uncomfortably hot as it cures, and can expand out of control. If the last batch

wasn't mixed thoroughly enough, this one surely would be. Dave tightened the five-gallon mixing wand into the cordless drill and we took the mix up to the feedhorn. I promised Dave I'd let him off before I raised the platform, but when he was sitting comfortably on the floor I began our ascent. That man sure can cling.

Once I stopped the platform from swaying, Dave poured a quart of part A and I poured a quart of part B into the five-gallon bucket. I already had a six-inch funnel taped in place and he began to whip up the mixture.

“Quick — take it — start to pour — NOW!” he said, and I did. I poured that bucket of hot sticky lava into the six-inch funnel with the one-inch opening at the bottom, but the stuff quickly filled the bucket, and was expanding nicely inside our mold (we had left inspection holes) until the stuff in the funnel hardened after only three seconds in the noonday-sun. The stuff in the 5 gallon bucket was growing to about three times the size of the bucket, stuck to both of us as we passed it back and forth until I yelled, “Over the side,” and Dave tossed it to the gravel below. We did this twice more until we got the knack of it, and we were glad we'd gotten the gallon size so we had enough to practice with. We were also glad we hadn't bought the cheap gloves.

Lots of vinyl caulking, many coats of expensive paint and the thing looks pretty good — almost like new. The rental people came and got the scissors-lift, and the boss just happened by later that afternoon when the grounds were strewn with paint, caulk, tools, extension cords, trash, masking tape, daffodil-carcasses and mud, and we were two days getting over the abuse we took for having such a trashy site, and “. . . oh yeah — the feedhorn looked nice.”

We have ordered a remote-controlled (actually, radio-controlled) electronic whoopee-cushion from the Johnson-Smith catalog (a crazy-person's delight) and we'll be installing it in (not just under) his office chair as soon as it arrives next week. Actually, we're ordering several, as they're quoted to be “perfect for home, den, or office.” I promise to let you know how they work. ■

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