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Have they gone digital? There *is* hope on the radio horizon if your city converts to this new mode. Be sure to read Ken Reiss' "Overheard" column on page 75 for details. (Photo by Larry Mulvehill).

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tuning in

by Harold Ort, N2RLL, SSB-596

an editorial

CB Comes Through Loud And Clear

A lot has been said recently about CB radio, including its usefulness in the real world, especially given the proliferation of cell phones and even ham radio. Maybe I should, but I don't monitor Channel 9 like I used to, and frankly I sometimes wonder if those signs, "State Police Monitor Channel 9" mean anything today. I'd like to think that tucked neatly to the side in every state police dispatch center is a small CB still humming along, waiting for a call on Channel 9 — but, they're probably better off monitoring Channel 19 for reports of accidents and drunk drivers.

Speaking about not raising anyone on the radio, our "Ham Discoveries" columnist, Kirk Kleinschmidt, wrote in the March issue about how one new ham was shunned by local repeater ops, to the point of wondering if he needed more deodorant. Well, Kirk was admittedly a little crass that month, but we all get that way from time to time, don't we? Truth is I still believe Kirk was on target for the most part. OK, so he shouldn't have said that there's more to radio than 2-meter repeaters and that these ops aren't real hams. My personal observations over 10 years tell me they're certainly *real* hams, but not always the type that readily welcomes newcomers. That, my friend, is precisely what's wrong with the ham radio hobby today; we talk about welcoming folks to the ranks, revamp the licensing process, yet when Johnny finally gets licensed and buys a rig, we often treat him like a leper. It's time we walked the walk, because talk is indeed cheap. Now, before you go berserk, I realize that poor, inappropriate attitudes aren't universal, but if you're going to be really honest, closed-mouthitis on repeaters is widespread enough that it could be recognized by the Center For Disease Control as a contagious, airborne disease. If you think I'm kidding about attitudes, I'm not. Case in point: a letter from W6VON, Roy Williams of La Mesa, California. He says, "By far the most interesting, entertaining and amusing part of your magazine is when you go

absolutely bananas in responding to a writer such as Daniel Baker, KM6CQ... who tells part of the truth about the DUMBING DOWN of ham radio. I can almost hear the screeching and howling clear over here on the west coast. I won't be surprised when the proponents of this trend petition to not only require basic operating ability (meaning CW as opposed to simply talking into a microphone) but to somehow penalize hams who can operate."

The upper case shouting and underlining-for-emphasis is Mr. Williams'. Indeed, I suppose if one is as passionate about this situation as I am, one could call that passion, "going bananas," so I thank him for recognizing that fact. But Williams — and those who march to the "dumbing down" beat — are the root of the problem — the very reason why the community of ham operators is getting older, not younger. Is it easier to become a ham today than 30 years ago? You bet. And the sooner we all collectively get a grip on reality and recognize that the technological world around us is moving at lightning speed while we sit idly by still requiring people to test in an ancient mode that I'm sure even Marconi would see as about as relevant in 2002 as muskets and slingshots, the better off we'll be. Fact is, ham radio is a wonderful hobby. It's also somewhat of a clique that needs to do a 180 pretty quickly or the Williams of the USA ham world will be laughing alright, but only they will be listening.

Personally, I'm feeling good at no longer being considered a "new" ham. I just renewed my license and have been a General class ham a couple of years. Since everything is relative, I'll concede that the 80-year old ham who was licensed in 1951 and can still pound out CW at 30 wpm is a more experienced operator, and would consider me a "new" ham still wet behind my ears, but honestly I'd rather have many ham miles to go being a good operator than chime in

(Continued on page 58)

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Big Business Only, Please

Dear Editor:

I thoroughly enjoyed and agreed with your March editorial about the FCC's recent rejection of a petition to establish FRS Channel 1 as the official emergency-calling frequency. Your final point about the Commission's unwillingness to revise most of its rules certainly rings true. But this is where the FCC seems almost schizoid these days. On one hand, it hangs onto its regulation structure for dear life while, on the other hand, it seems to be openly doing everything it can to deregulate almost every facet of communications under its jurisdiction. Could it be that the unwillingness to adopt the FRS proposal is really a reflection of the current policy not to require anything of anyone?

The Commission's open desire to repeal all ownership restrictions for television and radio broadcast stations is another classic example of the current thinking in the FCC's hallowed halls. In fact, the current disaster of industry consolidation would be made even worse if such repeal occurs. But there are plenty of members of Congress who aren't blind to the situation and members of both parties are openly discussing a possible revision to the Telecommunications Act of 1996.

And this brings me to my final, and main, point. It's obvious the Commission isn't interested in hearing from anyone except Big Business right now - unless forced by the only authority it legally must answer to: Congress. Communications hobbyists should not allow this lesson to escape them and act accordingly.

Stephen V. Biro
Freehold, NJ

Saying No To Blackouts

Dear Editor:

I'm writing about your article "How To Say No To Blackouts" from last year. I very much enjoyed and appreciated this article and look forward to upcoming features on alternative energy. I plan to construct the portable alternative energy project you outlined, however I'm at the beginner level when it comes to such a project. Can you provide a diagram or further detail on how the parts on this project are interconnected so I'll know exactly how to put the project together?

I also wanted to commend you on your excellent editorial regarding the demise of the BBC's shortwave service to North America. In my opinion, their decision to eliminate the service was clearly not well thought out. Accessing the BBC's broadcasts through the Internet or limited broadcasts over local FM

stations is not a practical or viable alternative for many, and perhaps most, of their present listeners in North America.

Keep up the great work that you do with *Popular Communications* magazine.

Sincerely,
Joe Purcell

Dear Joe,

Thank you very much for your letter. I took another look at the article and agree that a bit more wiring detail is in order. On the charge controller you'll see a + and - in an area labeled "array" or "panel" which gets wired to the solar panel. The panel's junction box will be appropriately labeled with + and - terminals. In the same area of the controller is a + and - labeled "battery" which gets wired directly to the battery. Connect your 12 Vdc device directly to the battery, not the controller unless the directions specify otherwise.

It Sounds Like Radio!

Dear Editor:

Over the last thirteen years (I am forty-six) I have been trying to reclaim the thrill of shortwave listening I experienced as a youth. When I walked into the huge electronics store (Quement, in San Jose, California (no longer in existence) to see what was available with regard to world-band radios, I was amazed to see that the receivers and transceivers were no longer the huge "boat anchors" I inherited when I was fourteen, nor their boxy transistorized replacements, but implements which did all sorts of things my old Hallicrafters Sky Buddy could not do: Digital frequency readouts, station presets, scan capabilities. Starting with a Sony 7600, I upgraded to a 2010, and in this last decade I have owned perhaps dozens of receivers, and I recently purchased an ICOM.

Yet something was not right. I can pick up distant stations, yes, and the technical capabilities of the receivers and their ease of use is satisfying, but I am not always satisfied with the quality of sound in general and the intelligibility of distant signals. I tried different antennas, different add-ons, various tuners and other devices in an attempt to help this problem, but to no avail.

And then, sitting on a driveway at a garage sale one year ago amidst a great assortment of archaic gear, was a Hallicrafters S-40A. Its erstwhile owner wanted only five dollars for it. One hundred dollars later, after replacing tubes and components, aligning circuits, and so on, the radio is working. It is certainly nothing to write home about, what with all the birdies and WWV showing up on the wrong places on the dial and three local AM stations crashing in on their harmonics, but it is cute and quaint and what does come in strongly sounds far better than on any of the other receivers for which I have spent a lot of money.

I never really tried to DX on the S-40A because of the limitations of the receiver until I unexpectedly caught Radio Bulgaria in English at 9400. I always have liked the music, but the talk was so unintelligible on my other receivers that I suffered through it until the music came on again. On the Hallicrafters, however, even amidst the birdies, every word can be heard and understood. As it turns out, I am not the only person who has experienced this phenomenon. Fascinating how all this high-technology

helps everything else but the essential: The intelligibility of the message. I have tried receivers at ham outlets which can produce at least as intelligible a signal as the old Hallicrafters, but I am not in that budget range and probably never will be.

John Orzel
Salinas, California

Don't Hassel Heisseluff

Dear Editor:

Before Mr. Reeves (the April 2002 issue of Pop'Comm) breaks his arm while patting himself on the back for unmasking my article on HASSEL stations in the April 2001 issue of CQ magazine as a joke, he should know that NASA data do indeed confirm the presence of an ionosphere on Mars that is capable of supporting high frequency (3-30 MHz) propagation. Sometimes my dear readers just outwit themselves.

With warmest regards,
Professor Emil Heisseluff

Dear Professor Heisseluff,

And we should care about there being an "ionosphere" on Mars because? With all the radiation, heat and cold, I don't think we'll be sending an ARRL rep there until we can terraform the planet, and

heck, we humans can't even control ourselves on our own home.

So or Po?

Dear Editor:

Please refer to your column On-The-Go-Radio in the April issue. On page 27 you tell readers to "finger-tighten the SO-239" in the picture's caption and also in the text. Please be advised that the SO-239 is a female chassis receptacle; what needs to be tightened is the PL-259 cable connector.

Perry Craybill, W3HQX
Winchester, VA

Dear Perry,

We goofed. But I figure that most folks already figured it out and wouldn't waste their time trying to finger-tighten an SO-239. I asked Bill Price to try, and he wore out three pair of rubber gloves.

What's Next?

Dear Editor:

Let's not be too accepting of legislation or proposals limiting any freedoms of ours in the name of fighting terrorism, especially further stipulations on communications equipment. Already America is at a

loss for individual scanner enthusiasts. In England and Canada you can own, possess and use scanners with built-in descrambler modes, cellular capability and inversion speech processing. Here in the United States we cannot. In a lot of states you're not even allowed to have a scanner in a vehicle.

In my opinion, the airwaves belong to no one, everything comes down to respect; remember, they're just radio waves floating through the air we breathe and no one owns the air, it belongs to everyone. Supporting any new restrictions will only breed more illegal modifications, pirate broadcasters, illegal operators who "kerchunk" your repeaters, and the worst thing possible: less things for you and me to be able to hear with our monitoring equipment.

Sincerely,
Mike G., Northeast Ohio

Dear Mike,

Agreed! But since the CTIA owns Billy Tauzin and Ed Markey, and through the ECPA, they collectively "own" a portion of the spectrum, I wonder if it'll be long before 'ol GW Bush floats a plan making it illegal for anyone to only "see" the colors in his crayon box; after all, colors are part of the electromagnetic spectrum.

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Relay Madness!

From Austria To Vietnam, Here's The Up-To-The-Minute Inside Story

By Gerry Dexter

Once upon a time the use of relay stations to improve and extend signal coverage was largely the province of the big guys. The Voice of America, the BBC, Deutsche Welle, Radio Netherlands and perhaps one or two others were the only broadcasters who had big enough resources to set up and operate huge 250 kW transmitters and massive antenna systems in some far off third world country. (Sometimes they were even lost during civil war, as happened to the VOA and its Liberian relay, and to Deutsche Welle in Rwanda — twice!) DXers who paid attention to such things could usually keep pretty accurate track of what was what and who was operating where, and when. Even better, some stations even dropped in local transmitter site IDs at sign on and sign off. But now, when the relay situation is vastly more fluid and complicated they don't bother, never mind that computers, non-existent back then, could make such insertions a simple matter.

Alternate Approaches

Over time other broadcasters discovered alternative approaches. They arranged time swaps with friendly governments. Or they got the other government to agree to let them build a relay station by allowing the national broadcaster to use the planned facility during what otherwise would be down time. (The Voice of America has such arrangements with Sri Lanka, Greece, Thailand, and likely others.) Thus, during the Vietnam War we had the Voice of Vietnam beaming a strong signal into the U.S. via Radio Havana's facilities. Communist China and Albania had a cozy exchange relationship until the two countries fell out over the proper interpretation of Marx and Engels and company.

The growing number of private U.S. broadcasters resulted in a lot of transmitters, which weren't always in use 24 hours a day. This otherwise dead time was a resource just waiting to be exploited. Indeed, some U.S. religious broadcasters have actually anted up for second or third transmitters for the sole purpose of hiring it out to someone else.

The disintegration of the Soviet Union and the collapse of that economy left a gazillion shortwave transmitters idle, including many whose sole aim in life was to jam Western broadcasts. Although the majority of the Soviet transmitters are no longer operating, a number of them are kept alive to bring extra money into the economy by relaying — who'd have ever thought! — Radio Free Europe/Radio Liberty, the VOA and even religious broadcasters such as Trans World Radio.

Perhaps the biggest change in the relay picture occurred when someone got the idea of *privatizing* government transmission

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All times quoted are UTC. All transmissions are Monday to Sunday, unless otherwise indicated.


AFRICAN BEACON

Time UTC	Freq kHz	Tx kW	Target Area	Language
1800-2200	3230	100	Southern Africa	English

RADIO VLAANDEREN INTERNATIONAL

Time UTC	Freq kHz	Tx kW	Target Area	Language
1100-1230	17670	250	Central Africa	Dutch*
1200-1230	17670	250	Central Africa	Dutch**
1900-2000	5690	250	Central Africa	Dutch*

*Sundays only; ** Monday to Saturday



Shortwave Switcher

It's hard to find, but Sentech's web page has times and frequencies for the various broadcasters it handles.

facilities. Some years ago the BBC's vast collection of transmitter facilities was turned over to Merlin Communications, which now leases otherwise unused airtime to nearly two dozen other broadcasters. A year or so ago Merlin reached a similar agreement with the United Arab Emirates and now manages the transmission facilities at the Dhabayya site there. The Voice of Germany had decided to close its site at Julich, but it is still on the air because the German Telecommunications authority, Deutsche Telekom, got into selling unused time to various organizations and governments. The huge Sentech Company operates the site at Meyerton, South Africa as just one of its many radio endeavors.

So the relay picture has gotten to be a "wild and crazy" situation. What used to involve just a handful of countries and stations now involves stations in some 30 countries relayed by dozens of other broadcasters all over the planet.

For the shortwave listener this is a good thing because it means better reception. For the DXer it's a two-sided coin: more targets, yes. But also a quantum leap in information frustration. If you decide to go after these things, how do you know "who's

You have to download a file to get the full details on the stations carried by DTK's Jülich, Germany site, but it's worth the visit!

on first?" How do you know when and where to tune to find your target? The annual directories *Passport to World Band Radio*, *The Klingenfuss Shortwave Frequency Guide* and the *World Radio TV Handbook* are recommended (in that order). Good as they are, though, the shortwave scene changes too fast for any annual publication to remain completely accurate. Even monthly magazines (yes, we admit it!) and club bulletins have a hard time keeping up with constantly changing times, frequencies, and site combinations.

So, above and beyond the standard sources mentioned above (which are nearly as essential as your receiver!) you can try and keep tabs with station schedules — either by writing and requesting them through the mail or by visiting station websites. Even this, though, may not do the trick since some broadcasters don't even bother to indicate sites in their schedules! But if you draw on a combination of the annual directories, plus *Pop'Comm* and a good shortwave club such as the North American Shortwave Association (www.anarc.org/naswa), and also make use of whatever schedules you can get access to, you should be able to stay abreast of things about 90% of the time. The web sites of the major transmission facility operators



The clear, strong signals from Radio Sweden and Voice of Vietnam are thanks to these broadcasters being relayed by the RCI site at Sackville, New Brunswick.

(Merlin, Sentech, and DTK) normally provide information on which ones they're carrying, or links to those stations where schedules can be accessed.

What About QSLs?

If you are into site hunting, a QSL pretty much has to have the site on it and about all we can say in that regard is "good luck!" Like QSL'ing in general some will, some will refuse, some won't bother. We once had a year-long wrangle with a lady verie signer at Radio Veritas over getting a site confirmation for Palauig, which was relatively new at the time. Not only didn't she understand

what was wanted, she had no idea what Palauig was! So if you want site QSLs, the best bet is just to do your usual routine, with a polite request that the transmission site be mentioned. Then cross your fingers and hope for the best. A few stations still take the time to try and please individual listeners. If the broadcast was via one of the big transmission management firms we've mentioned you might try a carefully directed report to the company.

If you want to start chasing these, we hope you'll find the information in this article of help. At least it should serve as a good starting point. Check the site list to figure out the abbreviations for the sites used by stations in the country summary. Note that a few of those listed aren't even broadcasters in the usual sense of the word — they don't own even a single transmitter! Just studios, offices, and a phone line or satellite uplink. In order to keep things from getting too complicated we have stuck with "broadcasters" rather than "broadcasts." By the latter we mean the independently produced hour or half hour program aired once or twice a week by some other station. A lot of so-called clandestine broadcasts fit into this category and these tend to be very changeable. So you won't find, say the Voice of Tibet on this list, but you will find the somewhat larger efforts of African Beacon.

Also, we have not included stations, which have more than one transmitter site within their own national territory if the site isn't used by anyone else.

OK? Then let's take the tour:

AUSTRALIA — In addition to its own sites within Australia (and one — Darwin — that the government disowned) — Radio Australia is aired via: TNM, KS and TT.

AUSTRIA — Several broadcasters in addition to own usage use Radio Austria International's site at Moosbrunn. RAI is also aired via SC.

BELGIUM — RTVB recently discontinued use of its transmitter at Wavre and is now aired via JG and MSA

CANADA — Radio Canada International is all over the place: EBA, MA, XC, WG, YJ, KSK, FN, KS, HS, DUA, RUK, SUK, WUK

CHINA — China Radio International has a considerable line up too: SC, LJC, IF, MFG, BAM, MR, SPR, SR, NS.



Adventist World Radio is carried by half a dozen different sites.

CONGO (Kinshasha) — One of the newest additions to the list is the Congo government station Radio Television National Congolaise, now also on via MOG

CROATIA — Hrvatski Radio (Radio Croatia) in addition to its site at Deanovic also airs via JG.

CZECH REPUBLIC — Radio Prague is on the air via RSS and MFL.

DENMARK — Radio Denmark is probably wondering how much longer it will have access to Norway's shortwave transmitters, now that Norway has given up its international service. Broadcasts come via KN and SN.

ECUADOR — Venerable HCJB also broadcasts via EBA and RUK. In another year or so it should have its own site in Australia.

FRANCE — Radio France International airs via BC, KC, XC, MG, MFG, YJ, VR, and MSA.

GERMANY — Deutsche Welle is a big believer in using relays. You can hear them via SJA, SC, TVM, BNA, SP, IR, KRR, MR, NOR, PKR, SR, VR, KR, and TSL.

Radio Santec isn't reported very often in North America but its broadcasts are out there, via GA, SL, ARR, MR, SPR, SR, YR, DT, and MFL.

GREECE — The Voice of Greece makes use of two U.S. sites: DCA and GNC.

IRELAND — Radio Telefis Eireann hasn't had a shortwave facility of its own for something like 50 years! A few years ago it began airing a brief but daily international service carried over EBA, SC, KS, RUK, and SUK.

ITALY — In addition to its own facilities RAI International is on via EBA and KS.

JAPAN — Radio Japan/NHK extends its reach with relays by EBA, SC, MG, MFG, KS, ESL, RUK, SUK, and WUK.

KOREA — Radio Korea International is being carried via SC, KS, and SUK.

MALTA — The Voice of the Mediterranean has no transmitters on the island. It's relayed by PSI, KR, and MR.

NETHERLANDS — Radio Netherlands is another big gun international broadcaster which operates from sites it owns as well as from rented facilities: SC, JG, TVM, BNA, IR, KHR, MR, PKR, KS, TU.

PHILIPPINES — The Far East Broadcasting Company (FEBC) is also on the air via WG and MNM.

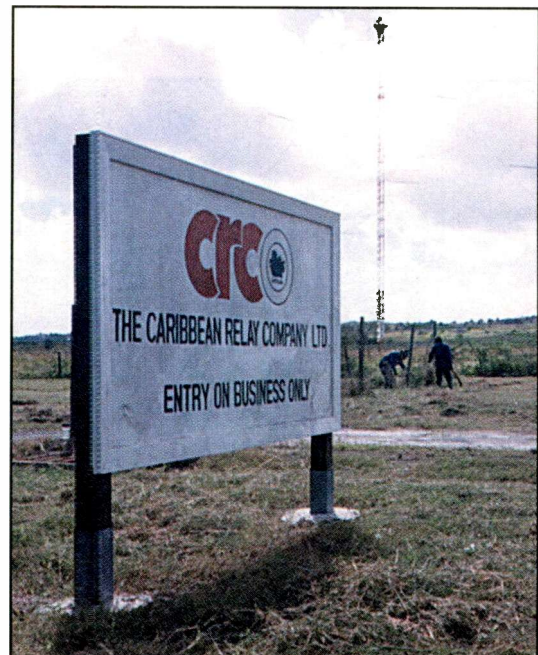
RUSSIA — Even with its plethora of in-country sites, the Voice of Russia also uses GA, CM, DT, and believe it or not, SMV!

SEYCHELLES — In addition to its in-country site at Mahe, FEBA transmits via MSW.

SPAIN — Radio Exterior de Espana also airs via BC, XC and CCR.

SRI LANKA — The Sri Lanka Broadcasting Corporation is also aired by SUK.

SWEDEN — Radio Sweden booms into the U.S., thanks to its SC relay.



The BBC and Deutsche Welle are well heard thanks to transmitters on the Caribbean island of Antigua.

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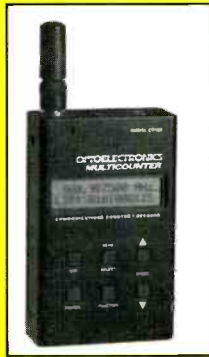
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- 100 memories
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- Displays channel frequency and measured frequency

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- Built-In PC Interface
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- 1000 lockouts
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- Built-In PC Interface
- LCD w/EL backlight
- Control IC PCR1000
- Super Sensitive



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Religious broadcaster IBRA Radio, based in Sweden, broadcasts over JG, AR, and TU.

SWITZERLAND — Swiss Radio International — a shadow of its former self has but one remaining in-country site. SRI relies heavily on JG and MFG.

TAIWAN — Radio Taipei International also airs over SUK and blasts the bands here via OFL.

UNITED KINGDOM — The BBC calls on a worldwide line up: SJA, EBA, BA, ZC, BG, LG, YJ, KSK, MO, IR, MR, VR, KS, MSA, NST, DUA, DCA, GNC, and UT.

Wales Radio International has no shortwave transmitters of its own but uses RUK and SUK.

UNITED STATES — Radio Free Europe airs via BG, LG, BM, and WUK.

Radio Liberty's programs go out over BG, LG, HG, BM, TP, ISL, UTT, and WUK.

ABBR	TRANSMITTER SITE	OPERATOR	ABBR	TRANSMITTER SITE	OPERATOR
ALK	Almaty, Kazakh	Govt.	MOG	Moyabi, Gabon	Africa No. 1
ANG	Anguilla	Scott	MR	Moscow, Russia	Govt.
ANM	Agingan Point, Northern Marianas	KHBI	MSZ	Manzini, Swaziland	TWR
ARR	Armavir, Russia	Govt.	MS	Mahe, Seychelles	Merlin
BC	Beijing, China	Govt.	MSA	Meyerton, South Africa	Sentech
BG	Bilbis, Germany	IBB	NG	Nauen, Germany	DTK
BM	Briech, Morocco	IBB	NH	Naalehu, Hawaii	KWHR
BAM	Bamako, Mali	Govt.	NOR	Novosibirsk, Russia	Govt.
BNA	Bonaire, Netherlands Antilles	R. Netherlands	NS	Nobeljas, Spain	Govt.
BOC	Baoji, China	Govt.	NST	Nahkon Sawan, Thailand	Merlin
CC	Carirai, Costa Rica	REE	OFL	Okeechobee, Florida	WYFR
CCR	Cahuita, Costa Rica	Scott	PAL	Medor, Palau	High Adventure
CM	Chisinau, Moldova	Govt.	PKR	Petropavlovsk-Kamchatka, Russia	Govt.
DA	Darwin, Australia	Christian Voice	PP	Poro, Philippines	IBB
DCA	Delano, California	IBB	PGP	Palauig, Philippines	Veritas
DG	Diego Garcia	US Military	PSI	Rome, Italy	Govt.
DT	Dushanbe, Tajikistan	Govt.	RSS	Rimavska Sabata, Slovakia	Govt.
DUA	Dhabayya, United Arab Emirates	Merlin	RUK	Rampisham, England	Merlin
ESL	Ekala, Sri Lanka	Govt.	SA	Shajik, Albania	Govt.
FN	Flevo, Netherlands	Govt.	SAC	Santiago, Chile	Christian Voice
FSL	Freetown, Sierra Leone	Govt.	SC	Sackville, Canada	Govt.
GA	Gavad, Armenia	Govt.	SHC	Shijiazhuang, China	Govt.
GNC	Greenville, North Carolina	IBB	SI	Sigonella, Italy	US Military
HG	Holzkirchen, Germany	IBB	SL	Sitkunai, Lithuania	Govt.
HS	Horby, Sweden	Govt.	SN	Sveio, Norway	Govt.
IF	Issoudun, France	Govt.	SP	Sines, Portugal	DTK
IR	Irkutsk, Russia	Govt.	SKR	Serpukhov, Russia	Govt.
ISL	Iranawila, Sri Lanka	IBB	SMV	Santa Maria de Galeria	Vatican City
JG	Julich, Germany	DTK	SPR	St. Petersburg, Russia	Govt.
KC	Kunming, China	Govt.	SR	Samara, Russia	Govt.
KG	Kavala, Greece	IBB	STA	St. John's, Antigua	Merlin
KHR	Khabarovsk, Russia	Govt.	STP	Pinheira, Sao Tome	IBB
KN	Kvitsoy, Norway	Govt.	SUK	Skelton, England	Merlin
KR	Kigali, Rwanda	DTK	TB	Thimpu, Bhutan	Govt.
KRR	Krasnador, Russia	Govt.	TNM	Tinian, Northern Marianas	IBB
KS	Kranji, Singapore	Merlin	TP	Tinang, Philippines	IBB
KSK	Kimjae, South Korea	Govt.	TSL	Trincomalee, Sri Lanka	DTK
LC	Lingshi, China	Govt.	TT	Taipei, Taiwan	Govt.
LG	Lampertheim, Germany	IBB	TU	Tashkent, Uzbekistan	Govt.
LIC	Litomsyl, Czech Republic	Govt.	TVM	Talata-Volondry, Madagascar	R. Netherlands
LJC	La Julia, Cuba	Govt.	UBM	Ulaan Bator, Mongolia	Govt.
LZ	Lusaka, Zambia	Christian Voice	UC	Urumqi, China	Govt.
MA	Moosbrunn, Austria	Govt.	UTT	Udon Thani, Thailand	IBB
MFG	Montsinery, French Guiana	Govt.	VR	Vladivostok, Russia	Govt.
MFL	Miami, Florida	WRMI	WUK	Wooferton, England	Merlin
MNM	Marpi, Northern Marianas	KFBS	XC	Xi'an, China	Govt.
MO	Masirah, Oman	Merlin	YJ	Yamata, Japan	Govt.
MOB	Moepeng Hill, Botswana	IBB	YR	Yekaterinburg, Russia	Govt.
			ZC	Ziygi, Cyprus	Merlin



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Friburgo – Municipio e cattedrale di S. Nicola
Friburgo – Town Hall and Cathedral
Friburgo – Ayuntamiento y Catedral
Friburgo – Câmara Municipal e Catedral
فريبورج – البلدية والكاتدرائية



Swiss Radio International, foolishly phasing out shortwave, can still be heard via Germany and French Guiana.

Radio Free Asia broadcasts via GA, HG, NH, ALK, TNM, ANM, UBM, PAL, ISL, DT, and DUA.

Radio Free Iran is aired over LG, KG, BM, and WUK.

Radio Free Iraq is carried via LG, KG, BM, and WUK.

U.S.-based Adventist World Radio uses: MA, JG, TVM, RSS, MSA, and DUA.

Trans World Radio uses the facilities of CA, SA, GA, MA, JG, NG, IR, PKR, MSA, and MSW.

Armed Forces Radio, in addition to its sites in Florida, Hawaii, Guam, and Puerto Rico transmits from SI and DG.

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Besides its Cypress Creek, SC, Herald Broadcasting is aired from Taiwan and two Russian sites.

United Nations Radio is carried over EBA, TB, FSL, and MSA.

Christian Voice, based in Florida, broadcasts via SAC, DA, and LZ.

Family Radio (WYFR), also based in Florida, also uses JG and TT.

The Overcomer — Brother Stair’s ministry is heard on U.S. stations WWCR and WBCQ. He’s also heard over JG.

Besides WSHB Herald Broadcasting is carried on IR, VR, and TT.

California based High Adventure Ministries is on via JG, PAL, NOR, and DUA.

Radio Africa International (United Methodist Church) airs over MA and JG.

In addition to U.S. sites in Denton, Texas, and WWCR-Nashville, Dr. Gene Scott’s University Network is on ANG, CCR, and SR

Another Florida-based broadcaster, World Beacon, puts its African services out over MSA, DUA. They recently gave up on covering Europe and Russia so they no longer use any Russian sites.

Voice of America — Big Daddy uses these sites for its world-wide efforts: GA, EBA, MDB, BG, HG, LG, KG, ANM, TNM, BM, PP, IR, NR, PKR, STP, ISL, UTT, and WUK.

VATICAN — Vatican Radio programming is also heard via PP, IR, SR, and UT.

VIETNAM — The Voice of Vietnam uses SC and MR in addition to in-country facilities. ■

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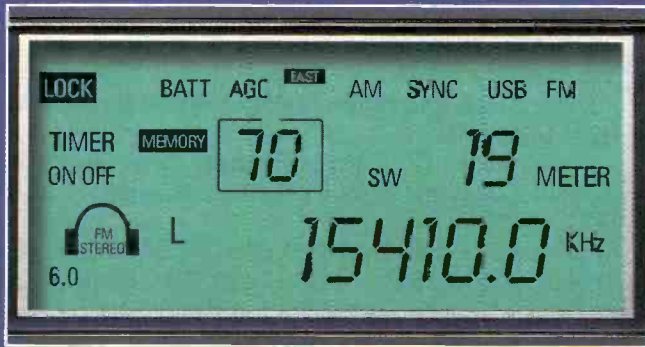
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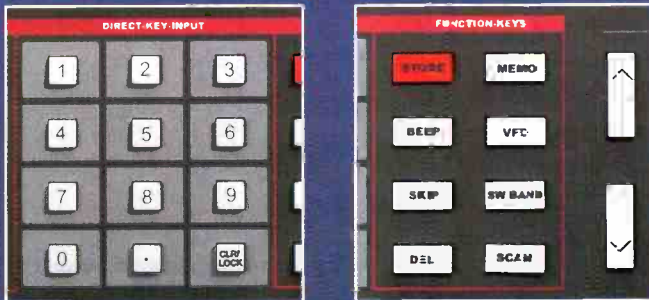
• For Fixed-step Tuning: Big, responsive Up, Down tuning buttons.

• For direct frequency entry: a responsive, intuitive numeric keypad.



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Packet Radio And Weather Reporting — They're Perfect Together

Licensed Yet? Here's One More Reason To Get That Ticket: Weather Reporting!

by Ray Jacob, KB2ZPE <kb2zpe@arrl.net>

Located in the corner of one of Hamvention's exhibitor rooms can be found the Peet Brothers booth. For me, one of the joys of this great hamfest is the chance to check out the latest weather-wares available for inspection at their display. Neatly mounted on specially built PVC brackets, a wind-vane stirs atop a spinning anemometer excited by the gentle breeze from a small fan. A desktop LCD unit flashes the temperature, then humidity, then wind speed, while its compass shows the direction of the breeze. Your attention is grabbed by a sleek wall-mounted display with bright red digits visible from across the room. One glance tells you everything about the weather. There are self-emptying rain gauges, and software with colorful onscreen dials and graphs. This is big-time, affordable weather monitoring used by local municipalities and home observers alike. It looks so cool, it always made me wonder, "How can I make this fit into my ham radio hobby?"

My long-standing interest in computers drives me to try any radio mode that involves a PC. So, when I read about APRS (Automatic Position Reporting System), I got the software, configured my station, and gave it a go. "Fascinating," I thought, as APRS stations began to dot the map displayed on my computer monitor.

For those not familiar with APRS, this is an amateur radio RF network whereby you participate by sending and receiving unconnected ax.25 packets on the national APRS frequency of 144.390 MHz. Typical station setup is a PC running APRS software, connected to a TNC (or packet controller) and a 2-meter transceiver — a configuration familiar to VHF packet users (see Fig 1). The APRS software sets the proper TNC parameters, and lets you put certain information about your station in the packets, including your latitude/longitude, power output, and antenna gain. If you're mobile, a GPS receiver can be connected to the PC, or directly to the TNC, enabling your station to provide updated lon/lat information to the network. The main view that APRS software provides is a map of your state or county. On the map you'll see the location of all APRS-active ham stations, updated in real-time. You can get information about a station by mouse-clicking on it. It's pretty cool.

Getting back to weather stations, last year I could no longer resist, and finally purchased one from the Peet Brothers Hamvention booth. It was great fun learning about what a weather station can do, and how one should install the sensors to obtain accurate readings. For the public service oriented, a

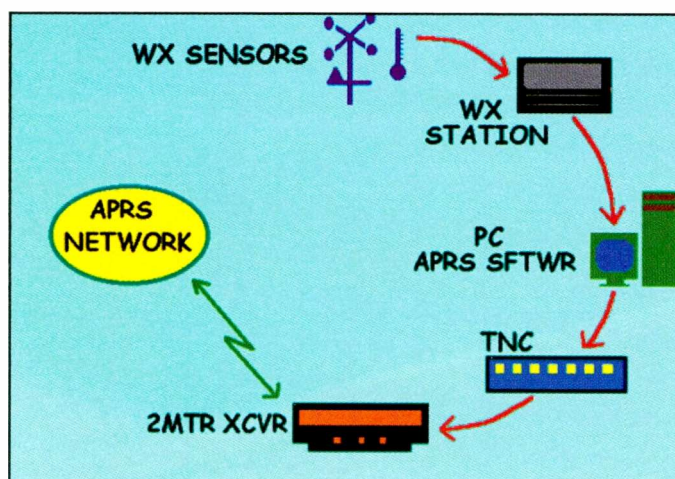


Figure 1. APRS fixed weather station.

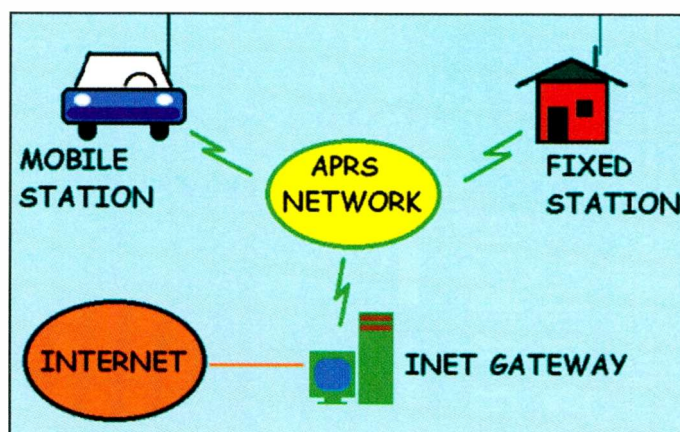


Figure 2. Basic network topology.

properly installed weather station will allow participation in the National Hurricane Center's Weather Volunteer Observers Network (ON-NHC). Through this program, the NHC makes use of backyard weather watchers to augment its knowledge of storm conditions for making more accurate forecasts, especially relating to storm tracking. More information can be found at

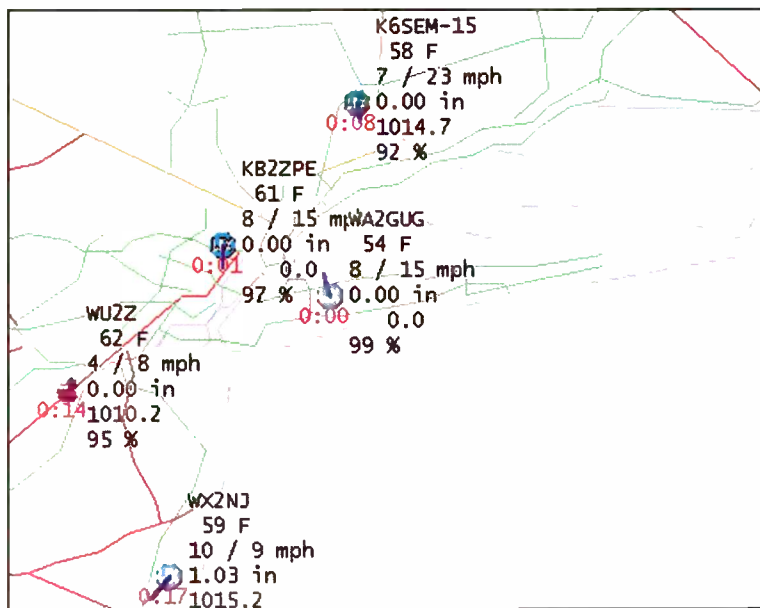


Figure 3. Map showing APRS stations reporting the weather in the northeast from Connecticut to southern New Jersey.

www.fiu.edu/orgs/w4ehw. A ham license is not required for participation in the program.

The WinAPRS Program

One of the more well known APRS software programs, WinAPRS (written by Mark Sproul, KB2ICI), accepts automatic input from a weather station. With the proper interfacing between the weather display unit and PC, your APRS packet transmissions will also include weather reports, which can be shared by others on the network. Additionally, once you begin transmitting weather data to the APRS network, you may find your station listed at www.findu.com/cgi-bin/wxpage.cgi?CALLSIGN (where CALLSIGN equals your callsign). Findu.com is Steve Dimse's, K4HG, very successful effort to bring together in one cyberplace all APRS RF networks. His site automatically displays and graphs weather data reported by your station. Helping to make this possible are the APRS Inet gateway nodes. These nodes are amateur radio stations that run a special version of APRS software, and transition data from the RF network to the internet (see Fig 2). My office is about 20 miles from my home. On days when the weather promises to be dramatic (lots of wind, rain, etc.) I turn on my APRS packet station before heading to work, then monitor my weather station from the office over the Internet throughout the day. The updates I receive are rarely more than 15 minutes old.

About Weather Stations

A home weather station is comprised of three parts: (1) the sensors; (2) the display unit; and (3) the media over which the sensors communicate to the display unit. The

"A home weather station is comprised of three parts: (1) the sensors; (2) the display unit; and (3) the media over which the sensors communicate to the display unit."

latter can be an RF circuit, or it can be twisted pair cable. Stations are modular and upgradeable, so you can control how much money you want to spend initially. Buy two or three sensors today, and add more later. Sensors measure temperature, humidity, wind speed & direction, air pressure, and rainfall. Their data can be combined to provide dozens of additional indications — dew point and wind chill, for instance. Choosing the best location for each sensor is a balancing act of convenience, mechanical soundness, and adherence to the environmental needs of the sensor, and therefore requires some planning. It is very important to carefully read the user manual and understand how the sensors work so that you may obtain the most reliable readings.

If you wish to participate in the ON-NHC program, your sensor installation must adhere to standards which are more strict than those of the casual backyard observer. To learn what NHC requires for obtaining accurate wind measurements check out www.fiu.edu/orgs/w4ehw/onnhcwind.html.

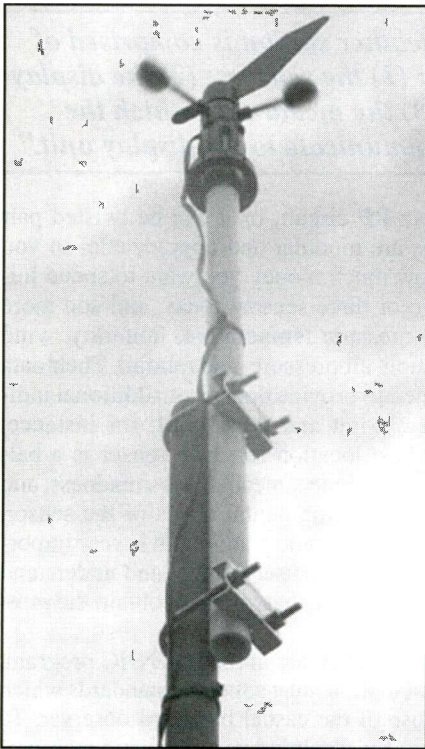
Weather and APRS Interfacing

The weather display unit is the hub of your weather station. It contains a processor and memory, and is, in fact, a small computer dedicated to the task of converting voltages from the sensors into comprehensive weather information. It can also send weather data to your PC through a serial connection. Check the website of the company that makes your weather display unit to see if they sell a PC interface cable. If they don't, you can make one based on the instructions in the user-manual.

For APRS software, I'm currently working with WinAPRS. This software is widely used, and it has excellent support for automatic weather input. Among the supported stations are Peet, Davis, RadioShack, and Heathkit. If you don't already have the

Type	Call	Day/Time	Temp	rRain	pRain	Humid	Pres	Wind	Gust	Dir	Dist	Alrms	Bra
	Total Stations = 14												
	KB2ZPE	09/23:44	60	F0.00	0.00	98	0.0	7	21	158	0	0	U2K
	KC2RLM-1	09/23:47	59	F0.00	0.00	0	1011.2	15	20	202	0	0	U2k
	UPSWX	09/23:15	74	F0.00	0.00	0	1022.3	0	3	91	1323	0	U2k
	WA2GUG	09/23:44	53	F0.00	0.00	99	0.0	6	10	303	19	0	w
	WX2NJ	09/23:44	59	F1.03	1.03	99	1014.5	11	12	220	69	0	HXT
	N2SMU-2	09/23:44	62	F0.00	0.00	79	1011.7	7	21	213	0	0	DAU
	K6SEM-15	09/23:16	58	F0.00	0.02	92	1014.7	7	23	164	36	0	DAU
	WU2Z	09/23:41	61	F0.00	0.03	95	1009.3	7	7	24	38	0	DAU
	K3ATI	09/23:21	62	F0.00	0.00	0	0.0	18	26	270	0	0	UII
	WI3Z-2	09/23:47	41	F0.00	0.00	0	0.0	11	11	180	0	0	U2k
	N3HCP	09/23:38	62	F0.00	0.06	86	1009.5	8	17	216	127	0	
	N3OBQ	09/23:42	60	F0.00	0.10	0	1013.8	16	17	265	141	0	U2k

Figure 4. This screenshot shows how WinAPRS lists stations reporting the weather.



My wind-vane/anemometer is mounted on a short length of PVC, which puts a little distance between its magnetic switches and the metal antenna mast.



This sensor measures rainfall. It's mounted on my 2-meter antenna mast.

software, you should download it from <ftp://tapr.org/aprssi/winstuff/winapr>. There are lots of sites on the Internet from where you can download WinAPRS, but the TAPR site (Tuscon Amateur Packet Radio) seems to keep up with the latest versions. If you stick with WinAPRS, follow the online instructions for registering the software with the author. The fee is \$60.

Your PC should have two com ports — one for the packet controller, and the other for the weather display unit. Once the physical connections are made, launch WinAPRS and set the parameters for your station. The online help included in WinAPRS is quite helpful and you should read it. Below is a summary of how you will configure WinAPRS:

(i) From the Settings menu, select Station

In the Station window, fill in the text boxes for callsign, county, state, and city. You will also provide your lon/lat coor-

dinates (fixed stations), and UTC offset. Where it says, "Station Icon," type in the _ character. This will cause your station to appear on APRS maps as a blue circle with a "WX" in the center. This lets everyone know that you're a weather-reporting station.

(ii) From the Settings menu, select WinAPRS

In the WinAPRS window, look for the Automatic Input panel, and check Weather.

(iii) From the Settings menu, select Serial Port

In the Serial Port window, select the ports used for your TNC and weather display unit. Here you will also set the usual com port parameters (baud, data/stop bits, parity).

(iv) From the Settings menu, select TNC type

In the TNC Selection window choose a configuration that matches your TNC. I use a Kantronics Kam Plus, so I chose Dual-Port TNC. Next, you will make a selection from a list of supported controllers. If you don't see your model exactly, choose something that closely resembles what you have.

(v) From the Settings menu, select TNC

In the TNC Settings window you will again choose the configuration that matches your controller by clicking the appropriate radio button. There are manufactur-

er-specific buttons as well. A command script for your controller will appear based on the selections you make. This script will later be sent to your TNC.

(vi) From the Settings menu, select Position Report Rate

Here, you choose how often your coordinates and weather are transmitted. I leave the 30 minute fixed-station default for position reporting, and the 10 minute default for weather reporting.

(vii) From the Settings menu, select Weather

Select your weather station from the list of supported products. If your weather station includes a rain gauge, you will tell WinAPRS its increment value — that is, the amount of rain that falls before the gauge registers an increment. The choices are 0.1 inch and 0.01 inch. Your user-manual will give you the correct value.

Make sure your transceiver is tuned to 144.390 MHz and is properly adjusted for packet use. Put your TNC in Terminal mode, then issue the following commands in WinAPRS:

(i) From the Settings menu, select Open TNC

(ii) From the Settings menu, select Open Weather Port

Several seconds will pass, while WinAPRS sends some commands to your TNC. Your transceiver will send off its first packet, and you'll begin receiving APRS packets from other nodes on the network. You'll want to go to the map list and select your area. Navigate maps by using the onscreen zoom controls and your keyboard's arrow keys. On the map you should see icons for all the APRS-active stations in your area, in addition to your own. To view only APRS weather stations, click on the "WX" symbol in the map-control bar. In this view (see **Fig. 3**) you will see each station's weather report. Compare their reports with your own.

WinAPRS is a wonderful program with lots of features. You should explore the program thoroughly. After you've been on the air for a few minutes, check <http://www.findu.com/cgi-bin/wxpage.cgi?CALLSIGN> (substitute CALLSIGN with your call sign). You should see your station's weather report. Of course, factors such as propagation conditions, and the number of nodes in your area, will impact on the amount of time it takes for your weather to appear on the Internet. ■

"For APRS software, I'm currently working with WinAPRS. This software is widely used, and it has excellent support for automatic weather input."

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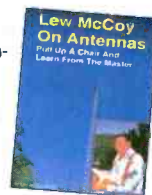


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WiNRADiO's AX-31B Planar Log-Periodic Antenna

Once in a while an unusual, out-of-the ordinary product comes our way that really deserves attention. Such is the case with WiNRADiO's AX-31B antenna. It's a compact indoor VHF/UHF directional antenna with a built-in amplifier — great for scanner users — or with any VHF/UHF receiver. The frequency range is 230 to 1400 MHz.

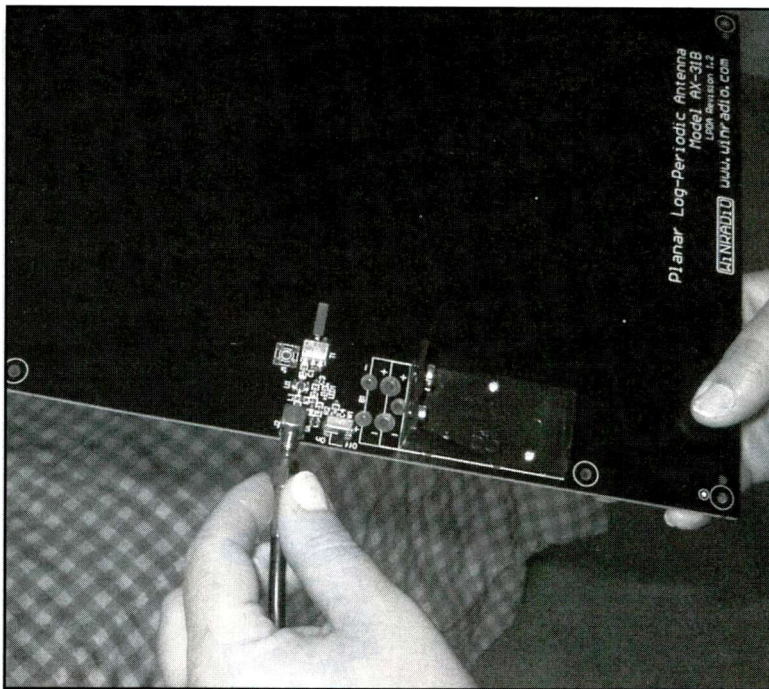
“Constructed of high impact plastic, this opaque black rectangular marvel can be mounted anywhere indoors.”

When the company said they were sending an antenna for review, naturally I expected a pretty large box — after all, it was an antenna they were sending! The thin book-sized package arrived from WiNRADiO, and much to my surprise it was the antenna! It's just a little larger than the magazine you're holding right now, and weighs practically nothing — only 9 oz. (without a small 9-volt battery attached). Constructed of high impact plastic, this opaque black rectangular marvel can be mounted anywhere indoors. I used the mounting adhesive, sticking it to a west-facing window. The antenna's large white arrow points north/northwest — the direction I want to “point” the antenna for best reception of signals from Newark, Woodbridge, and Metuchen, New Jersey.

Set Up And Performance

Setting up this compact antenna was a breeze; decide where you want to mount the antenna — the wall, on the glass of a nearby window, hidden in a bookcase or behind a curtain — anywhere — then connect the supplied cable (a long, quality six-foot cable), twist the BNC at the other end onto your scanner, and flip a small switch to “on” and hear the action. It's pretty simple and straight forward. Now, I'll admit that at first I was a bit skeptical, and my expectations for the antenna weren't high, but I was about to be shocked by this small miracle worker that's the size of a sheet of paper!

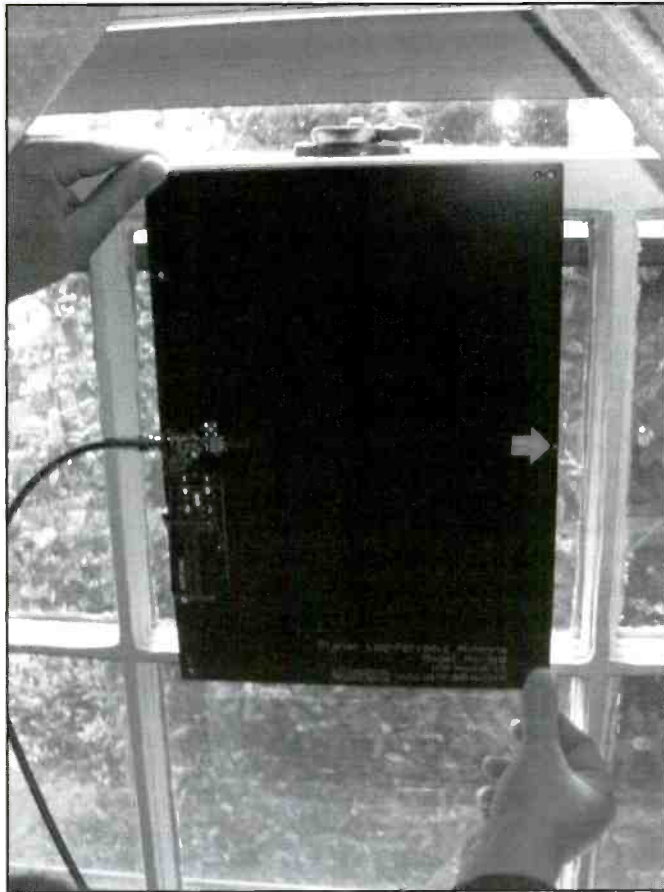
Much of my listening fare is aircraft — Newark International airport is only a few miles north. My regular antenna is a discone mounted on a pole near the top of our two-story house. Much of the time, as with many antennas, it pulls in signals — it is after all an omnidirectional antenna — from all over. Guess what? I've found a new, near-perfect — and indoor — antenna with the WiNRADiO antenna! Signals from the tower came in loud and clear. Disconnecting the antenna I changed to a rubber duck and heard nothing. I then switched to a telescoping whip antenna and was able to hear some transmissions from the



Connecting the supplied six-foot cable to the antenna. The other end terminates in a BNC connector — perfect for your scanner.

tower, relatively few taxiing aircraft and only sporadic transmissions from Metuchen and Woodbridge police and fire. Reconnecting the WiNRADiO antenna greatly improved signal strength — so much so that in fact I've decided to semi-permanently mount it on the window frame so I can unhook it, and take it to another room or out on the patio (keeping it away from moisture, of course) in order to catch signals from Philadelphia and points south.

A concern with amplified antennas is that they frequently also amplify noise and hash — definitely the type of “signals” you don't want to hear. There was very little amplified noise present on most signals. Remember, everything is a trade-off. If you live in an area that restricts outdoor antennas, you're in luck using this great WiNRADiO communications antenna. Cost of setup other than a 9-volt battery is zero — as compared to hoisting a couple of RadioShack poles, buying mounting hardware and cable to your radio. Of course this antenna certainly isn't an outdoor yagi or discone mounted 30-feet in the air, either. I found many excellent uses for the WiNRADiO AX-31B antenna; it's stealthy, has excellent amplifier gain (advertised as 20 dB) and forward gain (spec sheet says it's 6.0 dBi) and will certainly outperform that rubber-duck antenna that came with your handheld or the telescoping whip antenna that came with your



The WiNRADiO AX-31B antenna being positioned for mounting on the window frame.

A small switch turns on the antenna, activating a small red LED.



“Its construction — even though it’s designed for indoor use only — is high quality throughout.”

base scanner. WiNRADiO says it’s especially suitable for their 1000/1500/3000 Series of receivers.

For frequent or continuous use, the company recommends you apply external DC power instead of using a 9-volt battery. I was able to get several hours of continuous use from a standard alkaline battery before noticing a difference in received signal strength. WiNRADiO provides simple instructions for connecting a 220 ohm resistor onto the antenna when using an external power supply. Whatever you do, don’t transmit with this antenna — it’s a receive-only amplified VHF/UHF indoor antenna.

As an amateur operator, I did find it the perfect antenna for hearing about a dozen or so regional two-meter frequencies on my homebrew receiver: I can monitor portions of the band and then use my handheld to make contact.

WiNRADiO says the antenna is “a low-cost alternative to conventional VHF/UHF antennas (for example discones), especially for indoor professional and

amateur applications.” I agree 100%! Its construction — even though it’s designed for indoor use only — is high quality throughout. Keep it home installed on a window or wall, but don’t forget to bring

it along when traveling — it’s perfect for a vacation!

For more information on the WiNRADiO AX-31B which sells for \$129.95, contact WiNRADiO Communications at info@winradio.com. Visit their outstanding website at www.winradio.com and be sure to tell them you read about the AX-31B receiving antenna in *Popular Communications*. ■

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OK Troops, Mount Up!

There have been some surprising breakthroughs in mobile antenna mounting systems. Put away the big drill motor — there may be little need to punch holes in that vehicle for even major-sized scanning and communication mobile antenna systems. But there have also been breakaways in some of the popular mobile antenna mounts, too. What's a "breakaway" mount? This is the one where one minute your big new antenna is majestically standing tall as you whiz down the highway, and seconds later, you see an 18-wheeler behind you running over it after one very popular mount breaks apart.

The Trusty Mag Mount

The popular magnetic mount is a great way to temporarily get an antenna on the center of your vehicle roof and enjoy some two-way radio and scanning in a vehicle that might not be your own. And for scanning, the magnetic antenna works just great — the impedance mismatch at the base where all you have is a capacitive ground to your vehicle roof just can't be noticed on signal reception. So mag mounts for scanning can go beyond the word "temporary."

But keep in mind that the mag mount may deprive your wonderful paint job of air, and many times the lack of good fresh air coupled with trapped water beneath the mag mount will ultimately eat away at the paint job if you never take care of that magnetic mount connection. Fine bits of dust can also get under the mag mount and scratch the vehicle roof. Also, the majority of mag mounts are relatively inexpensive and many begin to rust after a year out in the weather.

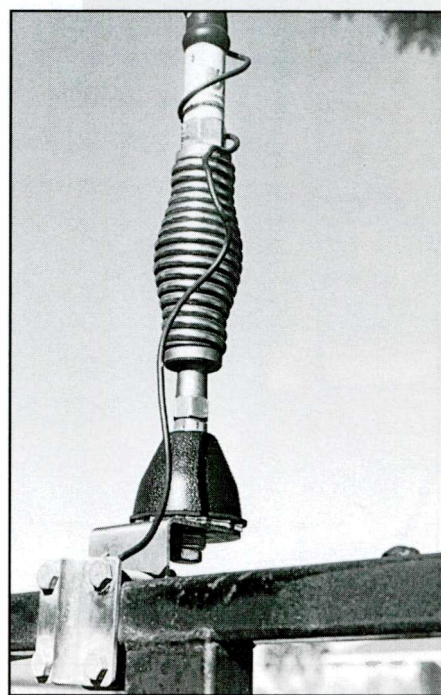
David Klein of Metal & Cable Corporation comments, "Our massive four-magnet mount features no-rust construction and special protection on each magnet to minimize scratching," referring to his popular magnetic mount system that is ideal for temporary "big antenna" roof-top installations.

Magnetic mounts offer mixed results for transmitters. If the antenna you are operating is a half wavelength, DC,

shunt-fed system, the coil itself generates its own impedance matching and a capacitive magnetic ground will work swell. The popular Antenna World MRN-1502 VHF antennas use this halfwave design. But quarter wavelength and 5/8 wave antennas may or may not exhibit a low feedpoint standing wave ratio on a magnetic mount. Since the base of the antenna doesn't actually make metal contact with the roof, the feedpoint is really achieved 15 feet down the coax. This many times raises the standing wave ratio, and your ham or commercial radio exhibits less than full power output on the LCD scale as the internal VSWR protection circuitry pulls back power output. Both Comet and Diamond offer halfwave, multi-band, VHF/UHF antenna systems, but just make sure your magnetic mount is strong enough to temporarily hold these larger mobile antennas on the roof.

On-Glass Mounts

Before automobile manufacturers developed internal window tinting, on-glass mounts were a popular choice if you followed precisely the manufacturer's instructions on how to get everything in

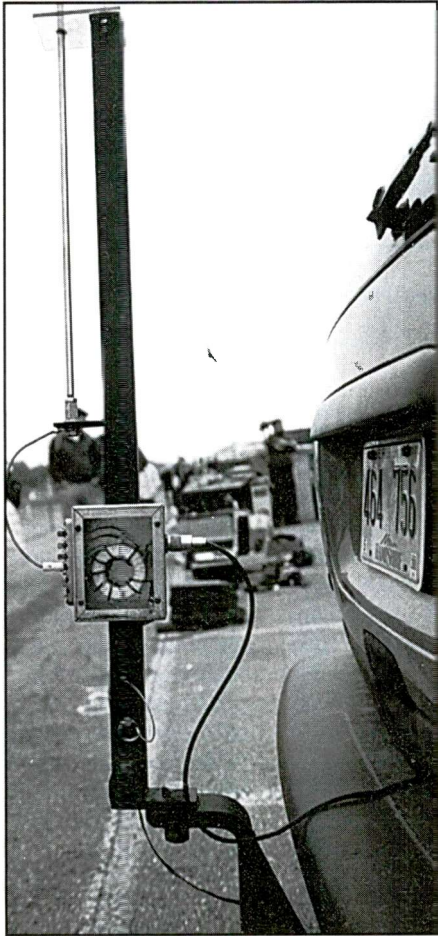


This sturdy egg mount will hold up well with the Outbacker antenna.

place. An internal tuning capacitor would allow you to tune out any elevated SWR at the feedpoint. Lately I have seen less and less on-glass mounts for serious two-



All antennas on Gordo's van are mounted up high and all are on lip mounts!

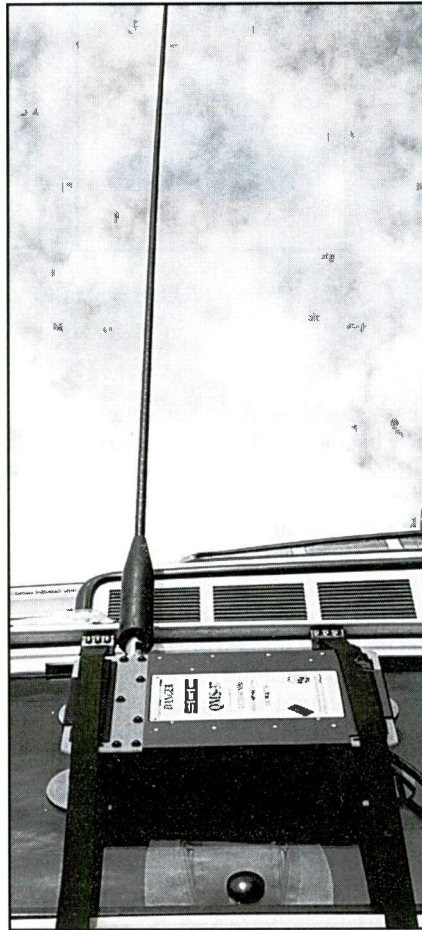


Many monster whips need a base matching network seen here, plus a trailer hitch mount.

way radio users because of the unknown type of window glass they will need to capacitively impedance match. For cellular phone use, they seem to get by quite fine, but for VHF and UHF two-way radio



Lip mounts hang on strong! (Nice tie, Gordo!)



SGC uses straps and suction cups to mobile-mount their powerful tuner.

use, glass-mount antennas may present matching challenges.

Ball Mount

They still make ball mounts, and Hustler has a full line-up at around \$50 including the spring. These require three holes for mounting, plus one additional larger hole for the feed-through. With newer vehicles becoming very thin skinned, the classic ball mount no longer offers the stability that it once had on older vehicles with rigid thick-metal panels. I don't see many newer vehicles where the two-way radio operator has punched three holes in it for the classic ball mount.

Bumper Mounts

I can remember the days of chrome bumpers. With bumpers now manufactured to be intentionally soft to minimize slow-speed impact damage, bumper

mounts for scanning and two-way radio antennas are just about museum pieces. If you have a car old enough to take a bumper mount, go for it! Keep this legend living as I do on my '76 black Chevy wagon!

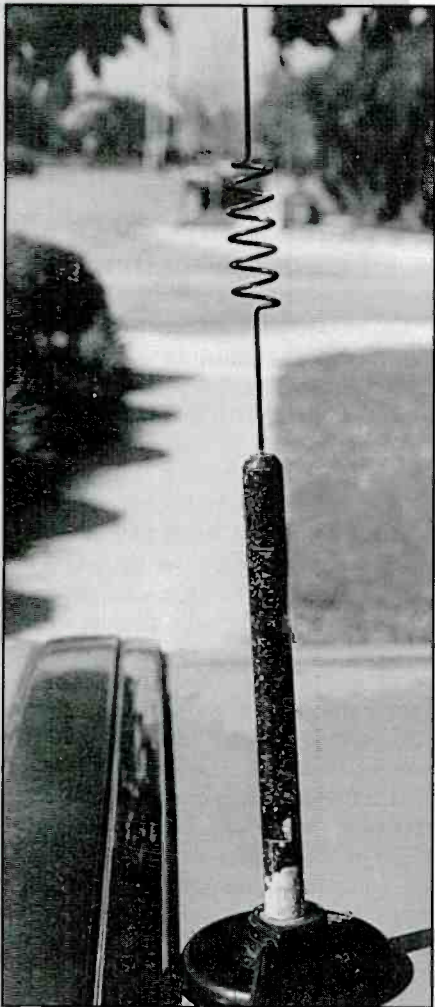
The Modern Way Of Mounting Antennas

Lip mounts have become the most popular way to hang almost any kind of antenna on your vehicle without holes, without magnet scratches, without exposed wires, and without any special tools to get them set-screwed onto almost any lip your vehicle may have. And your vehicle has plenty of lips; trunk lip, fender lip, gutter lip, hood lip, gas-fill-cover lip, and some taillight lips. Popular lip mounts are available from amateur radio dealers manufactured overseas for Diamond, Comet/NCG, and Maldol. These are a relatively expensive way of getting that antenna permanently on your vehicle — most lip mounts with their accessory cable kits will set you back just under \$100. For instance, the Diamond K400, Comet GR-5M, or Maldol motorized antenna can hang on any lip surface, at any position, and maneuver so that your antenna is ultimately straight up. Vertical mounting, flat mounting, mounting on a sloping trunk lid, or just about anything else is possible with these versatile, more-expensive, lip-mount systems. But when you are pricing the mount, don't forget to ask about the coax cable kit. Some radio enthusiasts are surprised to find that their brand new mount has everything but the coax and specific fitting to accept their mobile antenna.

Some mobile antennas terminate to 3/8" x 24 threads — you need that type of mounting hardware. Other mobile antennas may terminate to a type "N" receiver with coax sealed and attached, yet others may terminate to a SO-239 UHF receiver, again with coax permanently installed at the antenna end to prevent water from getting into this exposed feedpoint connection.

IMPORTANT: WHEN NO ANTENNA IS INSTALLED, MAKE SURE THE RAIN CAP IS ON TO PREVENT RAIN-WATER FROM POOLING INSIDE THE RECEIVER. THIS ULTIMATELY EATS OUT THE COPPER CONNECTIONS.

The lip mounts attached with four Allen screws on the back side that com-



Using a mag mount for mobile scanning is fine, but be careful about inherent losses using a mag mount for more permanent transmitting situations.



This Diamond lip is a versatile mount and can be mounted on many angles.

press against the inside of your vehicle's lip. The manufacturers of these antennas will offer a metal plate that keeps the screws from digging into the metal. If you're just using the antenna for receiving, go ahead and use the plate. However, if you are using the antenna for transmitting and receiving, don't use this protection plate, but instead dig the screws right into the inside of the metal lip in order to provide a good DC ground. They don't mention this in the specifications!

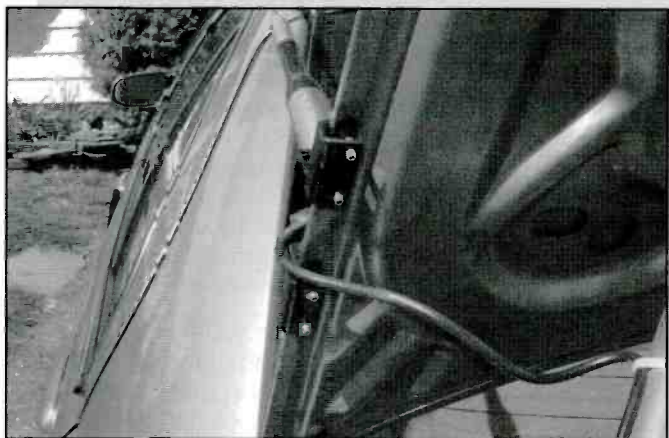
Some of the lip mounts include three feet of lead-in cable that is micro in size, which looks like RG-174, that then magically expands to low-loss foam dielectric cable. It certainly makes up for the slight loss in the extra small initial coax. This allows the coax to not get pinched when you close the hood or slam the trunk, or roll up the window. Good thinking.

At the far end of the lip mount coax assembly, some manufacturers may offer

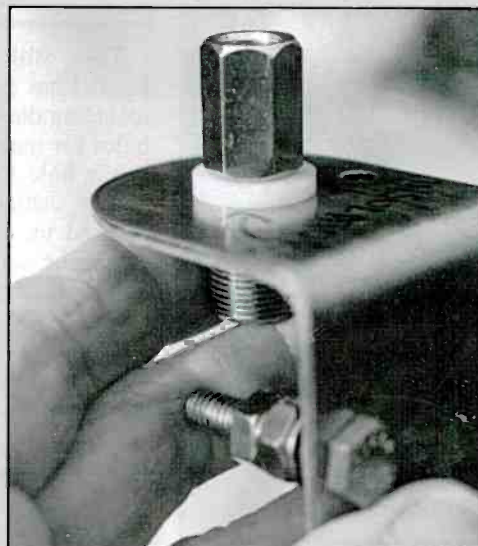
a multitude of coax cable fittings. At Antenna World (www.antennaworld.com), they offer a universal fitting that looks a little bit like a "F" connector (but it isn't) that will accept screw-on connectors such as PL-259, type "N" connector, or SMA, or TNC. Tom Glaze at Antenna World explains, "Our coax cable harnesses are the finest made in the country, and are designed specifically for commercial, military, scanning, and amateur radio applications." I toured their facility during the recent Orlando Hamfest, and indeed their Miami assembly line really turns out a multitude of field-changeable connectors to match any type of transceiver.

Breakaway Alert!

Finally, a word of caution about the very popular CB radio and ham radio angle-bracket and mirror-mount assemblies with the 3/8" x 24 thread on the top,



Mounting the Outbacker spring up as high as possible using the Diamond K260 lip mount.



Be careful — big whips will pull out of the top receiver on this one!








Lip mounts allow you to mount your mobile antenna on the trunk, fender, gutter, or even hood (be careful of engine noise up front!). Securely tighten the allen screws to the underside of the lip, but we don't recommend using the small metal plate provided by some manufacturers unless your antenna will be used solely for receiving applications.

the nylon or plastic spacing washer, and the SO-239 connector on the bottom. Putting a big antenna on this mount IS HAZARDOUS! What occurs is, a big antenna will flex the 3/8" x 24 threads that go through the angle bracket to meet the SO-239; and when the threads get enough "action," they simply pullout from the mount, leaving your big antenna rolling away down the highway. THE 3/8" X 24 THREADS ARE SIMPLY COMPRESSED ONTO A SHAFT INSIDE THE SO-239, AND AFTER A FEW HUNDRED MILES WITH A BIG ANTENNA, THE CONNECTION FAILS. When you look at the adaptor, you wouldn't think that it's only a pressed-in connection, but that is all it is!

So how is your mobile antenna attached? Is it time to retire that old rusty but trusty mag mount? There are plenty of options for a new antenna system that very well could increase your scanning and communications range. ■



Gordo's "other car" sporting a fresh southern California snowstorm. Here we're testing the Outbacker on the right and Hustler on the left using bumper mounts.

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discoveries connecting as a radio amateur

Alinco's DX-77: Big Rig Performance, Not Big Bucks!

It was almost a year ago I started using the Alinco DX-77 transceiver, and frankly I've waited this long to do a review for one good reason: To give this shoebox-size (well, a little larger than that) rig a good test drive with different antennas, several bands and different times of year. The good news is that it's one great rig, and there's no "bad" news. If you look at the front panel of the DX-77 and compare it with another rig, say one that costs twice as much or more, you'll most certainly *see* a difference, but will you *hear* a difference? Will other ops hear a difference? And perhaps equally important, will you use all those bells and whistles on a mega-buck transceiver or will you, like most operators program only a few memories and even in some cases, not bother with all the gizmos? Probably not, with few exceptions, of course.

On The Air

Out of the box, I suppose you could operate this rig without reading much of the manual. Resist the temptation, please. It's an excellent radio, but operates split frequency - and while the easy-to-read large display is unusually self-explanatory, you don't want to find yourself in an area of the band you're not authorized to operate.

The DX-77 operates on AM, FM, USB and LSB with a switchable power output of either 10 or 100 watts on sideband, CW and FM, and four and 40 watts on AM - more than enough to get the job done! Amateur coverage is 1.8 to 28 MHz. You also get a great all-mode general coverage shortwave receiver; 500 kHz to 30 MHz.

The controls are all of sufficient size and placement so you need not have pencil-thin fingers to use the 77. Looking at the front panel from left to right, at the top left is the power on/off button - a large yellow/orange button you can't mistake for anything but a power button. (The rig operates from 13.8 Vdc with the supplied heavy-duty fused power cable). The front-facing speaker and audio amp give you a solid 2 watts according to the specs. I like front-facing speakers. Call me crazy, but I don't operate *any* of my radios from the ceiling! The audio quality and loudness of the DX-77 is superb. Matter of fact I never set the AF gain (volume) higher than about the 10-o'clock position. It's crisp, clean and doesn't require an external speaker. Now, if you insist on a separate speaker, the jack is conveniently located right below the speaker - yes, on the front of the radio where it should be in my opinion. Right next to that jack is the "key" and "phones" jacks. Sorry, but I didn't use the rig on CW, but did speak with



Alinco's DX-77 is an all-mode full-featured amateur transceiver that won't break the bank.

ops that had, and they're pleased as punch, so I'd assume you would be, too, if that's your thing.

Even on this transceiver there were a couple of features I didn't use much - the split function is one. I'm not a contester, and rarely use a repeater - DX is one thing, but contest migraines are quite another - so I typically stick with simple ragchewing and DXing. I didn't even use the "scan" functions because frankly for me it's one of those nice-to-have things that might come in handy for some folks, but I'm happy with the basics. But if you think the Alinco DX-77 has just the basics, read on, please!

Continuing with the front panel tour, you can't miss the large tuning knob which provides very smooth noise-free tuning as you move around the bands. You can change the VFO frequency steps of the "up/down" buttons in sideband and CW to one of four options; 0.1 kHz, 0.5 kHz, 1.0 kHz (default) or 2.5 kHz easily with a few simple keypresses that won't make you crazy. The AM mode offers five steps; 1.0 kHz, (default), 2.5 kHz, 5.0 kHz, 9.0 kHz and 10.0 kHz. The FM mode has five steps; 2.5 kHz, (default) 5.0 kHz, 10.0 kHz, 12.5 kHz, 20.0 kHz. That's right - no complicated menus - and you don't have to constantly refer back to the well-written manual to use this rig! While I could also sit here and further give you a button by button, function by function roadmap of the Alinco DX-77, it's not within the scope of this column, and honestly, evaluating many of these nifty features can be a pretty subjective, if not downright picky in many cases. I'll say this, though - the ease of maneuvering from one band to another, indeed, one function to another, is a snap with this rig. You can change frequencies using the provided handheld mike, the large "up" and "down" buttons to the right of the display or with the tuning knob. Whichever you choose, or a combination of all three, getting where you want to go is quick and easy - there's no fum-

bling, no cursing the radio for not thinking like you. It practically does think, and that in itself is perhaps the best compliment one could give a radio manufacturer - they've clearly listened to customers over the years and built a quality transceiver that's easy enough for a beginner to use, yet with many of the features an old-timer wants.

My first contact on the Alinco DX-77 (previously I had only used QRP rigs - and that's fine, but changing rigs gives you the chance to work many stations that would otherwise be missed) was with W3CR, in Mississippi. He reported my signal to be 5/9, with good clean audio. This was using a simple dipole cut for 20-meters, hung about 30 feet in the air and fed to the 77 with standard coax. I had the power set at 100 watts. Twenty meters is a pretty civil band, but there's still a fair amount of QRM and noise. It's actually my favorite band, active day and night, depending on Mr. Sun, of course. Our contact was early morning just before work - well, early for me - 1340 Z - and the band was already fairly crowded. With one simple turn of the IF Shift, I nearly eliminated a nearby station calling CQ, and used the attenuator to reduce the front-end gain, thereby reducing Kilowatt Karl's signal sufficiently to hear my station.

There was no power line noise that morning, but typically I'm hammered with static and pops. I'd rate the DX-77's noise blanker (activated by a simple button press) as moderately effective at reducing the electrical noise. Short of moving to the hills (even then you might not be immune to noise!) or cutting down all the utility poles, most noise blankers do a fair job of reducing the noise - the 77's does a whole lot better, and makes it possible to hear lots of DX stations that might otherwise be right in there with the hash - including 7X4AN, Mohammed in Algeria, and Bob, VE6HP in Calgary, Alberta.

Can you use the DX-77 as a mobile? Why not? Its dimensions (HWD) are 3 1/2" x 9 1/2" x 10" - not quite a miniature mobile, but certainly not a behemoth. I think though most folks would probably use this rig as a base with a regulated 13.8 Vdc power supply, or perhaps in an SUV - provided the vehicle manufacturer provided ample mounting space.

The bottom line with Alinco's DX-77 - with all the standard features like speech compression, computer control (with optional unit), automatic USB/LSB selection, RIT which allows you to change the receive frequency within a range of +/-1.0 kHz, IF shift, priority scan, band scan, memory scan, (the DX-77 has a whopping 100 memory positions - each stores mode, filter, split frequencies, AGC, attenuator and noise blanker settings!), RTTY packet operation (the transceiver doesn't have a mode for RTTY packet, FAX and SSTV operations, but you can connect additional equipment with ease), RF preamp, attenuator, and more - the Alinco DX-77 is well worth the \$1064.95 suggested retail price.

For more information, contact Alinco, Inc. at 23 South High Street, Covington, OH 45318, or phone 937-473-2840 or visit them on the web at www.alinco.com. A word of caution: If you get an Alinco DX-77, please tell your family you'll be spending a lot more time in the shack and a lot less time reading. Forget bazillion-page owner's manuals, because this is one great rig that lets you get on the air in no time, without taking a special class to operate the radio! Oh yes, please tell the folks at Alinco you read about the DX-77 in *Popular Communications*.

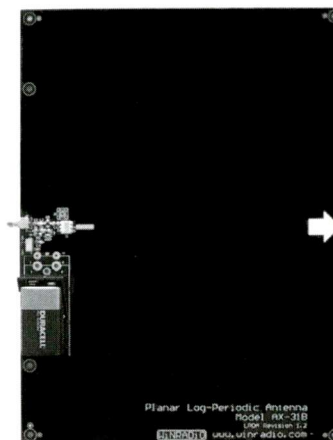
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Your Vehicle's Communications — a.k.a. Telematics

The telematics revolution is coming. How will you fit in? You may think that you have to invest at least \$20,000 in a new mid-range (no "economy" cars) or higher car or truck in order to get in on the telematics bandwagon. Well, don't be caught on the sidelines — you don't need to trade in your present vehicle, and you don't have to spend a fortune, either. As we explained last month, telematics is to land motor vehicles what avionics is to aircraft. Telematics refers, collectively, to all of a vehicle's communications, navigation, and artificial intelligence systems.

Communications systems include wireless telephones, wireless data terminals and displays, push-to-talk radio communications systems, and the like. That's right, telematics even includes our familiar 11-meter CB radio as well as FRS, GMRS, and ham radio. Navigation typically includes Global Positioning System (GPS) units or in the alternative, flux gate compasses. Artificial intelligence systems are those that give drivers or vehicles specific instructions. An adjunct device in a GPS unit that gives drivers specific turn-by-turn instructions is one example. A radar detector equipped with Safety Warning System (SWS) technology gives drivers either text or synthesized voice advice regarding road hazards ahead, as well as other conditions. Some devices in themselves cross the line among these three groups. Radar detectors can be considered communications, navigation, and artificial intelligence devices.

Radar Detectors And The SWS Driver Alert System

This month "On-The-Go Radio" takes a close look at radar and laser detectors and radar's "twin cousin," the SWS driver alert system. O-T-G also takes a look at how traditional CB radio integrates with the telematics concept. Not only do you need to know what radar detectors do, you also need to know what they won't do. How did Department of Transportation officials in one state manage to detect, photograph, and log a string of motorists with "undetectable" radar detectors? Why does one leading manufacturer of police speed radar claim that their latest product operates without setting off any radar detectors?

First, if you already own or have been shopping for a radar detector, you are probably well aware that there are three bands currently in use for police radar. Chronologically, these are the original X band, subsequently the Kq or K1 band, which became more simply known as K band, and more recently, Ka band (see **Figure 1**). This may be confusing to some, since the Ka band is a subset of the broader K band. Nonetheless, if a radar detector claims it covers, say, the X and K bands only, you should pre-

BAND	FREQUENCIES
X Band	10.525 GHz (25 MHz)
Kq Band (K Band)	24.150 GHz (100 MHz)
Ka Band	33.4-36.0 GHz
Safety Warning System	24.07, 24.11, 24.19 GHz
VG-2	11.4-11.7 GHz
LTI 20-20	300-375 THz
Strobe Alert	300-770 THz
ProLaser	300-375 THz
Laser	300-375 THz
Ultralyte Laser	300-375 THz

MHz = Megahertz
GHz = Gigahertz
THz = Terahertz

Figure 1: Radar detector bands.

sume that it would not cover the Ka band. This may seem slightly deceptive, but it is simply a matter of convention that has evolved over time. You see, when the Kq band was added to the original X band, no one had guessed that another portion of the K band would be added in the future. Otherwise, the Kq band would have been specifically labeled as such. Confused enough already? If not, you may want to reread this paragraph before moving on!

What should you look for in selecting a radar detector/SWS receiver for your car or truck's telematics setup? As far as I am concerned, you need coverage all of police radar and laser bands. Even if you happen to know that your jurisdiction uses only one band for local traffic enforcement, they may use another band for automated fixed speed monitoring points ("drones" — those



The low-profile LRD-767 mounted in a commo vehicle, among other telematic devices.

permanent or portable electronic signs that show the speed of passing cars), and still another band for traffic density detecting devices (radar devices that count passing vehicles). And you don't want to lose your stealth mode when out on the open road if your state highway patrol happens to use a different radar band than your local police. The same goes for laser detectors. You want all the bands covered. Additionally, some detectors also include a strobe alert mode. This is for detecting approaching emergency vehicles if they are equipped with a "stutter ray" forward-focused strobe lamp used to change traffic signals as the vehicle approaches. Few public safety agencies use the stutter ray, and few detectors have the strobe alert feature, so in my own estimation, this particular function is not all that useful. Why not? Well, the effective range of the strobe system is only perhaps a couple of hundred feet or so in daylight. Point is, by the time the strobe is detected, you will likely be within easy distance for hearing the siren. Also, by the time your detector flashes at you to tell you of the approaching emergency vehicle, you will likely, again, be seeing the flashing red or blue lights in one of your rearview mirrors. You understand. Why have a device that tells you what your eyes and ears can already tell you?

The Safety Warning System — SWS

You will surely want to consider having the Safety Warning System feature in your radar detector. SWS functionality brings radar detectors full scale into the telematics concept. And it is truly both an artificial intelligence and a digital communications receiver. SWS gives specific advisory messages to motorists. Four-bit binary codes are sent by SWS transmitters, for a total of 64 possible messages. A microprocessor in

your radar detector receives the Frequency Shift Keying (FSK) digital message and uses a ROM database lookup table to translate the message into either text or synthesized speech emulation for a spoken alert to you, the driver. Some modern radar detectors utilize RISC chips, the same microprocessors that have been used in professional grade UNIX computer workstations. The really good news is that the Safety Warning System has a measure of backward compatibility with older K band radar detectors not equipped for SWS operation. While these non-SWS detectors will not provide any specific text or spoken SWS alerts, they *will* activate in the normal fashion, bringing the driver's attention to some sort of road hazard lurking nearby.

SWS is probably the most inexpensive upgrade to telematics that a motorist can make. In fact, even if you have one of the newer vehicles with a factory-equipped embedded telematics system, you probably don't have SWS functionality, or any other artificial intelligence system. In my research on this subject, I have yet to discover any car or truck with an original equipment SWS receiver. And only a very few upper-end luxury cars have any form of factory equipment artificial intelligence. Those that do usually have GPS with a map database that gives the driver turn-by-turn directions to a destination. So, in either case, motorists with newer telematics equipped vehicles still need an upgrade to SWS equipment! Do your shopping. You will likely find a radar detector with full SWS operation in the \$70 price range. For more information on SWS, see <www.safetyradar.com>.

Other Neat Features You May Want

Another consideration when choosing a radar detector is what ancillary functions the unit may have. Obviously, SWS is one

SWS TEXT MESSAGES

Highway Construction
Work Zone Ahead
Road Closed Ahead/Follow Detour
Bridge Closed Ahead/Follow Detour
Highway Work Crews Ahead
Utility Work Crews Ahead
All Traffic Follow Detour Ahead
All Trucks Follow Detour Ahead
All Traffic Exit Ahead
Right Lane Closed Ahead
Center Lane Closed Ahead
Left Lane closed Ahead
(Reserved for future use)
Highway Hazard Zone Advisory
Stationary Police Vehicle Ahead
Train Approaching/At Crossing
Low Overpass Ahead
Drawbridge Up
Observe Bridge Weight Limit
Rock Slide Area Ahead
School Zone Ahead
Road Narrows Ahead
Sharp Curve Ahead
Pedestrian Crossing Ahead
Deer/Moose Crossing

Blind/Deaf Child Area
Steep Grade Ahead/Trucks Use
Low Gear
Accident Ahead
Poor Road Surface Ahead
School Bus Loading/Unloading
No Passing Zone
Dangerous Intersection Ahead
Stationary Emergency Vehicle Ahead
(Reserved for future use)
Travel Information & Convenience
Rest Area Ahead
Rest Area With Service Ahead
24-Hour Fuel Service Ahead
Inspection Station Open
Inspection Station Closed
Reduced Speed Area Ahead
Speed Limit Enforced
Hazardous Materials Exit Ahead
Congestion Ahead/Expect Delay
Expect 10 Minute Delay
Expect 20 Minute Delay
Expect 30 Minute Delay
Expect 1 Hour Delay
Traffic Alert/Tune AM Radio

Pay Toll Ahead
Trucks Exit Right
Trucks Exit Left
(Reserved for future use)
Fast/Slow Moving Vehicles
Emergency Vehicle In Transit
Police In Pursuit
Oversize Vehicle In Transit
Slow Moving Vehicle
Weather Related Hazards
High Wind Ahead
Severe Weather Ahead
Heavy Fog Ahead
High Water/Flooding Ahead
Ice On Bridge Ahead
Ice On Road Ahead
Blowing Dust Ahead
Blowing Sand Ahead
Blowing Snow White Area Ahead
(Reserved for future use)

such option. Other units have a NOAA Weather Alert feature, with or without SWS. Still other models will have an integrated flux gate compass and at least one model coming to market will have a GPS navigation receiver built in. Virginia residents and those planning to travel into or through that state with a radar detector may possibly want a unit with SWS alerting or NOAA Weather Alert. Why? It is well known that Virginia is one state that still has a statewide ban on radar detectors. (So does its neighbor, the District of Columbia.) However, a clause in the Virginia statute in question (VA code §46.1-198.1), appears to provide an exception for radar detectors that are also equipped with SWS or NOAA Weather Radio receivers. Specifically, that particular portion of the statute reads, "It shall be unlawful for any person to operate a motor vehicle upon the highways of this state when such vehicle is equipped with any device or mechanism to detect the emission of radio microwaves — employed by police to measure the speed of motor vehicles — provided, however, that the provisions of this section shall not apply to any receiver of radio waves utilized for lawful purposes to receive any signal from a frequency lawfully licensed by any state or federal agency." Oh. There is little case history to indicate a trend or precedent in how courts would interpret this clause. I'm no lawyer, but it sure seems to me that a radar detector incorporating an SWS receiver or maybe even a NOAA Weather Alert, lawfully receives frequencies licensed by the FCC or the NTIA. SWS is authorized under FCC rules Part 90. And although NOAA is a federal agency and therefore not subject to FCC licensing, NOAA Weather radio stations bear standard ITU/FCC format US call signs. Either way, whether authorized by the FCC or by the NTIA — both are federal agencies. The way I look at it, if you're going to drive in stealth mode in Virginia anyway, it sure wouldn't hurt to have an SWS receiver built into that questionable radar detector. If anyone has been challenged in court on this point in Virginia or elsewhere, we at the *Pop'Comm* editorial offices would like to hear about it. Now, don't go out and test the law yourself just because we may have piqued your curiosity here. But if you have previously been called into question on the matter, please share your experience with us.

Undetectability?

Now how about "undetectability?" So many radar detectors on the market claim to be undetectable. What do they mean? Read the fine print, if there is any, very closely. Almost without exception, manufacturers will say that their product is undetectable to the VG-2 radar detector-detector. These units automatically shut down in the presence of police VG-2 detector detection devices used in jurisdictions where radar detector use is illegal or questionable. Here, the motorist's detector picks up the IF local oscillator emissions of the VG-2 device, which is, ironically, the very method the VG-2 uses to detect radar detectors!

But there are other means by which Georgia Department of Transportation researchers have studied the reception of radar detector IF emissions, easily detected by the use of software-driven spectrum analyzers and high-gain dish antennas. So far, these setups have been rather crude, and highly visible. For now, simply be vigilant, if you are driving with a radar detector. If you happen to see a small dish antenna mounted on a highway overpass, pointed in your direction, know that you are being clocked by the emissions from your own radar detector.



Safety Warning System transmitting unit.

(Motorists without radar detectors are immune to this technique!) Since this experimental system emits no radar band signal of its own, your detector won't give you any warning. Hopefully future generation radar detectors will detect the IF emissions of the spectrum analyzer and operate in a stealth mode similar to that already used in VG-2 stealth.

An Excellent State-Of-The-Art Detector From Uniden

For an excellent SWS receiver and state-of-the-art radar/laser detector unit, my personal choice of products recently available is the **Uniden LRD-767**. This product displays all of the SWS driver alert messages in text, with audible warning. For stealth mode, it detects the X, Kq ("K"), and Ka radar bands and has 360 degree laser detection, including the Pro Laser III and the L2/L3 Ultralyte systems. The LRD-767 also incorporates an electronic compass to make it also a true navigation device as well. And speaking of stealth, for what it's worth, the LRD-767 bears no externally visible markings (in the installed, deployed position) that it is a radar detector. Rather, the unit is labeled as an SWS receiver, laser detector (we're not aware of any state statutes against laser detectors), and as a compass. As expected, the LRD-767 also gives a specific warning and automatically shuts down in the presence of police VG-2 detector detection devices. It's hard to beat!

The reference guide that came with our evaluation LRD-767 unit indicates gate times approaching as little as 300 milliseconds. This is important in an attempting to lock on to any of the occasional signals from the newer POP speed radar technology that uses extremely short-duration microwave bursts in an effort to miss a radar detector's sweep scan. Regardless, POP units must be operated in the normal "tracking" mode to obtain a recorded and enforceable speed measurement, the manufacturer — MPH Industries — concedes. This mode of course, will activate radar detectors. Given this, POP technology may possibly be detected by some modern radar detectors, after all.

Now, according to Uniden, the LRD-767 is no longer available. This is one of those products that has been unfortunately

(and recently) discontinued before its time, as so often happens in the world of consumer electronics. Feature-wise, the nearest Uniden replacement unit may be the new LRD-987, which we at *Pop'Comm* have not evaluated to date. So, check out the LRD-987 on the World Wide Web and at retail outlets, if you like. Still, if you want a time-tested winner of an SWS/Radar/Laser detector receiver, you may want to see if you can find any remaining new LRD-767's at mail order houses on the Web. You just may get a clearance price on this excellent unit, just in time for summer vacation driving.

Mobile CB

Last and definitely NOT least is your inclusion of 11-meter CB radio in your car, truck, or SUV. The fact is that every interstate highway with over-the-road truck traffic has been for decades buzzing with telematic traveler information. CB Channel 19 has been the de facto highway information channel since 1976. It remains a rich source of relevant highway information concerning accidents, construction delays and lane closures, speed traps, and the best (or worst) places to eat. Yes, the truckers' language does get a little salty at times, so I recommend this only for mature audiences and certainly not for the faint-of-heart. You don't need to monitor the channel constantly. Just turn it on when traffic begins to bog down, just long enough to find out what the problem is. Then you can shut it off again. These days you don't have to spend a lot of money on a CB rig. The smallest and most inexpensive CB set will do. They all put out four watts at 100% peak modulation. Do not scrimp on the antenna, though. You don't need a 108-inch whip, but avoid the "shorty" antennas under about three feet in length. You may get a good SWR match, but these antennas are typically very lossy, with much of your signal being either radiated into the earth, or being burned up as heat. Most of the shorty CB antennas are junk. Again, but an inexpensive CB rig if you wish, but get a good antenna.

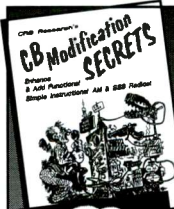
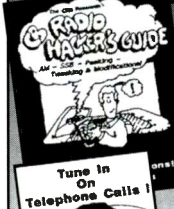

You just can't get the accuracy and the immediacy of information available on CB Channel 19 by any other means: not by cellular phone, FRS, MURS, or GMRS radio; not by satellite broadcast radio nor from an on-line subscription telematic

concierge (advisor) service; and not even from the traffic reports on your AM/FM radio. You can't possibly be on the leading edge of the telematics revolution without a bit of retro-thinking technology — CB radio.

Your Mobile Radio Column Needs Your Input

At "On-The-Go Radio," we welcome comments from our readers, clubs, equipment vendors, public safety agencies, and any others with an interest in mobile radio communications and telematics technology. Write to me directly at *Pop'Comm* at <n3hoe@juno.com>. Let me know if there is any particular aspect of mobile or personal communications of particular interest to you. Also, we especially love good, clear digital photographs. I may publish selected letters, statements, and photos from any interested parties, so send 'em in!

We'll be back next month for more good information on the hottest personal communications services and products, in time for the hottest part of your summer. See you then! ■

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Pop'Comm Survey - July 2002

If back issues of Popular Communications were available on CD-ROM, I'd buy a set. (Mark only one, please)

- Yes 1
- No 2
- Not sure 3
- Probably not, because I have most of them in either binders or a box 4

I keep a log of my shortwave/DX activities

- Yes, in a spiral-bound booklet 5
- No 6
- Sometimes-on plain paper, but I usually lose them later 7
- Yes, in a computer program 8

I would consider buying a Popular Communications logbook

- Yes 9
- No 10
- Maybe 11

I tape record my shortwave/DX sessions

- Yes 12
- No 13

- Sometimes 14
- I used to, but it's a hassle storing the tapes 15

I'd buy a new satellite receiver and pay a monthly fee to listen to noise-free, fade-free satellite radio

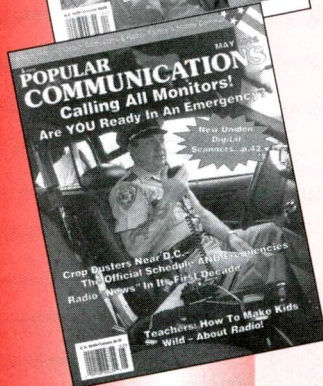
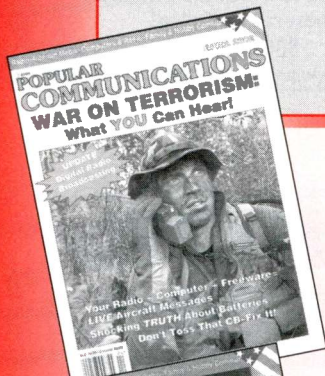
- Yes 16
- No 17
- Maybe, depending on the price 18
- Definitely not because it's only one more monthly bill 19

I have more old radio equipment (older than 10 years) than new

- Yes, mostly working tube-type communicaitons receivers 20
- No, I don't have any old radios 21
- Yes, mostly antique wooden or plastic radios (over 50 years old)-some work, some don't 22
- Yes, mostly old pocket-sized transistor radios-some work, some don't 23
- Yes, a combination of working tabletop wooden radios and console types 24
- Yes, I have several old radios of various types, but they're in the attic/basement or storage 25

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The Ten-Tec RX-350 DSP Receiver

If you're looking for versatility and great HF performance at a moderate price, the new RX-350 from Ten-Tec could be just the ticket!

Given recent improvements in receiver design, shortwave listeners can rightfully expect more performance than we got back in the vacuum-tube era. For example, today, we can enjoy the fruits of advanced DSP signal processing to separate weak foreign broadcast stations from noise and QRM. With advanced detector designs, we can expect silky-smooth all-mode performance for sleuthing amateur and commercial frequencies. And, thanks to advances like DDS (Direct Digital Synthesis), we can anticipate gazelle-like frequency agility coupled with anvil-like stability for tuning in digital signals. Heck, some new radios even have built-in band scopes that point us to the action! All of these new goodies make the often-noisy business of monitoring the HF bands a lot more pleasant. So it is that Ten-Tec's new RX-350 found its way to my door.

Digital Heritage

DSP and software-defined architecture are hot buzzwords in the communications industry right now, but Ten-Tec began using this technology years ago in their black-box government-grade receivers, long before it was cool. The RX-350 is a civilian descendant of that proud military heritage, taking its place in Ten-Tec's HF receiver lineup between the low-cost RX-320 virtual-radio kit and the top-shelf RX-340 rack-mount receiver. Appearance wise, the RX-350 looks nearly identical to Ten-Tec's Jupiter amateur-radio DSP transceiver — and much of the Jupiter's analog receiver circuitry is shared in common. However, unlike the Jupiter, the RX-350 is programmed to provide a large share of the advanced scanning and signal-detection functions offered in the elite RX-340.

Herein lies one of the great strengths of Ten-Tec's software-driven design philosophy. Not only are they able to transfer features and functions from one radio to another by adapting the firmware code, they can also provide you with the latest software upgrades for your radio with a simple download over the Internet! That sure beats digging around inside the case with a soldering iron and a pair of cutters every time a new factory mod comes out!

Firing Up The RX-350

The RX-350 comes pre-programmed with a menu of basic default settings that enable you to pull it out of the box and fire

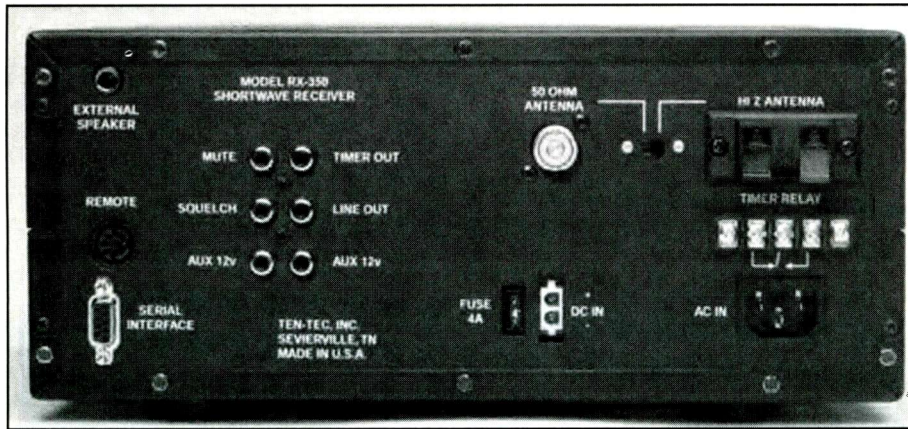


Ten-Tec's RX-350 receiver is high-tech all around.

it up right away. Operation is intuitive and you won't need to pour over the manual to start listening. But, why settle for a peck on the cheek when you could have — well — a whole lot more? Here's a case-in-point. The default-tuning rate is programmed for 100-Hz steps — OK for AM, but a bit brisk and choppy for smooth SSB or CW reception. Hit the Step button, select a new tuning rate (there are seven available), and voila! Suddenly there are more tuning-rate options than on my fancy-pants ham transceiver. I don't know of any other SWL radios that offer this level of sophistication. It's the same for the AGC response rate — my ham rig has two choices, while the RX-350 offers three. My noise blanker goes Off or On, while the RX-350 has seven progressive levels. You choose the best one, depending on how bad things are up on the electric pole or under the hood. Thanks to its software-driven design, the RX-350 is a remarkably pliable piece of machinery.

A Sampling Of Features

The RX-350 is an economical package, but it was designed to carry many of the special software features built into both the commercial-grade RX-340 and the Jupiter ham transceiver. It's a kind of high-tech Volksradio, and the similarities to those other radios are clearly there. For example, you'll find dual VFOs with a ton of options to help you crawl or leap across the radio spectrum — or, for convenience, you can scroll through the international shortwave bands which are pre-programmed into memory. The RX-350 has the same programmable passband tuning feature offered on many SSB radios, but with the twist that works for all modes. Like the Jupiter and RX-340, the front panel has remarkably few knobs — mostly



The rear panel of the Ten-Tec RX-350.

Speaking of the Jupiter, the RX-350 borrowed a few features from that radio that aren't included on the more expensive RX-340. For one, it has the Jupiter's band-scan function that enables you to check the neighboring radio spectrums on both sides of your listening frequency on a LCD spectrum display. Several scan widths are available, and to see what's going on, you simply press the Sweep button. The speaker will mute for a second or so while a sample-and-hold picture of band activity is painted at the bottom of the screen. You can also activate the Auto-Sweep function that will check activity every time you switch bands. The RX-350 also uses the same LCD screen for its dual frequency display and for labeling several switch options.

In fact, the screen really serves as the central information display for many aspects of the radio's operation.

Maxi Modes

because most of them perform multiple functions. For example, AF and RF Gain share the same control — and the Multi knob performs several of the less-common adjustment and selection tasks. Pushbutton switching on the panel or internal logic cues making the assignment, as needed. This particular departure from straight-up analog tradition may take a little getting used to for the uninitiated, but it all becomes second nature quite quickly.

One of the major features is the RX-350's DSP-driven Bandwidth control — a dedicated rotary encoder that selects 34 discrete IF-filter bandwidths ranging from a CW-narrow 300 Hz to a AM/FM high-fidelity 8000 kHz. Thanks to this feature, all modes sound uncompromisingly great. Why? Because you can set the passband cutoff to where the interference begins rather than to where two or three fixed filter options force you to set it! Add to that a very effective DSP Noise Reduction circuit plus a heterodyne-killing Automatic Notch filter, and you have some serious tools at your disposal to make listening more enjoyable. There's even an effective multi-mode squelch that eliminates background noise between transmissions for all types of signals including SSB. The features list continues through a number of scanning and memory functions that I won't even try to enumerate here. There are even extensive clock-start options that enable you to record programming when you're away from home. The point is, this is a radio you can grow old with and never run out things to explore.

Because the RX-350 is in the moderate price range (similar to the Jupiter transceiver), it's reasonable to expect that it doesn't pack the heavy-lifting power of the RX-340 in terms of bullet-proof signal handling and engineering refinement. At one-third the price, you just can't build in the level of IMD overkill a military grade product demands. As a result, you can overload the RX-350 if you connect it to a big antenna and run it wide-open on a band full of mega-strong signals (there's a 20-dB switch-in attenuator available to correct that condition when it happens). Also, some of the functions aren't as well refined as on the RX-340. For example, the S-meter is small and integrated unobtrusively into the LCD frequency display rather than set apart as a stand-alone instrument that offers precision calibration over a 120-dBm range. Nevertheless, the RX-350 meets the same technical performance standards as the Jupiter transceiver amateur radio transceiver, and it will hold its own or beat out most other radios in its price class.

The RX-350 is somewhat unique, in that it has nine individual modes of reception. As you'd expect, there's the usual "big five" that include AM, FM, CW, Upper Sideband, and Lower Sideband. But, in addition, there are four more! For computer-decoded communication, you can switch to the radio's Digital mode for optimized reception of modem tones that are fed to your computer's sound card.

There are also three Synchronous-AM detection modes, and these constitute a very attractive feature that sets the RX-350 apart from its competition. You've probably read how synchronous detection strips the fluctuating carrier off incoming AM signals and replaces it with a stable internally generated carrier that helps reduce audio distortion caused by signal fading. Synchronous detection, by itself, is a very worthwhile feature found only on top-end SWL radios. But, if you really want to dig out difficult-to-copy AM signals from beneath the sludge, Selectable-Sideband Synchronous AM is the best detection system going. In this mode, you not only replace the fading carrier, you also eliminate one of the two audio sidebands and all adjacent channel interference abutting it. This reduces QRM and, more importantly, prevents two separate-but-not-quite audio sidebands canceling and distorting each other. SS-SAM is the Rolls Royce of all detection modes for AM.

OK, let's tune in a not-so-hot AM signal emanating from the mountains of East Neverneverland. The SAM mode button lets you to scroll through all three synchronous modes (SAM-DSB, SAM-USB, and SAM-LSB) to find the one that yields the least amount of noise and adjacent-channel interference. Next, punch in the DSP noise reduction and set the best IF Bandwidth for good measure. Odds are your not-so-hot signal will sound more like a clear-channel super station when you're done. My auditory synapses no longer crave abuse like they did back in the Woodstock years, so I really appreciate special functions like SAM that make the ride less bumpy. Of course, when radio conditions are really bad, even synchronous detection can't always save the day. In order to function, the detector must recover sufficient off-air carrier to lock up the phase detector. If synchro-

nization is lost, detection reverts back to conventional AM — and that can be a bit of a jolt!

Radio Without A Face

For all you computer gurus out there, the RX-350 shares one especially interesting feature with the RX-340, the Jupiter and Pegasus ham transceivers, and a few other Ten-Tec products. You can put it under the desk, out of sight, and run it exclusively from your computer! That's right, there's a serial port on the back of the cabinet and Ten-Tec provides all the software you need — free of charge on their web site — to go "virtual radio." The serial port is also important because it's the portal you'll need to upgrade the firmware package in your radio from time to time. Some of these upgrades are minor touches, like enhancing a DSP algorithm to provide more effective noise reduction or fixing a software glitch that someone has discovered. Others may be very significant, like adding an entirely new operating function. All are important because they continually refine your radio and enhance its value.

Gizonks

While ringing out the RX-350, I really didn't find too many things about it I disliked. But, this is a product review, and the magazine tells me I've got to earn my keep. Here are my top two nit-picks with the radio's performance.

The first involves processor lock-up. After applying power, software-defined radios like the RX-350 require a second or two of boot-up time before they're ready to play. In this vein, the manual warns that it's possible to lock up the logic by rocking the power switch too quickly between positions. In addition to replicating this minor problem, I also managed to lock the radio up on three or four occasions while rapidly toggling the bandswitch or other controls. I'm still not sure what I did, but the audio went away and wouldn't come back until I turned the radio off and on again. This condition is probably repairable with a simple software patch, and like most software glitches, it'll probably be fixed and added to the upgrade software as soon as a cure is found. Nevertheless, it caught me off guard.

The other thing that bothered me is actually pretty common for DSP-filtered radios. The cut-off frequency of many DSP filters is very sharply defined. This

trait tends to create a seashell-over-the-ear sound that's especially noticeable when there's a lot of background noise on the band. Some DSP receivers are now starting to provide a soft-filter option that rounds off the edge of the passband to curb this effect. Even the Ten-Tec RX-340 slow filter function — used primarily to reduce group delay on digital signals — seems to have a softening effect. Hopefully, Ten-Tec will find a way to provide a roll-off option for those of us with ears that no longer care for hard edges.

Boom Boom

On the positive side, one thing my ears still really like is lots of bass. If you're an AM radio nut and have a big speaker box hanging around, plug it into the Speaker Jack on the back panel — you won't be disappointed. I recommend this because the RX-350 has plenty of bass that the small speaker in the cabinet lid simply can't reproduce. Incidentally, you'll find a high-frequency audio boost option on

the receiver's operating menu. Beware — instead of boosting highs, it cuts the lows.

RX-350 Conclusion

I really like the RX-350. At first, I found it tempting to fall into my old analog ways and roll along with the radio's default settings. However, before long, I entered "explore" mode and had a ball rediscovering just how much these radios can do (I've reviewed the RX-340 and Jupiter in other articles). Like the Jupiter, the RX-350 represents a great entree into the realm of advanced receiver performance without draining your bank account in the process.

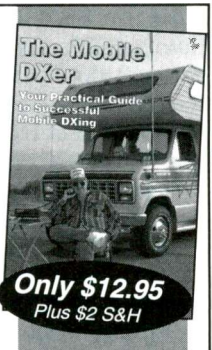
For more information on the RX-350 contact Ten-Tec directly at 1185 Dolly Parton Parkway, Sevierville, TN 37862 or phone 865-453-7172. You can also visit them on the web at www.tentec.com. The RX-350 is sold direct from Ten-Tec for \$1199. Please be sure to tell the folks at Ten-Tec you read about their RX-350 receiver in *Popular Communications!* ■

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Commando Solo Goes Home

The Special Operations Wing of the Pennsylvania Air National Guard's plane, which broadcast the so-called "Information Radio" in Pashtu and Dari to the Afghan people during the midst of the war against al-Queda and the Taliban, ended its mission in late March. Despite the departure of the "radio planes" the shortwave version of Information Radio remains on the air. An Associated Press story in early April says the ground-based version is located at the Bagram Air Base. During the first days of the radio campaign, clandestine experts surmised that the broadcasts on 8700 were not coming from the airplane, but from a ground station and they seem to have been proven right. So, at least of this writing, Information Radio is still active, on 8700 from 0030 sign on.

Catching Zimbabwe!

You have a better chance now, to hear the Zimbabwe clandestine **Voice of the People**, mentioned a time or two ago. Its schedule, which had been limited to a time period impossible for most North American listeners, has been extended. It now also uses **7120** from 0330 to 0400 with some of the programming in English. Unfortunately there is a Radio Free Europe/Radio Liberty outlet on the same frequency until just before 0400. Voice of the People is transmitting via the Radio Netherlands relay station in Madagascar.

The Voice of Iran is now on the air from 1630–1730 on **17525** and 1730–1930 on **15690**.

Denge Mesopotamia has expanded its broadcasts and now airs from 0700 to 1100 and 1400 to 1700, the former believed to be via Tashkent, Uzbek and the latter via Samara, Russia. Other frequencies, which may be in use from time to time, are **15415** and **15620**.

No final word has emerged from the conflicting statements and stories yet but there can be little question that the status of Radio Free Europe/Radio Liberty's facility in Prague is up in the air. Some reports say the Czech government wants them to move from their "downtown" headquarters to a facility in the suburbs, other reports say RFE/RL is saying no to that, others say RFE/RL is, indeed, planning the move. The ostensible reason behind all

the talk of moving is security — the Czech government doesn't want to chance an incident in the middle of the city. As it is, RFE/RL is under guard. RFE/RL are responsible for the programming for Radio Free Afghanistan, as well as Radio Free Iraq so there's no question there are people out there who — to put it mildly — find these broadcasts "inappropriate."

Argentine DX'er Arnaldo Slaen has achieved a major accomplishment in the clandestine QSL department — a reply from the Korean clandestine Voice of National Salvation. He received a letter and QSL card in response to a letter to National Democratic Front of South Korea, Grenier Osawa 107, 40 Nando-cho, Shinjuku-ku, Tokyo, Japan. We believe this to be the first reply from this station ever! The organization has a web site at www.ndfsk.dyn.to

Robert Brossell (WI) has noted the **Voice of Mesopotamia** on **11530** from 1330 to 1400 with talks and interviews in presumed Kurdish.

Rich D'Angelo (PA) had the **Voice of Iran** on **17525** from 1728 to 1733 close, with instrumental music, a short talk and another segment of instrumental music before a woman talked briefly. The program ended on the half hour but the carrier stayed on for another three minutes.

Brossell caught the **Voice of Biafra International** on **12125** at 1925 with an impassioned speech about the recognition of Biafra. This one is on Saturdays only.

Brian Alexander (PA) heard the **Voice of the Tigray Revolution** on new **6350** (ex-6315) from 0354 sign-on with an interval signal, then into talk in local language followed by local music.

Brian also heard the **Voice of the Islamic Revolution** in Iraq on **7100** from 0330 sign on with talk in an unidentified language, then into Koran and mid-East music. Also heard on parallel **9790** and **11660**, though not as well. Brian cautions that the **Voice of the Broad Masses of Eritrea** is also on **7100** at this time.

D'Angelo caught **Radio Voice of Hope via Radio Netherlands** in Madagascar on **12060** with a 0427 sign-on, opening with "This is Radio Voice of Hope" and into news in Arabic. This, also, is a Saturday only transmission.

Robert Montgomery found the **Voice of the People of Kurdistan** on **6995.6** from 0416 tune to 0750 closing, featuring male and female announcers in presumed Kurdish.

D'Angelo had **Millennium Voice** on **21550** with a sudden sign-on at 1330 with regional vocals and an opening ID in Pashtu and English — "This is Millennium Voice." Then into news and long talks with Pashtu and English IDs. They switched to Dari at 1400 and went off at 1430. We're not sure if this station has any connection with something called **Sawt al-Qarn, (Voice of the Horn or Voice of the Age)** now reported to be active on the same frequency also at 1330 to 1430.

Radio Bopeshawa, the station of the Worker Communist Party of Iraq has discontinued its broadcasts "for the time being."

That covers things for this time. And here's the usual cry for input in the form of logs of your clandestine station catches, copies of QSLs, address and transmitter site info and anything else relating to clandestine broadcasts on shortwave you'd care to contribute. Your continued interest and support is always most appreciated. Until next time, good hunting! ■



The Radio Free Europe/Radio Liberty building in Prague is under armed guard by the Czech military. The building also houses the studios of Radio Free Afghanistan, operated by RFE/RL. (Photo courtesy Hans de Vreij, Radio Netherlands)

Tap into secret Shortwave Signals

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

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

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

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

Eavesdrop on the World

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

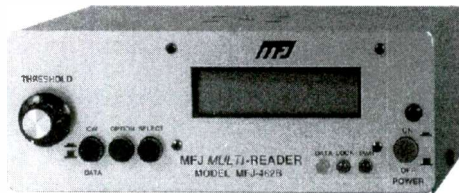
"World Radio TV Handbook" says MFJ-1020B is a "fine value... fair price... best offering to date... performs very well indeed."

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 1/4 x 1 1/4 x 4 in.



-- all over the world -- Australia, Russia, Japan, etc. **Printer Monitors 24 Hours a Day** MFJ-462B **\$179⁹⁵**

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!



MFJ-1026 **\$179⁹⁵**

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

MFJ Antenna Matcher

MFJ-959B **\$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**

Now! 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

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.

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 1/4 x Wx2 1/4 x Hx5 1/4 D inches.

No Matter What™ One Year Warranty

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

Try it for 30 Days

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

MFJ Antenna Switches

MFJ-1704 **\$64⁹⁵** MFJ-1702C **\$24⁹⁵**

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

World Band Radio Kit

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

21 Band World Receiver

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

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world band

tuning tips *your monthly international radio map*

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	6458	Armed Forces Network, Puerto Rico		0300	15355	Radio Sultanate of Oman	
0000	21680	Vision International, Australia	II	0300	11640	Far East Broadcasting Assn., Seychelles	
0000	9400	Radio Bulgaria		0300	5970	Radio Minsk, Belarus	
0000	5035	Radio Aparecida, Brazil	PP	0300	6973	Galei Zahal, Israel	HH
0000	9900	Radio Cairo, Egypt		0300	15340	Radio New Zealand Int'l	
0000	4815	Radio Difusora Londrina, Brazil	PP	0300	4939	Radio Amazonas, Venezuela	SS
0000	11940	Radio Romania Int'l	Romanian	0300	3380	MBC Radio One, Malawi	
0000	6536	Radiodifusora Huancabamba, Peru	SS	0300	15575	BBC relay, Oman	
0000	15360	BBC relay, Singapore		0300	12005	RTT Tunisienne, Tunisia	AA
0000	11904	Voice of Cambodia		0300	15460	Radio Thailand	
0030	6180	Radio Nacional Amazonia, Brazil	PP	0310	4845	Radio K'ekchi, Guatemala	vern.
0030	4805	Radio Difusora do Amazonas, Brazil	PP	0330	7185	RTV Marocaine, Morocco	AA
0030	7325	Radio Vilnius, Lithuania		0330	11765	BBC relay, South Africa	
0030	5637	Radio Peru	SS	0330	9495	Radio Sweden	
0030	5678	Radio Ilucan	SS	0330	13675	UAE Radio, Dubai, UAE	
0030	6674	Radio Super Nueva Sensacion, Peru	SS	0330	11735	All India Radio	
0100	9820	Radio Havana Cuba		0330	9660	Radio Japan/NHK, via French Guiana	JJ
0100	5010	Cristal International, Dominican Republic	SS	0330	9835	Radio Budapest, Hungary	
0100	7345	Radio Prague, Czech Republic		0330	9925	Voice of Croatia	
0100	9790	China Radio Int'l, via Canada		0330	11720	VOIRI, Iran	AA
0100	15485	Radio Pakistan	Urdu	0345	7160	Radio Tirana, Albania	
0130	4755	Radio Educacao Rural, Brazil	PP	0400	4976	Radio Uganda	
0130	4919	Radio Quito, Ecuador	SS	0400	3320	Radio Sondergrense, South Africa	Afrikaans
0200	4052.5	Radio Verdad, Guatemala	SS	0400	4950	Radio Nacional, Angola	PP
0200	4832	Radio Litoral, Honduras	SS	0400	6940	Radio Fana, Ethiopia	vern
0200	4980	Ecos del Torbes, Venezuela	SS	0400	11995	Radio France Int'l	
0200	17675	Radio New Zealand Int'l		0400	6020	Voice of Turkey	TT
0200	9440	Radio Slovakia Int's		0430	12060	Radio Voice of Hope, via Madagascar	AA/Sats
0200	4800	Radio Buenas Nuevas, Guatemala	SS	0430	11625	Vatican Radio	FF
0200	4960	Voice of America relay, Sao Tome		0430	4991	Radio Apinte, Surinam	
0200	9670	RAI Int'l, Italy		0445	7125	Voice of Russia, via Moldova	
0200	5025	Radio Rebelde, Cuba	SS	0445	7235	RAI Int'l, Italy	
0200	3280	La Voz del Napo, Ecuador	SS	0500	6055	Radio Exterior de Espana, Spain	
0230	15290	Central Broadcasting System, Taiwan	CC	0500	15515	Radio Australia	
0230	11787	Radio Iraq Int'l		0500	15505	Radio Kuwait	AA
0230	7325	Radio Austria Int'l		0500	7265	Sudwestrundfunk, Germany	GG
0230	3360	La Voz de Nahuala, Guatemala	SS	0500	7255	Voice of Nigeria	
0230	15325	Radio Japan/NHK	JJ	0500	15170	BSKSA, Saudi Arabia	AA
0230	15395	Voice of America relay, Philippines		0500	6110	Radio Japan/NHK, via Canada	
0230	15435	Voice of Africa, Libya		0500	15215	Channel Africa, South Africa	
0300	9475	Radio Cairo, Egypt		0530	15225	Adventist World Radio, via South Africa	
0300	5010	R. Misiones Internacionales, Honduras	SS/EE	0600	7110	RTT Tunisienne, Tunisia	AA
0300	4820	Radio Botswana		0600	4915	Ghana Broadcasting Corp.	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0630	11875	Radio Liberty, Germany	RR	1500	15315	UAE Radio, Dubai, UAE	AA
0630	11960	Radio Jordan	AA	1500	17895	Radio Africa Int'l, via Austria	
0700	4845	Radio Mauritanie, Mauritania	AA	1500	11710	Voice of Korea, North Korea	
0800	6115	Radio Tampa, Japan	JJ	1530	17525	Radio Vlaanderen Int'l, Belgium	
0800	9710	Fundamental Broadcasting Net., via Lithuania		1600	11640	VOIRI, Iran	
0830	15270	Voice of Armenia	GG	1600	11570	Radio Pakistan	
0830	6350	Armend Forces Network, Hawaii		1600	11770	Radio Mexico Int'l SS	
0900	3921	Radio Guyana		1600	9870	Radio Korea Int'l, South Korea	
0900	9325	Voice of Korea, North Korea		1600	11870	VOIRI, Iran	
0900	6045	Radio Santa Rosa, Peru	SS	1645	15510	Radio Free Asia, via N. Marianas	CC
0930	12085	Voice of Mongolia RR	RR	1700	17895	Voice of America relay, Morocco	
0930	5975	Radio Autentica, Colombia	SS	1700	17705	Voice of Greece, via Delano, CA	Greek
0945	3310	Radio Mosoj Chaski, Bolivia	SS	1700	15555	Swiss Radio Int'l	AA
0945	6135	Radio Santa Cruz, Bolivia	SS	1700	17545	Kol Israel	
1000	4421	Radio Bambamarca, Peru	SS	1730	13820	Radio Africa Int'l, via Germany	
1030	6030	Radio Santa Maria, Chile	SS	1730	17745	RDP Int'l, Portugal PP	
1100	5020	Solomon Is. Broadcasting Corp.		1730	152005	BSKSA, Saudi Arabia	AA
1100	4770	Radio Centinela del Sur, Ecuador	SS	1730	15180	BBC relay, Cyprus	
1100	6300	WYFR, USA via Taiwan		1730	18950	Radio Danmark, via Norway	DD
1100	4835	Radio Maranon, Peru	PP	1730	15190	Radio Pilipinas	Tag.
1100	3325	Radio Maya de Barrillas, Guatemala	SS	1730	17525	Voice of Iran (clandestine)	
1115	4780	Radio Republik Indonesia, Fak-Fak	II	1800	15345	RTV Marocaine, Morocco	AA
1130	3205	Radio Saundaun, Papua New Guinea		1800	17640	Radio Free Asia	CC
1130	4875	Radio Republik Indonesia, Sorong, Irian JayaI		1815	15570	Vatican Radio	
1130	5075	Voice of Pujiang, China	CC	1830	16640	Radio Telefis Eireann, Ireland, via Canada	
1130	9840	Voice of Vietnam	RR	1900	9960	Radio International, Armenia GG	
1130	4890	NBC, New Guinea		1930	17605	Radio Netherlands via Bonaire	
1130	6520	Voice of Korea, North Korea	KK	2000	15140	VOIRI, Iran	
1130	3245	Radio Gulf, Papua New Guinea		2000	11734	Radio Tanzania-Zanzibar	Swahili
1145	4725	Radio Myanmar (Burma)	BB	2000	17690	Adventist World Radio, via South Africa	EE/FF
1200	9645	Faro del Caribe/TIFC, Costa Rica		2000	15150	Voice of Indonesia	
1200	9650	Radio Korea Int'l, South Korea, via Canada		2000	11990	Radio Kuwait	
1200	6600	Voice of the People (Korean clandestine)	KK	2000	17830	BBC relay,. Ascension Is.	
1200	11900	China Radio International		2030	15230	BSKSA, Saudi Arabia	AA
1200	4120	Voice of National Salvation (Korean clandestine)	KK	2030	9960	Voice of Armenia	
1230	15425	Sri Lanka Broadcasting Corp.		2100	13610	Radio Damascus, Syria	
1230	11000	China National Radio, Beijing		2100	11985	YLE Radio FinlandFF	
1230	4755	Radio Republik Indonesia, Makassar	II	2100	11620	All India Radio	
1245	15355	Voice of Russia	RR	2100	13710	Voice of America relay, Botswana	
1300	11605	Radio Taipei Int'l, Taiwan	CC	2130	11905	Radio Tashkent, Uzbekistan	
1300	11765	KNLS, Alaska		2145	11600	Radio Canada Int'l	
1300	11920	Radio Free Afghanistan	vern	2200	119890	Adventist World Radio, Guam	
1300	6195	BBC relay, Singapore		2230	11585	Kol Israel	HH
1300	9940	Voice of Russia	GG	2230	17860	Deutsche Welle relay, Rwanda	GG
1300	9740	BBC relay, Singapore		2230	13700	Radio Vlaanderen, Belgium, via Bonaire	
1315	11580	KFBS, Northern Marianas	CC	2245	21455	HCJB, Ecuador	
1330	11650	Radio Australia		2300	15305	Voice of America relay, Sri Lanka	
1330	17660	YLE Radio Finland		2300	15565	Radio Netherlands relay, Madagascar	
1330	15505	China National Radio	CC	2300	15345	Radio Nacional, Argentina	SS
1330	9715	Radio Tashkent, Uzbekistan		2300	11820	Radio Veritas Asia, Philippines	II
1330	15095	Far East Broadcasting Co., Philippines	unid	2330	12020	Voice of Vietnam	
1330	17600	Radio Rossii, Russia	RR	2330	11840	Radio Jordan	
1400	21745	Radio Prague, Czech Republic		2330	9845	Radio Netherlands	
1400	6150	Radio Singapore		2330	11830	Radio Romania Int'l	Romanian
1430	15275	Deutsche Welle, Germany	GG	2330	9875	Radio Vilnius, Lithuania	
1445	18960	Radio Sweden		2345	17835	Adventist World Radio, Guam	EE/VV
				2345	15820	Radio Continental, Argentina	SS/irreg,
				2345	9565	Radio Tupi, Brazil	PP

radios & high-tech gear

review of new, interesting and useful products

Alinco Introduces DJ-S40T Pocket HT

The Alinco DJ-S40T UHF HT, a pager-size transceiver replaces the very popular Alinco DJ-S41. The new model has several improvements over the original and can transmit with up to 1-watt output with the optional Ni-MH battery or external DC power. Announcement of the new unit was made by Craig Cota of ATOC Amateur Distributing, which distributes Alinco products to dealers in the USA and Canada.

The new DJ-S40T has a "normal" output of 500 mw, 100 memories, a call channel, several scan modes, and more. It covers the entire U.S. UHF Amateur Radio allocation of 420–450 MHz, with receiving capabilities beyond the allocated transmission range. Unique features include a newly designed case that conceals the speaker but provides loud, clear audio. The antenna is now a standard SMA fitting. There are 38 CTCSS encode and decode settings (decode included as a standard feature) and four tone bursts that make the unit usable for repeater operations in many parts of the world. The large illuminated display is easy to read and provides information to the user about a number of useful features. Alinco has added its experimental "mosquito repelling feature" to the unit along with a theft alarm function, the ability to clone units by cable and an external power port. Many Alinco accessories, such as a wide variety of speaker mics and power cables are cross-compatible with the DJ-S40T.

In addition to normal simplex and repeater operations, a very popular application of the tiny transceiver could be its use through cross-band transceivers, essentially using the DJ-S40 as a "remote mic" through a base or mobile dual-band transceiver.

The MSRP for the DJ-S40 is \$109.50, but dealers often set "street prices" below the suggested retail. "The DJ-S40T demonstrates Alinco's continuing leadership in the development of small-sized, high performance, low-cost transceivers," said Mr. Cota. "The DJ-S41 proved there is a market for pocket transceivers and that most areas served by repeater systems do not require high power in order to achieve reliable communications. The DJ-S40 is an exciting "next step" in the evolution of small-size, full-featured radios that are fun and affordable."



Alinco's new DJ-S40T is a hot handheld transceiver with a multitude of neat features.

"Hiya, Hiya, Hiya!"

Soupy Sales said, "There's only one Joey Reynolds — I know because I looked it up in the phone book. Joey's a great talent, and I dearly love him. This book is as exciting as his show is — once you put Joe's book down, you won't be able to pick it up."

Well, you get the idea. I've also read Joey's book and it's more than entertaining — it's an inspiration to us all, whether you've got time behind the mike as a broadcaster or countless hours listening to broadcast stations. Joey's new book, "Let A Smile Be Your Umbrella . . . But Don't Get A Mouthful Of Rain" is a great paperback read that highlights his career — all the ups and downs — from his early radio days in Buffalo at WKBW at \$300 a week, to the top of the charts in Detroit, Philly, and New York. Despite the long slide in his career after a battle with the bottle, The Joey Reynolds Show is now the number-one rated overnight radio talk show in the country. I recently spoke with Joey — an honor in itself — and found his humor and jokes reflect a new, different Joey — one that is light years beyond the cloned morning talkshow radio bozos.

Frankly, his book almost reads like radio copy, a real triumph in style — not a stuffy "look what I did, check out this vocabulary, and how I overcame my problems" book, but rather a fellow writing from the heart. He makes it look so easy, but then again, that's Joey's talent. If you've ever done more than a day or two in a radio studio — especially during the '60s and '70s — reading about Joey's on-air pranks; (he says he "probably played more pranks than records . . .) like the time Wilson Pickett's record, "In The Midnight Hour" started to skip playing "In the midnight . . . in the midnight . . . in the midnight" so he let it play for not three or four minutes, but for a couple hours until the cops came thinking he had died between records. Then, being a true comic he put the entire episode of the cops coming in the studio on the air live. Ratings skyrocketed — what will Joey do next?

Read about Joey's radio antics — and catch him Tuesday through Saturday from midnight to 5 a.m. on WOR and WKIP 710 and 1450 in New York, WKNE 1290 and WNTK-FM in Boston, WAEB AM 790 in Philadelphia and WPHM 1380 in Detroit and over 60 other radio markets across the U.S. and Canada.

Joey's 178-page book is \$14.95, ISBN 1-57826-097-3, published by Hatherleigh Press. For more information visit www.hatherleighpress.com or call 800-528-2550 — and catch Joey on the air — and remember the power of laughter!

AccuWeather.com Mobile For PDA

AccuWeather, the world's weather authority has just launched AccuWeather.com Mobile For PDA (<http://pda.accuweather.com>), the first in a series of wireless services to provide the most popular services available from AccuWeather.com to mobile users of Personal Digital Assistants (PDAs) for FREE.

Last year, AccuWeather, focused on increasing the company's presence on the Internet through www.accuweather.com.

The company's goal was successfully achieved through exceptional products and services, and now they're focusing on becoming the leading weather content provider for mobile wireless devices through AccuWeather.com Mobile.

AccuWeather.com Mobile for PDAs offers the most popular features of AccuWeather.com, custom-designed specifically for the requirements of PDA displays to make it easy to navigate. They offer five-day forecasts for any of the 43,000 U.S. zip codes a user selects, which include national summaries; national, regional and state satellite images and radar views. Radar and satellite views are updated every 15 minutes to allow accurate tracking of storm fronts and other weather conditions that may be headed toward your location.

"Travelers and busy professionals today rely heavily on their PDAs, and now they can receive the most accurate, localized, detailed weather on the go, including five-day forecasts, satellite images and local radar maps direct to their PDAs," says Dr. Joel N. Myers, AccuWeather founder and president. "AccuWeather.com Mobile For PDAs is especially valuable for anyone on the go, from business travelers to soccer moms and dads." To that quote from Dr. Myers, I'd also add "for radio enthusiasts on the go!"

For more information, contact <http://pda.accuweather.com> or call 814-235-8500.

New World Radio TV Handbook

We've received the brand new 2002 edition of the WRTH and it's certainly new and improved. Publisher Nicholas Hardyman

said he has "responded to the justified criticism of the last few editions by taking over responsibility of the National Radio section of the book." With dedicated country contributors and a more timely updating process, we'd say the new edition is certainly an improvement! Included is hourly broadcast guides and much more — cover-to-cover it's 675+ pages of everything radio, including maps and receiver reviews!

Hardyman is aware of the missing SW domestic frequencies in the SW frequency list in the new 2002 book and will be making that information available as soon as possible. In response to criticism as to why the domestic and international broadcasts in the WRTH are separated he said, "In order to get the book out in December (so that you get it while the information is current), we have to get as many pages as we can ready in advance so that they can be printed before the international SW information is ready. We then get the SW information as quickly as we can and the rest of the book is printed, and the whole thing is bound, boxed and distributed in two weeks. It would not be possible to get copies around the world in time if we put the two sections together." He continued, "... we produce the SW section on a database. We have to do this to produce the frequency and language listings. It would be a very long job to re-integrate the SW country information from the database output into the National listing and we would not get the book out until January or February, by which time there is only a short time to run on the winter schedules."

The World Radio TV Handbook is available from your favorite radio dealer. It's something every serious hobbyist should have near the shortwave receiver as a quick desk reference.

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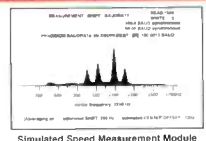
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DXpedition Discoveries

A handful of regular mediumwave DXpeditions have become world renowned for their contributions to the DX community. There's Cappahayden, Newfoundland, with a saltwater path to Europe, Africa, and deep South America for 'round the clock DXing; Valhalla Beach, Manitoba, where snow buries the Beverage antennas but not the DX; the pastoral farmland of Sheigra, Scotland, with antennas aimed at the Americas; Lemmenjoki, Finland, where Alaska, Hawaii, and graveyard stations from the western U.S. are received through the auroral doughnut hole, and Grayland, Washington, where a tsunami of Asian and South Pacific signals rises with the sun. There's always something new to be learned at these DXpeditions. Sometimes it's an opportunity to showcase new technology, to check out a new receiver or experiment with new antennas. While the Beverage might be the antenna of choice, new ideas like the K9AY antenna, the Kaz Beverage termination, and Byan remote-controlled termination have been DXpedition proven. Sometimes DXers will dig up an exotic signal never before received, or discover a new radio station unlisted in any published resources. At the Spring 2002 Grayland DXpedition, it was something completely different, what one might say was of catamount proportion.

The Purr-Fect Ground

Three Beverage antennas were aimed northwest, west, and southwest, however the front-to-back ratio seemed rather poor compared to previous experiences with Beverages on the east coast. Furthermore DXpeditioner John Bryant had planned testing of a Byan remote-controlled termination resistance on one of the Beverage antennas, but in preliminary tests found that various resistance values had no effect on reception. With good domestic reception off the back of the Beverages, it almost seemed as if these antennas weren't terminated. Different methods of termination were discussed among the DXers. There



After digging a hole and pounding in a copper pipe, Guy Atkins fills the hole with clay clumping cat litter.

wasn't room for a Kaz termination, consisting of the resistor and an additional length of wire or ground radial. Replacing the suspiciously inadequate-looking short metal pins that were being used for grounding with more substantial copper pipes was considered, but if the ground conductivity of the coastal sand dunes was poor then there may not have been much improvement.

In a stroke of genius, DXer and Siamese cat owner Guy Atkins had an idea. Guy proposed reinforcing the grounds with kitty litter. It couldn't be just any cat litter. It had to be clay-based clumping litter. The key ingredient that gives clay cat litter its clumping characteristic is bentonite. The ionizing bentonite would hold moisture like a sponge and expand to form a tight bond with the copper pipe to increase ground contact surface area claimed Guy. Tests proved its worth. As expected, the original grounding scheme was ineffective; there was no difference between a connection to ground, various terminating resistances, and an open cir-



Just add water and stir! Grayland DXpeditioners Don Nelson and Nick Hall-Patch mix the bentonite soup.

cuit. A copper pipe ground reinforced with 25-lbs. of kitty litter produced some 20 dB of improvement in cursory front-to-back measurements.

Bentonite Clay

Black Hills Bentonite at www.bhbentonite.com tells the story of bentonite clay. Seventy percent of the world's supply of western or sodium bentonite clay is mined in Wyoming. Bentonite attracts and magnetically holds water in place. Because of this unique characteristic, bentonite absorbs seven to 10 times its own weight in water, and can swell up to 18 times its dry volume. American Colloid Company claims to have introduced the original bentonite clay-based scoopable cat litter in 1991. Bentonite has many other uses that take advantage of its ability to hold water, such as the sealing of leaks in recreational ponds, reservoirs, wells, and landfills, and as a water softener by ion exchange. You can buy granular bentonite at specialty hardware

stores, or just buy the clay-based clumping cat litter to fortify antenna grounding.

QSL Information

Brian Smith of Indiana received a friendly reply from 540 CBK. Brian writes, "My QSL card (sent as a post card) came 30 days after I sent in my report, but I got an E-mailed confirmation five days before the card arrived. A nice gesture from Dave Wagg, who's obviously a good guy." Here's the text of the E-mail:

"Brian, you did indeed hear CBK Radio 540 in SK. Our transmitter is actually located in the town of Watrous, SK. It originally covered the prairie provinces of Manitoba, Saskatchewan and Alberta. However, today we primarily serve the province of Saskatchewan. Your QSL confirmation is now in the mail. Keep up the good listening. Regards, Dave Wagg, Radio Maintenance Coordinator, CBC SK."

540 CBK Watrous, Saskatchewan, CBC Saskatchewan QSL card with CBK 540 written on it, in 30 days, signed David Wagg. Address: Box 540, 2440 Broad Street, Regina, SK S4P 4A1. (Smith, IN)

570 KNRS Salt Lake City, Utah, QSL card and letter, key chain, program guide, etc. in 356 days, signed Patrick Gleason-Eng. Address: 2801 S Decker Lake Drive, Salt Lake City, UT 84119. (Martin, OR)

585 WDJT Tafuna, American Samoa, "For you and your family, 585 AM WDJT," officially signed-on April 13 with 5 kW, only the third MW radio station in American Samoa in 50 years. Programs are 70% English, 30% Samoan. The station is DX friendly and wants reception reports. (Ricquish, NZ) Address: P.O. Box 218, Pago Pago, AS 96799.

740 CHWO Toronto, Ontario, reception report manager Brian Smith says that the online CHWO and CFRB reception report forms at the ODXA web site were not executing properly and have since been deactivated; hence reports in response to the morning show interview about DXing may not have been received. Reports can be E-mailed to odxa@compuserve.com or sent by regular mail. Address: P.O. Box 161, Station A, Willowdale, ON M2N 5S8. (Smith, ON)

1430 KJAY Sacramento, California, verification letter and QSL card in 71 days for DX test report, signed Paul Shinn-CE. Address: 5030 South River Road, West Sacramento CA 95691. My last Sacramento station to finally hear and QSL! (Martin, OR)

1460 KLTC Dickinson, North Dakota, form letter with blanks filled in by hand on Clear Channel Radio stationary plus several local point of interest brochures in seven days to replace the previous letter that was destroyed by the postal service, signed Linda Howard, Operations Manager. Address: P.O. Box 1478, Dickinson, ND 58602. (Griffith, CO)

1510 KLLB West Jordan, Utah, verification in 60 days. Address: 868 East 5900 South, Salt Lake City, UT 84107. (Martin, OR)

PENDING

New Call	Location	Freq.	Old Call
KRKL	Walla Walla, WA	93.3	KTWY

CHANGES

New Call	Location	Freq.	Old Call
WRJX	Jackson, AL	1230	WHOD
KHRA	Honolulu, HI	1460	KRTR
WYOS	Binghamton, NY	1360	WKOP
KWNX	Taylor, TX	1260	KTAE
KZEZ	Parowan, UT	1400	KSUR
WBMH	Grove Hill, AL	106.1	WFOV
WHNB	Jackson, AL	94.5	WHOD-FM
KRCI	Bagdad, AZ	103.1	KBJU
KPGG	Ashdown, AR	103.9	KOWS
KRSH	Healdsburg, CA	95.9	KSXY
KSXY	Middletown, CA	98.7	KRSH
WMAX-FM	Bowdon, GA	105.5	WYAI
WMGP	Hogansville, GA	98.1	WMAX-FM
WEVX	Rantoul, IL	95.3	WBNB
WHTD	Churubusco, IN	96.3	WWWD
KANH	Emporia, KS	89.7	New
WXMD	Pocomoke City, MD	92.5	WZJZ
KSRD	St. Joseph, MO	91.9	New
WWYL	Chenango Bridge, NY	104.1	WYOS
KRXB	Beeville, TX	97.9	KYTX
KITY	Llano, TX	102.9	New
KMDG	Nephi, UT	103.9	KCSL

1570 KVTK Vermillion, South Dakota, a very nice folding QSL/listener card in 44 days signed Kevin Culhane-Pres & GM. Address: 231 Broadway, Yankton, SD 57078. (Martin, OR)

Broadcast Loggings

Saturday and Sunday nights (Sunday and Monday mornings) are a good time for a quick scan of clear channel AM frequencies as you might be surprised to find a 24-hour powerhouse off the air. New York City's 50 kW stations 660 WFAN and 880 WCBS have been caught signing off after midnight for transmitter maintenance, leaving the frequencies clear for some rare DX signals in the east. Reception with WFAN and WCBS off, and a few gems from the Grayland DXpedition are in this month's selected logs. All times are UTC.

540 KNMX Las Vegas, New Mexico, at 0801 on top of the channel with an ID in English, "You're listening to KNMX Las Vegas, your 5,000-watt powerhouse," into CNN news, then a variety of Spanish music. (Griffith, CO)

550 WDUN Gainesville, Georgia, at 1225 a decent signal with news, weather, local commercials and "WDUN, News/Talk 550" before fading out 10 minutes later as the sun rose. Rare catch here since WKRC Cincinnati virtually owns this frequency. Snared on a General Electric clock radio. (Smith, IN)

567 RTE Radio 1, Tullamore, Ireland, at 0556 a literary discussion mentioning Shakespeare and the saying, "To be or not to be, that is the question." Harp and piano music followed. Good signal. (Connelly, MA)

570 R.Reloj, Santa Clara, Cuba, at 0635 underneath WVMI, I heard what sounded like a "time ticker" station, seemingly marking each of the seconds until the 60th, when it broadcast a loud, long beep. Then a second or two later, I heard a distinctive "RR" in Morse code. (Smith, IN)

580 WCHS Charleston, West Virginia, at 0600 fair and fluttery with news followed by talk show. IDs as "Talk Radio 58" and "The Voice of Charleston." (Smith, IN)

600 WMT Cedar Rapids, Iowa, at 1636 fairly good with Open Line, a local-as-it-gets program dedicated to sharing recipes. That's right — listeners call in and read the ingredients of their favorite recipes while one of the hosts slowly jots them down. (Smith, IN)

600 CKAT North Bay, Ontario, at 0821 good with "Today's Country" ID and country music songs in rapid succession. Note: FCC Web site still lists this as CFCH. (Smith, IN)

600 WSJS Winston-Salem, North Carolina, at 1220 fairly good with news, weather and traffic reports. One of the strangest IDs around, "600-1200 WSJS," which refers to simulcasts with sister station WSML Graham, North Carolina. Frequent mentions of "the Triad" too, referring to the region. (Smith, IN)

610 KDAF Kansas City, Missouri, at 0605 fair to good, country music format and IDs as "61 Country," over the hum of lesser rivals. (Smith, IN)

630 CFCO Chatham, Ontario, at 0807 good and steady, playing a string of pop oldies from the '60s and '70s and a "Classic Gold CFCO" ID, lost steam 15 minutes later. (Smith, IN)

640 WOI Ames, Iowa, at 0845 an unstable signal, good at 0900 peak but fading out soon afterward. WOI gets my vote as the station most likely to cause a "Homer Simpson moment." The casual DXer tunes in 640 and hears British voices and a BBC ID, triggering a surge of adrenaline. Then comes the top of the hour, when a clear "This is WOI" ID prompts the frustrated exclamation, "D'oh!" (Smith, IN)

640 WWLS Oklahoma City, Oklahoma, at 1201 fair with "This is The Sports Animal" ID, sports news and an awful lot of ads. (Smith, IN)

650 CKOM Saskatoon, Saskatchewan, at 0858 an ID as "650 CKOM News Talk Radio," then local and regional news, taking turns at dominance with the unidentified Spanish that I keep hearing on a reciprocal bearing. Both fair to good at times in null of WSM. (Griffith, CO)

660 CFR Calgary, Alberta, at 0815 fair; CFR jingle, oldies music, "66 CFR, Calgary's home of good times and great oldies . . . Watch out for the 66 CFR Cruiser . . . Calgary's home of great oldies, 66 CFR!" with WFAN off. (Conti, NH)

660 XEDTL Mexico City, Mexico, at 0510 good; tropical music, "XEDTL 660 La Candela" ID with mention of power, then banda music, "Amplitud Musical" and "Amplitud Modulata" mentions, later the now familiar "colonia Xoco" full ID, with WFAN off for transmitter maintenance. (Conti, NH)

660 XEAR Tampico, Mexico, at 0830 good; Mexican "recuerdos" with nostalgic ranchera vocals, "Esta es La Mexicana XEAR" with a time check, and nostalgic vocals, while WFAN was off. (Conti, NH)

660 XEEY Aguascalientes, Mexico, at 0804 good; accordion vocals, "...Consentida, no no no no no" ID, and banda version of the theme from the Pink Panther, while WFAN was off. (Conti, NH)

680 CFTR Toronto, Ontario, at 0500, fair and fading amid battle with WPTF Raleigh, North Carolina. News, traffic and weather on CFTR, "Toronto's only all-news radio station." News and Rush Limbaugh on WPTF. (Smith, IN)

780 WBBM Chicago, Illinois, at 1138 a strong overnight signal, with news 24 hours a day. (Ressler, OH)

800 CKLW Windsor, Ontario, at 1242 a good signal with weather, commercials, and concert calendar report. (Ressler, OH)

880 CHQT Edmonton, Alberta, at 0605 Jim Croce "Bad, Bad Leroy Brown," announcement and jingle, then Blue Suede "Hook On a Feeling," ID as "Edmonton's new choice for good times and great oldies," a "Cool 880" jingle, and the Stampede "Sweet City Woman," WCBS was off. (Conti, NH)

880 KHAC Tse Bonito, New Mexico, at 0630 tentative; "...on the Moody Broadcasting Network" and Christian music while WCBS was off, the satellite network list on the Moody web site indicates KHAC Window Rock, AZ as the only affiliate on 880. (Conti, NH)

880 R. Progreso, Pinar del Rio, Cuba, at 0720 good; "Radio Progreso, la onda de la alegria" ID and nostalgia, dominant most of the time while WCBS was off for transmitter maintenance. (Conti, NH)

880 R. Paraguana, Punto Fijo, Venezuela, at 0854 faded up with "En Radio Paraguana" UTC-4 time check, WCBS was off. (Conti, NH)

890 KVOZ Del Mar Hills, Texas, at 1001 a good signal in null of WLS, ID in accented English, "From the beautiful Rio Grande valley in McAllen, Texas, you're listening to KUBR 1210 AM, San Juan, Texas," followed by about 28 AM & FM stations listed by call, frequency, and city in which KVOZ was identified as Laredo, Texas. (Griffith, CO)

900 WLSI Pikeville, Kentucky, and CHML, Hamilton, Ontario at 0110, flip-flopping on the frequency, each station claiming it with fair to good signals for about five minutes before yielding to the other. Both formats are easy to distinguish: WLSI presents country music, air personalities with thick Southern twangs, and on-air slogans such as "Your Old Friend" and "As Good As It Gets." CHML "Hometown Radio, The Heartbeat of



CHWO Toronto "Prime Time AM 740" used to be on 1250 kHz.

Greater Hamilton," plays pop oldies from "California Dreamin'" to "Tammy," and sponsors contests. (Smith, IN)

999 COPE Madrid, Spain, at 0503 Spanish news booming in; no interference since CKBW was apparently off at the time, and at 0448 a woman with news in Spanish; very strong with (again) no sign of usual CKBW. (Connelly, MA) CKBW is now on FM, thus the AM may be off the air.

1098 V7AD Majuro, Marshall Islands, at 0925 fair to good; mellow vocals, then at 1001 "V7AD World News Special" promo. (Conti, WA)

1134 JOQR Tokyo, Japan, at 1440 excellent; Japanese pop music, NCB network ID, "Countdown" program promo, and JOQR jingle. (Conti, WA)

1140 KSOO Sioux Falls, South Dakota, at 0125 surprisingly fair to good, finding a crack in the usually impenetrable armor of 50,000-watt powerhouse WRVA Richmond, Virginia. Broadcast of a Minnesota Twins baseball game, with local commercials and an ID, "11-four-oh, KSOO," held the frequency for 20 minutes before unconditional surrender to King Richmond. (Smith, IN)

1150 CKOC Hamilton, Ontario, at 0410 fairly good, darting in and out of the noise with an oldies pop music program.

IDs include "Southern Ontario's only 24-hour oldies radio station" and "Oldies 1150 CKOC." Distinctive music format and frequent songs make it easy to pull this station out of the stew. (Smith, IN)

1161 BCC Taiwan at 1600 fair; flute music leading to the top of the hour marked by four descending notes, a mid-note and beep, symphonic music, and announcements in Mandarin/Taiwanese language, either BED86 or BED89. (Conti, WA)

1242 JOLF Tokyo, Japan, at 1257 good; in-studio discussion, sounded like sports topics, cuckoo clock time pips marking the top of the hour. (Conti, WA)

1370 WLTC Gastonia, North Carolina, at 2320, good (briefly) atop moderate interference from WSPD Toledo, Ohio. Religious format; news, contemporary gospel music, announcements of church services, has the warm, folksy feel of a small-town church service. Mention of "1370 and 1490," the latter simulcast partner WGCD. (Smith, IN)

1420 WCLV Cleveland, Ohio, at 1220 a good signal with songs by Les Paul and Mary Ford. (Ressler, OH)

1475 RTM Kota Kinabalu, Malaysia, at 1210 in presumed Maylay or Tagalog language, pop/island music, fading signal sometimes 20 dB strong and at other times dropping to the noise floor, the only station on this non-standard frequency. (Conti, WA)

1503 DYBB Roxas City, Philippines, at 1300 fair; heard with Tagalog talk, ID as "D-Y-Double B, Super Roxas." (Martin, OR)

1620 WDND South Bend, Indiana, at 1156 a weak signal with fading, ESPN Radio sports talk. (Ressler, OH)

1680 WTIR Winter Garden, Florida, at 0540 fairly good with continuous visi-

tor information for the Orlando area, including weather, traffic information and commercials touting hotels, restaurants and travel packages. Locked in an x-band cage match with WJNZ Ada, Michigan, fair (usually underneath WTIR) with hip-hop music. (Smith, IN)

91.5 WKHR Bainbridge-Cleveland, Ohio, at 1337 with interference from 91.7 WYTN Youngstown, Ohio, but otherwise a good signal with big band music. (Ressler, OH)

Thanks to Mark Connelly, Patrick Griffith, Patrick Martin, David Ricquish, Brian Smith (Indiana), Brian Smith (Ontario) and Lawrence Ressler for their contributions this month. One final note from the National Association of Broadcasters (NAB) convention; the National Radio Systems Committee has endorsed daytime use of IBOC digital AM radio developed by iBiquity, full time FCC approval pending further study. Perhaps skywave reception of multiple digital signals on a frequency is a concern? 73 and good DX! ■

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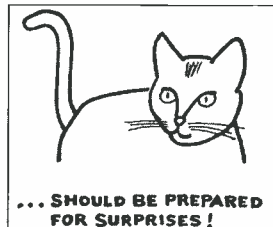
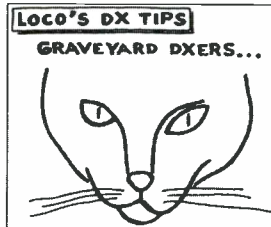
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LOCO THE DX CAT by Bruce Conti



Replicating Vintage Resistors

It would difficult, if not impossible, for one person to author a column such as this without eventually running out of material, original ideas, or projects. I'll admit to being at the end of my rope more than once as deadlines loomed and a very anxious Editor-In-Chief Harold awaited my material! Thus, I often turn to reader's letters, or to the Internet, in search of fresh column material. So it was when I first heard of Sylvain Vanier's plans to make reproductions of early dog bone resistors in his home workshop via an Internet newsgroup, I knew that this was something worth sharing with you! Sylvain is a gentleman of many talents, and I was elated when Sylvain agreed to allow his material to be presented in this edition of the "Wireless Connection!" Here's Sylvain's technique for making reproduction dog bone resistors, including step-by-step photos.

Reproducing Dog Bone Resistors

This article describes the technique used to replicate antique resistors, known as "dog bone" resistors. If done properly, it will be nearly impossible to tell the reproduced part from an original.

These resistors, usually found in 1930s radios, originally consisted of a carbon composition encapsulated in ceramic or a similar substance. The wire leads are turned around the edges (see Fig. 1). These resistors came in various sizes — you can choose to create the mold from either a defective resistor or from a sample resistor from a radio. The process of creating a mold from the original is non destructive, however, in some cases the paint might be damaged or removed. Merely note the value of the resistor should the process remove the paint so you can repaint the original colors.

Some resistors built prior to RMA standards may bear different color codes. If you chose to mold replacement resistors in advance for stock, which may be used in a pre-RMA radios, you could write the value of the resistor on the unit before they are painted as needed.

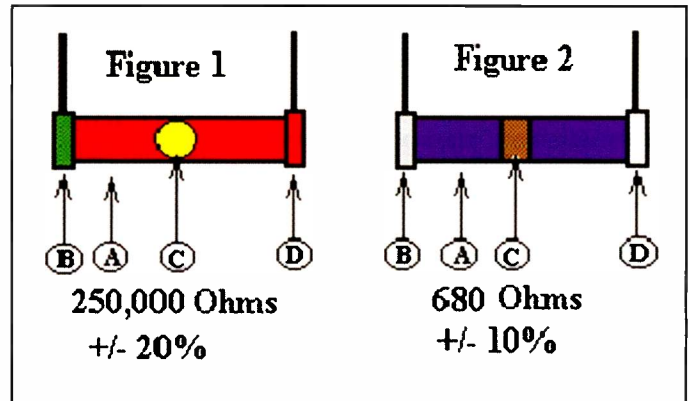
Making The Mold

Although there are specialized products for making molds, like RTV (two parts fast setting silicones), casting rubbers, and silicones, I prefer to use the same product used for the dog bone resistor bodies — in this case putty epoxy.

Putty epoxy is fast curing, drying hard in less than five minutes. Other types of mold-making products could be used but considerations must be made for heat resistance of a product subject to heat in a radio.

The old dog bone resistors came in a variety of shapes. Some were cylindrical or round — others were hex shaped and a third style have metal end caps.

For now, I will explain how to replicate the hexagonal-shaped ones. (The other varieties can be done as well.) Another option would be to use the case of a BIC pen, or similar, cut to the cor-



Color code schemes for some early dog-bone resistors.

rect length and having two pieces of 18-20 gauge wire wrapped around the ends to create the form for the lead wires.

First Half Of Mold

Putty epoxy isn't as sticky as liquid epoxy. But, the use of talcum powder (baby powder) is highly recommended when either manipulating the epoxy or covering the sample resistor.

Cut and mix the two parts together until the color becomes uniform. Cover your hands with talcum powder to keep the epoxy from sticking to your fingers. You will feel heat build up as you mix the putty. If the color is now uniform it's ready to mold the resistor.

Shape a nice oval blob of the epoxy and press it on a hard, flat surface. The epoxy may stick to a surface so I recommend using a waxed paper.

Check it by pressing a fingernail in the putty. Cover the resistor with talcum powder to provide a release agent then press it lengthwise half way into the putty. Wait about five to 10 minutes for the putty to harden.

Second Half Of Mold

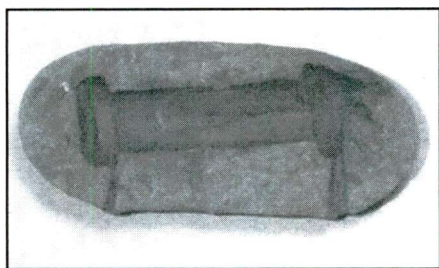
Next, cover the bottom part of the mold and resistor with talcum powder then prepare another blob of putty about the same size as the first one. Then place it on top of the lower half of the mold.

Choose the appropriate size wattage and value modern resistor to be molded in the dog bone form. If leads on the replacement resistor are too short, you can solder longer leads on before molding.

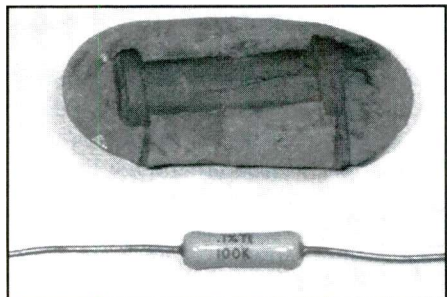
Metal film resistors are highly recommended, but carbon film composition resistors can also be used. The metal film resistors



Plumber's putty-type epoxy used for making molds and resistors.



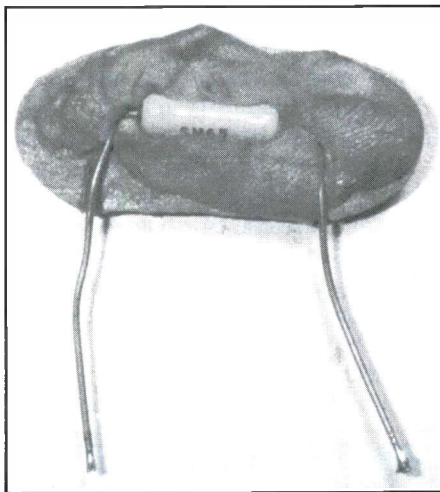
Both halves of the mold are shown.



A modern precision resistor is readied for use in this example.

come in all values and are usually smaller in shape for similar wattage compared to the carbon film ones. Benefits are higher precision and stability (1%) — they are impervious to humidity and more stable (value wise) under heat. The drawback is they cost more than double the carbon type. But we are talking about a dime a piece here.

The next step is to cover the mold with a bit of talcum powder first before putting



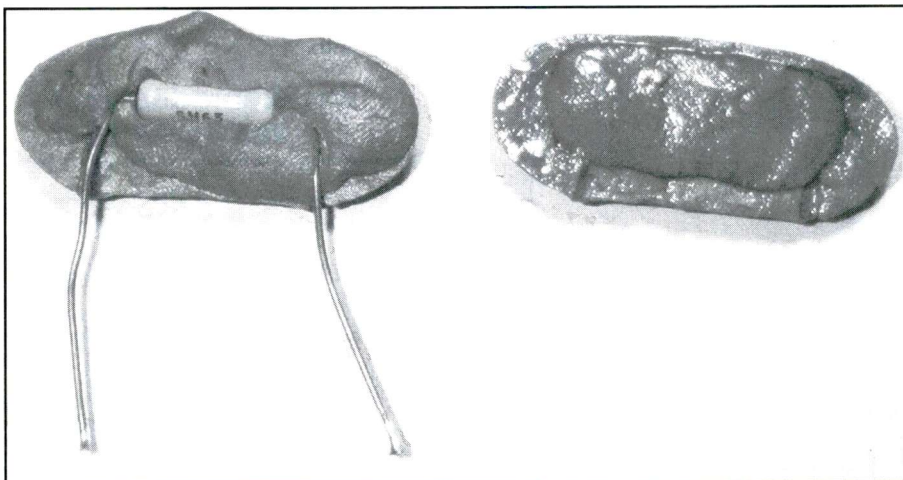
The precision resistor is fitted into the mold. Note the fresh epoxy that will form the new dog-bone-style resistor body. Don't forget to apply the talcum powder releasing agent to the mold or resistor body!

- Putty epoxy
- Dog bone resistor
- Baby powder
- Artist's acrylic paint OR
- Model paint (enamel)
- Silicone (spray can) OR
- LPS oil spray can (Used in lieu of baby powder as a mold release)
- Small paintbrush

Table 1: List of materials needed to make reproduction dog bone resistors

the putty in. Just blow away the excess powder, and press the putty in. If you forget the talcum powder, you're in trouble. You'll never be able to part surfaces without damage!

Mix enough putty to fill in the mold. Press fit the new resistor in the first half



Both halves of the mold are ready to be placed together. Note the added blob of fresh epoxy in the second half of the mold.

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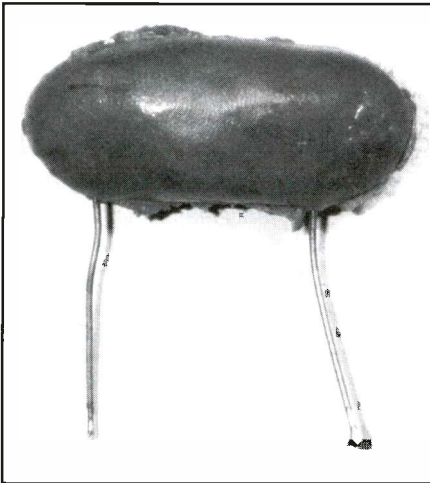
of the mold after filling it with a bit of putty. Fill in the other half of the mold with the remaining putty then firmly press both halves of the mold together.

Maintain pressure on the mold until the excess (flashing) becomes hard to the touch. This will take about five to 10 minutes depending upon room temperature. Use a sharp-bladed instrument to separate both halves of the mold, and carefully remove the resistor.

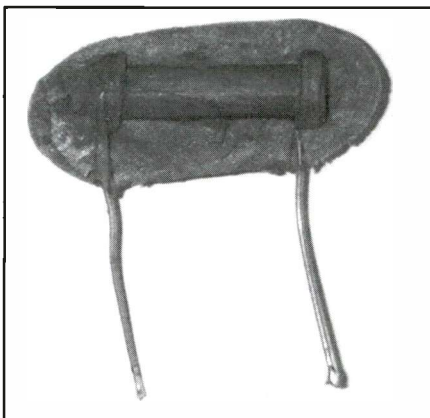
Removing the excess of flashing from the resistor is easy. Use an X-Acto knife or similar handcrafting knife to trim the "flashing" off the resistor. This is a one-minute job and doesn't need to be perfect — the resistor will be painted after, so any tiny scratch or defect will add to originality and look closely like the original resistor — not perfect, it's 1930's technology!

Painting The Resistor Body

I recommend the use of artist's acrylic paint. However, if a glossier finish is



Both halves of the mold are then pressed together, forcing the excess epoxy out. Deburring will be necessary once the resistor is removed from the mold.



Opening the molds reveals a new resistor — can this be called NOS?



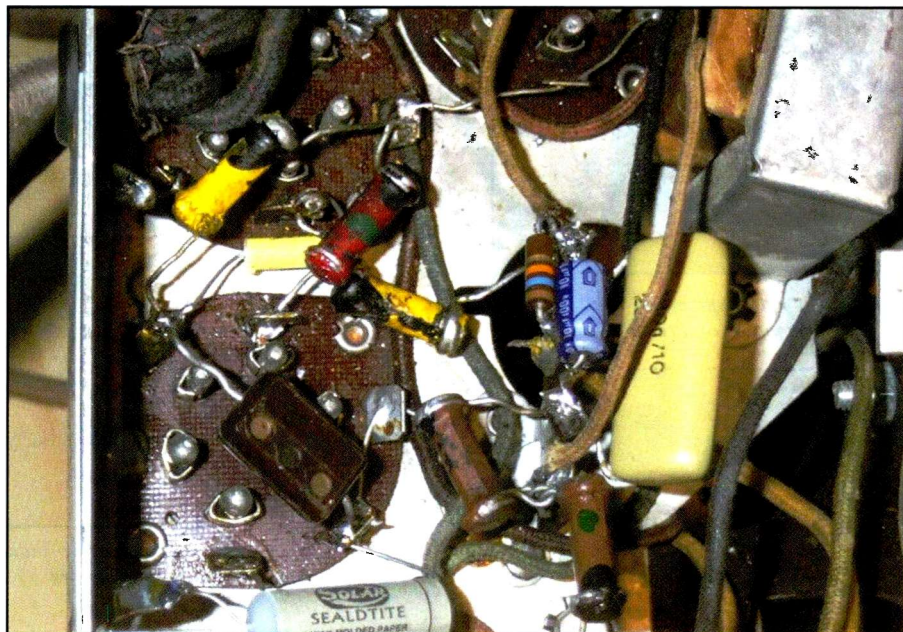
The finished product. Deburred, painted, and ready for use!

Restoration Tips — Slipping Dial Cords!

Dial cord can stretch with age, and dial slippage can occur. Before going through the expense (minimal) and bother (sometimes not so trivial!) of restringing the set, there are a few tricks you should try first.

Visit a local musicians' store and ask for a block of musician's resin. This is used on bows for stringed instruments. At home, scrape some of the rosin and mix with alcohol or acetone base. Once the rosin is dissolved, you'll have an almost lifetime supply. Keep it stored in a small air-tight glass vial — acetone and plastics do not get along very well. Simply apply the solution to the dial cord, and once the carrier has evaporated, the rosin will remain on the string and provide the necessary friction for slip-free tuning.

Check the dial cord for flattening (where it goes around the smaller windlass) and fraying — both signs that the cord is nearing the end of its useful life.



Repro resistor in place, can you spot it? Hint — compare the colors on the resistor in Photo 8! [Notice that blue Solar brand Sealdtite wax-paper cap at the lower left? I strongly suspect that is one of Sylvain's capacitor replication efforts! —Peter]

desired you could use plastic model enamel paint. I haven't tried using modeling paint so you'll need to check that it will tolerate the temperatures it will encounter in the radio.

Why Reproduction Resistors?

Thank you, Sylvain! That is great material. I should note that the examples shown above are 1/4 or 1/2-watt styles, and that by making larger molds the two-watt dog bone resistors could also be reproduced using similar methods. Now, I'm sure a few of you are asking why bother to reproduce resistors in the first place? I've mentioned since the first column that under the radio's chassis is usually considered the restorer's domain — so long as it can't be seen it's fine to replace vintage parts with modern counterparts.

Times are changing. Many restorers are beginning to rethink was recently acceptable practices. Remember when I showed you how to rebuild the Bakelite boat capacitors used in Philco radios for decades? That's an example of under-chassis restoration work that preserves the original factory look. Why? Well, as certain radios become rarer, more desirable, and older, many collectors are becoming more concerned with preserving as much of the set as they can, including the under-chassis appearances. I'll admit to having a few sets, particularly my Atwater Kent model 82 cathedral, that remain unrestored until I can do so in the manner that would be done by Sylvain and others.

Reference 1: Used with permission of Sylvain Vanier, Dennis Daly, © 2002, All rights reserved. ■

Getting Down To Business: Tons Of Your Utility Logs!

This month I'm taking a little break in order to continue some research that I'm working on. This is part of my now on-going look at the modern world of ute radio communications. One thing that is becoming very apparent to me is how the events of September 11th have changed the strategic use of radio communications through out the world.

Over the next few months I'm going to be delving deeper into the ways in which computers and computer networking has transformed the way in which we use the HF radio spectrum. Yes, you can still hear voice and CW communications, not to mention other digital modes such as RTTY, Pactor, ARQ — to name only a few. However, TCP/IP based modes, which allow data and E-mail to be transferred wirelessly, are beginning to increase in frequency of use.

While doing this the basics of utility monitoring will not be forgotten. Each month I'll be providing a sidebar on such topics as short forms, phonetics, foreign language expressions, modes, services, and more. What do you want to see? Send along your suggestions and I'll start incorporating them as soon as I can.

Meantime this month still has a very good selection of logs from you, so let's get right to them.

Reader's Logs

There is wide selection of HF action taking place in this month's logs. Coverage is both local and global, with representation from all of the services. Please note that all frequencies are in Kilohertz.

00000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000 Z (Z), personal comments here (JC)

3324: RFFXCFB: French mil 20.20 ARQ-E 184.6/400 5-lg tfc to RFFXCFA. (PT)

3501: RFFXCFA: French mil 20.20 ARQ-E 184.6/400 5-lg tfc to RFFXCFB. (PT)

4424.4: DHJ58 GN GLUCKSBURG RTTY//75/N/850 Periodic (Ev two mins) marker "DHJ58/14/15 rgfbbg g22a 570 RY's or SG's DHJ58 zkr p2 nnnn" then tfc in EE re exercise Strong Resolve 02 in S Baltic and in offline encrypt. (DW)

4525: 5ST: ASECNA Antan 0250 RTTY 100/400 Aero WX. (RH2)

4897.3: UNID: UNID! Unlisted?? 0335 fax 120/576 Blurred chart! (RH2)

5055: RFFXCCS: French mil 20.10 ARQ-E 184.6/400 5-lg tfc to RFFXCFB on UBF cct and at 07.25 "NE POUVONS RELAYER VOS MSG STATION RFFXCFA EXCERCICE TERMINEE." (PT)

5063: RFFXCFB: French mil 20.10 ARQ-E 184.6/400 5-lg tfc to RFFXCFA on UAF cct. (PT)

5226: RFFXCFA: UNID French mil 15.40 ARQ-E 184.5/400 5-lf tfc to RFFXCFB on UFA cct. (PT)

5315: SAB GW NODE GOETEBORG CW Chan free marker (Globe Wireless) "SAB." (DW)

5433: SAB GW NODE GOETEBORG CW Chan free marker (Globe Wireless) "SAB." (DW)

5517: Cairo (MWARA AFI-3): 0108 w/Tripoli (Libya) in radio checks. (RP)

5550: New York (MWARA CAR-A): 0149 w/HB-IUU (IAI 1126 ASTRA-GALAXY) and Cuba 444 in position reports. (RP)

5687.5: IMB ROME METRTTY//50/R/850 Met tfc. (DW)

5687.5: UNID: Location unknown 19.58 ITA2 50/850 Meteo station with mainly eastern Med WX. Previously seen on 5887.5 (PT)

5696: CG2134 w/ CAMSLANT Chesapeake rptng flt ops. (DS2)

5696: CG6501 w/ Detroit Air rptng flt ops.

5696: CG2134 w/ Detroit Air. Switching guard from CAMSLANT to Detroit Air. reporting ETA at Cleveland.

5696: Camslant Chesapeake: 1806 USB w/CG 1500 (HC-130, CGAS Elizabeth City) reporting airborne for local training flight. (RP)

5696: Camslant Chesapeake: 1806 USB w/CG 1500 (HC-130, CGAS Elizabeth City) reporting airborne for local training flight. (RP)

5740: RFFXCFB: UNID French mil 15.45 ARQ-E 184.5/400 5-lg tfc to RFFXCFA on UAF cct (PT)

5757: UNID: French Mil 21.50 ARQ-E 184.6/400 tfc to or from RFFXCCS. Very poor RX and poor circuit. Cct ID is U?? and UBF mentioned in svc tfc. Looks like army exercise (PT)

5758: UNID with 5-letter groups in CW at 0230. (CG)

5779.5: UNID: Spain 20.35 ARQ 100/400 Spanish police with enc tfc and SS svc tfc to Madrid (TXXX) (PT)

5848.5: UNID: Spain 20.00 ARQ 100/400 Police with end of message in SS then calls selcalls TWVV, Valadolid, and TWVP, Palencia but no more tfc (PT)

5881.9: UNID: Rumanian Oil Rig? 0346 RTTY 50/400 Looked Rum Oil Tech chat! (RH2)

5887.5: IMB ROME METRTTY//50/R/850 Met tfc. Hvy bdest qrm (DW)

5887.5: UNID: Location unknown 20.00 ITA2 50/850 Meteo station sending WX info for mainly eastern Mediterranean locations but including some others. (PT)

6379: 4XZ. Haifa, Israeli Navy with 5-character groups in CW at 0210. (CG)

6496: CFH: CF Halifax 0555 RTTY 75/850 WX forecasts. (RH2)

6496.4: CFH: CF Halifax 0257 RTTY 75/850 Aero WX // 4270.7. (RH2)

6604: New York Radio followed immediately by Gander Radio with aviation WX in USB at 0150. (CG)

6643.2: — UNID ARQ/E//192/E/170 4rc. Betas. Weak, poor sync. (DW)

6754: UNID with aviation WX for Canadian cities. Frequent references to "Trenton," so probably Trenton Military CANFORCE as others have reported here. USB from 2325-2330. (CG)

6779: DHJ-59 (German Navy, Wilhelms-haven): 0240 USB w/DRES (FGS WEIDEN, MINE HUNTER M-1060) in EE servicing of RTTY traffic. (RP)

6986: UNID YL with British accent with coded letters. Sent multiple messages, each began with figures. AM from 2307-2315. (CG)

7569.9: — TASHKENT MET FAX//90/576/N/800 End of chart, but can recognize E Med, N Red Sea, N Persian Gulf. (DW)

7582: MKD RAF AKROTIRI PICC//VFT on USB. 2 chan vft. (DW)

7582.5: MKD RAF AKROTIRI PICC//7582.510. Eng chan. On Standby. (DW)

7582.5: MKD RAF AKROTIRI PICC//7582.510. Eng chan, standby. "GEP44 de MKD cip lololo k zub 0349." (DW)

7582.5: MKD: Akrotiri, Cyprus 20.05 Piccolo 6 Op chat to GEP44, location unknown. (PT)

7582.9: MKD RAF AKROTIRI PICC//7582.910. 6 tone tfc channel — online encrypted. (DW)

7925: Outlanders, Spanish sailors net with WX for north-east Atlantic Sea, SS 2045 USB. (LA)

8105: FAVIERES: Nr Paris, France 21.13 ARQ-E 184.6/400 Svc msg to RFFXL, Naqoura, on XXL cct. (PT)

8191.7: 9MR: Malay Navrad 1705 RTTY 50/850 "Fm HQ FOC MRN" to "COG PQ PAQ) Report in EE on current naval exercises with "Nothing heard on Lines 14a & 14b" — "Establish comms now immediate!," repeated. Ship hit a rock? (RH2)

8303: LOR/PNR: AN Puerto Belgrano 0545 RTTY 75/170 5LG after "GENOIO." (RH2)

8402.5: UDHL: MV Staryi Arbat 20.00 ITA2 50/200 Calling UIW, Kaliningrad Radio, with RYRYs then into RR tfc. (PT)

8420.5: CBV Valparaiso rdo CHL 1035 CW id & ARQ tuning. (ML)

8424: CBV Valparaiso rdo CHL 1030 CW id & ARQ tuning. (ML)

8555: SPB, Szczecin radio, at 0050 in CW with ID and channel free signal. (RW)

8661.4: VCT GW NODE NEWFOUNDLAND CW Chan free marker (Globe Wireless) "VCT." (DW)

8682: NMC: USCG San Francisco 0314 fax 120/576 Poor chart. (RH2)

8743: Bankok Meteorological Radio, jingle and TX schedule, follow WX, EE 2215 USB. (LA)

8885: 015 ARINC BAHRAIN HF DL// on USB. Squitters. 2347. Uplink to UNID a/c "ICAO 0 invalid AID2. (DW)

8962: O/M (SS): 0348 USB w/O/M (SS). (RP)

8971: Fiddle (TSC, Jacksonville NAS) 1749 USB tells FIGHTING TIGER 71H (P-3C, Brunswick NAS VP-8 Sqdn) to ctct home unit ASAP. 71H announces Spare Group 2. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1911 USB wkg QUARTET 713 (P-3C) who rqsts radio check in the green, then a switch to UHF in the red. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1938 USB wkg QUARTET 712 (P-3C) for radio check in the red. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1946 USB FIGHTING TIGER 71H (P-3C, Brunswick NAS VP-8 Sqdn) rqsts WX for Patuxent River, then Willow Grove. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) USB MAD FOX 01 (P-3C, Jacksonville VP-5 Sqdn) rqsts radio check on 5 MHz freq. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1749 USB tells FIGHTING TIGER 71H (P-3C, Brunswick NAS VP-8 Sqdn) to ctct home unit ASAP. 71H announces Spare Group 2. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1911 USB wkg QUARTET 713 (P-3C) who rqsts radio check in the green, then a switch to UHF in the red. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1938 USB wkg QUARTET 712 (P-3C) for radio check in the red. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) 1946 USB FIGHTING TIGER 71H (P-3C, Brunswick NAS VP-8 Sqdn) rqsts WX for Patuxent River, then Willow Grove. (ALS)

8971: Fiddle (TSC, Jacksonville NAS) USB MAD FOX 01 (P-3C, Jacksonville VP-5 Sqdn) rqsts radio check on 5 MHz freq. (ALS)

8971: Golden Hawk (TSCC, NAS Brunswick): USB calling Fighting Tiger 25 (P-3C VP-8, NAS Brunswick) w/no response. (RP)

8971: Golden Hawk (TSCC, NAS Brunswick): USB calling Fighting Tiger 25 (P-3C VP-8, NAS Brunswick) w/no response. (RP)

8980: "1701" with pos. report 25N 079W to Miami, 2110 USB. (LA)

8983: CAMSLANT-Chesapeake 0025 USB wkg CG 1701 (HC-130, Clearwater CGAS); acft is RTB, on final approach, guard secured. (ALS)

8992: Andrews GHFS 2334 USB wkg QUARTET 712 (P-3C) who also IDs as LIMA LIMA 58 (P-3C from Jacksonville VP-30 "Pro's Nest" Sqdn) w pp to DSN 942-3060 and 942-3030, both Jacksonville NAS VP-30 Duty Office to report maint issues. (ALS)

8992: Andrews GHFS 2334 USB wkg QUARTET 712 (P-3C) who also IDs as LIMA LIMA 58 (P-3C from Jacksonville VP-30 "Pro's Nest" Sqdn) w pp to DSN 942-3060 and 942-3030, both Jacksonville NAS VP-30 Duty Office to report maint issues. (ALS)

8992: DUSTY 43 wrking Dyess Metro via pp Offutt. (DS2)

8992: SODA 51 rdo chk with DUSTY 43

9040.7: 5YE: Nairobi Meteo 0254 RTTY 100/850 RY/ID. (RH2)

9041: 5YE NAIROBI MET RTTY//100/N/850 Met tfc and "CQ de 5YE RY's." (DW)

9044.9: 5YE NAIROBI MET FAX//180/N/800 Charts for Africa. 2233 sig WX charts. 2245 sig WX for Kenya. (DW)

9110: NMF: Boston, USA 19.40 FAX 120/576 Atlantic weather chart. (PT)

9130: GYA: RN Faslane 1811 RTTY 75/400 Carbs. (RH2)

9238.2: FJY4: DTRE Amsterdam I0324 ARQ-E3 200/400 Betas. (RH2)

9247.2: FJY2: DTRE Kerguelen I0319 ARQ-E3 200/400 Betas. (RH2)

10000: UNID: French mil 16.56 ARQ-E 184.6/400 Idling with bteas. (PT)

10027: O/M (Czech): 0019 USB w/aircraft (O/M Czech) w/volmet. Probably Czech Airlines LD0C. (RP)

10045: 4XZ, Haifa Naval Radio, at 0050 in CW sending V markers. (RW)

10084: 05 ARINC Auckland 0945 HF DL squitters. (ML)

10100.8: DDK9: Hamburg Meteo 0300 RTTY 50/400 CQ/RY/ID // 4883/7646. (RH2)

10192.6: DHJ-59 (German Navy, Wilhelmshaven): 2045 USB in EE servicing of RTTY traffic w/UNID identified vessel. (RP)

10482.3: RFFTC: Aix, France 19.31 ARQ-E3 100/400 AIR BRIGEND AIX with tfc in FF to RFVIPP/AIG2265 on IRE, Paris to Le Port, cct. (PT)

10498: UNID: French mil. 20.22 ARQ-E 72/400 Idles with betas into the night. (PT)

10536.5: CFH: CF Halifax 0615 fax 120/576 WX chart. (RH2)

10548: UNID: CIS Rail? 1721 81-81 81/240. (RH2)

10801.7: rfl i FF FT DE FRANCE ARQ/E3//192/E/400 8rc. Betas. Cde v RFLI de RFLI svc. Tfc in offline encrypt. Variable copy. Cct [IRT]. (DW)

10801.7: FF UNID ARQ/E//192/E/400 8rc. m/path; poor/little sync. Tfc (WX fest — mentions Sud-Antilles) followed by C de v svc — most corrupt. (DW)

10820: ROMANIAN MIL/MOI BUCHAREST MIL.STD 188-141A ALE on USB. Followed by very brief Mil.std 188-110A psk. (DW)

10891: WWJ48, FAA Lakewood, CO, USA, OM/EE 2222 USB. (LA)

11080: YKP80 SANA DAMASCUS ARA-BIC//50/R/850 Press in AA (ATU70), EE and FF thru 1815. (DW)

11080: UNID: San'a Damascus 1634 RTTY 50/850 Nx\AA. (RH2)

11086.5: GYA: RN Northwood 0309 fax 120/576 Fair chart. (RH2)

11125: HZN: Jeddah Meteo 1651 RTTY 100/850 WX codes. (RH2)

11125: UNID: CIS Rail? 1735 81-81 81/210. (RH2)

11126: MFA ROME? ARQ/RS//228.5/E/170 5bit mode. On line encrypted. No recognizable headers. (DW)

11175: Andrews GHFS 2057 USB wkg EC 5T pp to DSN 476-2108 Tiger Base at Brunswick NAS. IDs to Tiger Base as Acft 314; will RTB Brunswick; might have WX divert to Willow Grove. (ALS)

11175: Andrews GHFS 2310 USB wkg SHARK 26 (poss C-130 or C-27) pp DSN 860-9562 San Juan Coronet Oak Ops; is en rt Rosey Roads NAS, PR. (ALS)

11175: Andrews GHFS 2314 USB wkg SHARK 26 (poss C-130 or C-27) pp DSN 483-5838 Smasher Ops (SOUTHAF Flight Monitoring Facility, Key West NAS); passes 0330 ETA at TJNR; has intermittent Mode 3 transponder; position 16-44N, 85-32W at FL 170, speed 272 knots, 062 course. (ALS)

11175: Andrews GHFS 1953 USB wkg RESEARCHER 589 (NP-3D #154589) pp to DSN 342-3743 (Patuxent River NAS), switches to Ext 21962, re ETA Pax River. (ALS)

11175: Andrews GHFS 2057 USB wkg EC 5T pp to DSN 476-2108 Tiger Base at Brunswick NAS. IDs to Tiger Base as Acft 314; will RTB Brunswick; might have WX divert to Willow Grove. (ALS)

11175: Andrews GHFS 2102 USB wkg NAVY TRACTOR 1 pp to DSN 582-2233 Cherry Point. Asks status of playmate TRACTOR 2, who had departed 201. (ALS)

11175: Lajes GHFS 2142 USB wkg REACH 852Y pp to Lajes Metro re Lajes WX at 0245 and LPPD (Ponta Delgada, Azores) WX at 0145. (ALS)

11175: Andrews GHFS 2310 USB wkg SHARK 26 (poss C-130 or C-27) pp DSN 860-9562 San Juan Coronet Oak Ops; is en rt Rosey Roads NAS, PR. (ALS)

11175: Andrews GHFS 2314 USB wkg SHARK 26 (poss C-130 or C-27) pp DSN 483-5838 Smasher Ops (SOUTHAF Flight Monitoring Facility, Key West NAS); passes 0330 ETA at TJNR; has intermittent Mode 3 transponder; position 16-44N, 85-32W at FL 170, speed 272 knots, 062 course. (ALS)

11175: Andrews GHFS 2324 USB wkg LIMA DELTA 210 (P-3C, Brunswick VP-10 Sqdn) for radio check. (ALS)

11175: Lajes GHFS 2345 USB wkg REACH 207 (Little Rock 463AG C-130 #92-0548) pp DSN 314-266-1184 and -1270, attempting to reach Souda Bay, Crete Igsa Metro. No answer at numbers; the -1184 number should have been -1284. (ALS)

11175: Andrews GHFS 2353 USB wkg

REACH 304Y (McChord 62AW C-17A 98-0049) pp. 304Y is unable to meet schedule to depart Austrian airspace; will be over Austrian airspace for 20 minutes beyond deadline. (ALS)

11175: Andrews GHFS 2359 USB wkg REACH 207 (Little Rock 463AG C-130 #92-0548) pp Metro re WX at LGSA (Souda Bay, Crete) at 0100. (ALS)

11175: FANDANGO with p/p via McClellan to Offutt Metro (also referred to as "3459"). Requested WX info at Offutt in USB from 1555-1601. (CG)

11175: Navy JU170 with p/p via Andrews to Norfolk AMC in USB from 1602-1606. (CG)

11175: Andrews requesting radio check, no joy. USB at 1613. (CG)

11175: REACH 448 calling Mainsail for radio check. Answered by Offutt, but he did not hear Offutt. USB at 1626. (CG)

11175: REACH 2148 calling Mainsail, no joy. USB at 1638. (CG)

11175: Andrews calling "any station" for radio check, no joy. USB at 1521. (CG)

11175: Test count from Offutt in USB at 1525. (CG)

11175: SPAR95 requesting radio check, answered by Offutt in USB at 1526. (CG)

11175: Two stations, both identifying as "Andrews" in QSO for radio check, indicating "weak but readable." USB at 1528. (CG)

11175: S4JG calling Mainsail for radio check, answered by Offutt and Puerto Rico in USB at 1533. (CG)

11175: Aircraft 286 calling "any station" for radio check, answered by Offutt in USB at 1539. (CG)

11175: Navy 50515 calling Andrews for radio check, reported weak. Also had QSO with Puerto Rico. USB at 1547. (CG)

11175: 28-letter coded message directed to "all stations" from Andrews in USB at 1705. (CG)

11175: SAM300 with p/p to SAM Command via Andrews. Discussed ETA and other info. Then, second p/p to MacDill Base Ops. Discussed ETA, parking locations and active runway. Third p/p to McDill Metro for WX info. USB from 1708-1718. (CG)

11175: ANVIL74 calling Mainsail, answered by Andrews, but ANVIL74 apparently could not hear Andrews. Offutt also tried calling ANVIL74 with no joy. USB at 1719. (CG)

11175: AirEvac 6132 wrking Roosevelt Roads via pp Puerto Rico. (DS2)

11175: JESSE 98 working security police abt Customs when they arrive at St Jo's via pp Andrews. (DS2)

11175: Air Force One, up w/radio check to Andrews AFB at 1535. (TZ)

11220: Andrews: 2009 USB w/Fendy 88 in pp to EUCOM CP w/arrival info. Also wanted WX for Gander, Newfoundland.. (RP)

11220: Andrews: 2009 USB w/Fendy 88 in pp to EUCOM CP w/arrival info. Also wanted WX for Gander, Newfoundland. (RP)

11227: O/M (possible Tagalog mixed w/EE): 2315 USB w/Y/L (possible Tagalog mixed w/EE). (RP)

11232: CANFORCE 4218 wrking Trenton Military with WX t/c. Prop. not good so Trenton suggests freq change to 13257. (DS2)

11232: Trenton Military: 0242 USB w/Razor 35 (E-8C JSTARS, Robins AFB) terminating pp. (RP)

11232: Trenton Military: 2117 USB w/Canforce 2679 (CC-130E # 130311, 413th Sqdn CFB Greenwood) reporting departure from Little Rock AFB and ETA Trenton. Also w/WX for Ottawa & Trenton and selcal check (GH-AD). (RP)

11247: Cyprus Flight Watch: 0415 USB w/volmet. (RP)

11275: O/M (EE): 2227 USB w/O/M (EE) in commercial fishing related chat. Usual "salty" language. Accents are New England. Probable Georges Banks fishermen. (RP)

11275: O/M (EE): 2227 USB w/O/M (EE) in commercial fishing related chat. Usual "salty" language. Accents are New England. Probable Georges Banks fishermen. (RP)

11279: Rekyavik (MWARA NAT-D): 2358 USB w/Iberia 3152 (unheard) in position report. (RP)

11279: Rekyavik (MWARA NAT-D): 2358 USB w/Iberia 3152 (unheard) in position report. (RP)

11315: O/M (UNIDentified language): 2307 USB w/O/M (UNIDentified language). (RP)

11342: ARINC NY: 2242 USB w/Reach 709 establishing radio watch on 8906 & 5598. (RP)

11361: O/M (SS mixed w/EE): 2309 USB w/O/M (SS mixed w/EE). Contacts establishing by whistling. (RP)

11392: O/M (African language mixed w/FF): 2232 USB w/O/M (African language mixed w/FF). (7/APR/02)

11400: O/M (SS): 0020 USB w/O/M (SS). (RP)

11400: O/M (SS): 0020 USB w/O/M (SS). (RP)

11437: O/M (SS): 0018 USB w/O/M (SS). (RP)

11445: O/M (Vietnamese): 0046 USB w/O/M (Vietnamese). (RP)

11460: Encrypted voice: 2310 USB. (RP)

11494: Service Center: 2255 USB w/possibly Hammer (US Customs DAICC, March AFB, CA) in the clear. (RP)

11500: O/M (Arabic): 0412 USB w/O/M (Arabic). Personal conversation. Use first names as identifiers. (RP)

11510: O/M (IT): 2141 USB w/O/M (IT). (RP)

11530: br1 BN BRASILIA ? MIL.STD 188-141A on USB. Very long call sequence to RS1. Rptd 2359. (DW)

11592.5: MKD RAF AKROTIRI PICC// 11592.510. Eng chan in vft on standby thru 0732. (DW)

11592.5: MKD: Akrotiri, Cyprus 20.09 Piccolo 6 Op chat to GEP44. Goes to 7582.5 after 20.30 (PT)

12134: RFHI: FF Noumea 1655 Arq-E3 100/400 Betas. (RH2)

12161.7: DGD: Algiers, Algeria 15.40 Pactor Customs service with t/c in FF to ILA, Illizi. (PT)

12178: DHJ-59 (German Navy, Wilhelms-haven): 0028 USB w/DRAF (FGS MOLDERS, TYPE 103B DESTROYER (D-186) in EE servicing of RTTY traffic. (RP)

12178: DHJ-59 (German Navy, Wilhelmshaven): 2350 USB w/DRAO (FGS LUEBECK, FRIGATE 122 CLASS, F-214) in EE servicing of RTTY traffic. (RP)

12533: UBOF STR Sposobnyj 1015 RTTY 50/170 crew msgs to unkwn. (ML)

12570: UCKP TH Sanni Tina 1033 ARQ t/c to Vladivostok. (ML)

12570: UDVB PB Vsevolod Sibirtsev 1000 ARQ t/c to Vladivostok, 54864 UDVB log on. (ML)

12570: UGPB TK Kapitan Nijnetchenko (ex Galv'e) 1021 ARQ svc msg to Vladivostok. (ML)

12570: UIEH TK Mys Kadosh 1038 ARQ crew msg to Vladivostok, 54074 UIEH log on. (ML)

12577: ZSC GW NODE CAPETOWN CW Spurious chan free marker (Globe Wireless) "ZSC". (DW)

12577: SHIP UNID SITOR/A//100/E/170 Selcals XMFV — illegal calling of Hong-Kong/VRX on GMDSS DSC alert channel.

12586: UGH2 Yuzhno-Sakhalinsk rdo RUS 1050 ARQ msg to unkwn vsl, c/s tent as none seen in t/c. (ML)

12664.5: FUA04/12 FN TOULON RTTY//75/N/850 Marker "NAWS de FUA04/12 testing ry's sg's figs." (DW)

12666.5: FUG FN LA REGINE RTTY//150/N/850 Marker "FAA de FUG ry's sg's figs". Note (1) "de de ed ed ed" and (2) spurii on 12657.2/12661.8/12671.5/12675.8. (DW)

12711: PWZ33 BN RIO DE JANEIRO RTTY//75/N/850 40 hz low. Nav wngs ? in Portuguese. Poor copy. (DW)

12730.5: NMC: USCG San Francisco 1720 fax 120/576Fair chart. (RH2)

12902.8: VTH IN MUMBAI RTTY//50/R/850 Marker "VTH 1/5/7 rbsl bnr ry's sg's." 2300 t/c bdcast to VWGZ. T/c (x2) in offline encrypt (four gfig grps). 2306 revert to marker. (DW)

13060: CLA, radio Havana, with CQ markers from 0400 in CW. (RW)

13098: Y/L (RR): 1805 USB w/O/M (RR). Radio-telephone link. (RP)

13098: Y/L (RR): 1805 USB w/O/M (RR). Radio-telephone link. (RP)

13149: XSQ GUANGZHOU RADIO USB// Wkng ships. Link calls in Chinese. (DW)

13149: EHY MADRID RADIO USB// Vri short F1b burst and CW marker "de EHY" at +1 kHz every 5 minutes. (DW)

13149: ASIUK MIL ASCENSION MIL.STD 188-141A ALE on USB. Sounding. (DW)

13149: CYP UK MIL CYPRUS MIL.STD 188-141A ALE on USB. Sounding. (DW)

13149: DKL UK MIL DHEKELIA MIL.STD 188-141A ALE on USB. Sounding. (DW)

13149: KUW UK MIL KUWAIT MIL.STD 188-141A ALE on USB. Sounding. (DW)

13200: O/M (SS): 0019 USB w/O/M (SS). (RP)

13212: O/M (accented EE): 0023 USB w/O/M (accented EE) discussing prices of undisclosed items. (RP)

13212: O/M (accented EE): 0023 USB w/O/M (accented EE) discussing prices of undisclosed items. (RP)

13215: Offutt GHFS at 0020 in USB handling phone patch for Reach 59 Yankee. (RW)

13215: 200 UNID MIL.STD 188-141A ALE on USB. Cng 0181/UNID. (DW)

13215: HAW USAF ASCENSION MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: CRO USAF CROUGHTON MIL. STD 188-141A ALE on USB. Sounding. (DW)

13215: JDG USAF DIEGO GARCIA MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: PLA USAF LAJES MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: OFF: USAF OFFUTT MIL.STD 188-141A ALE on USB. Sounding. (DW)

13215: JTY: USAF YOKOTA MIL.STD 188-141A ALE on USB. Sounding. (DW)

13237: O/M (accented EE): 2348 USB w/Y/L (accented EE). EE had Caribbean accent. No identifiers noted. (RP)

13237: O/M (accented EE): 2348 USB w/Y/L (accented EE). EE had Caribbean accent. No identifiers noted. (RP)

13254: O/M (CC): 0304 USB w/O/M (CC). (RP)

13254: O/M (CC): 0304 USB w/O/M (CC). (RP)

13257: CANFORCE 4218 wrking Trenton Military. Trenton suggests trying freq 17994. (DS2)

13257: Architect (RAF Flight Watch Center) 2120 USB w/volmet & airfield color status. (RP)

13257: Architect (RAF Flight Watch Center) 2120 USB w/volmet & airfield color status. (RP)

13264: Shannon: 2114 USB w/volmet. (RP)

13303: O/M (SS): 2246 USB w/O/M (SS). (RP)

13304: Tel Aviv (O/M Hebrew): 0325 USB w/aircraft (not heard) in position report and WX. Probable El Al LDOC. (RP)

13304: Tel Aviv (O/M Hebrew): 0325 USB w/aircraft (not heard) in position report and WX. Probable El Al LDOC. (RP)

13321: 14 ARINC KRASNOYARSK HFDDL// squitters on USB. (DW)

13321: FLIGHT LH7984 HFDDL// on USB. Air psn 24.26N 101.25E. (DW)

13322: O/M (CC): 0239 LSB w/O/M (CC). (RP)

13330: Houston Radio: 2304 USB w/Air Transport International Developer B82X in radio and selcal check (EF-BL). B82X is on ground at Toledo Ohio. (RP)

13339: 16 ARINC GUAM HFDDL// squitters on USB. (DW)

13339: FLIGHT CO0901HFDDL// on USB. Air psn 2.22N 130.11E, downlink to Guam. 1737 3.25N 131.43E. (DW)

13339: FLIGHT CO0903 HFDDL// on USB. Air psn 3.53S 146.28E. (DW)

13346: O/M (CC): 2135 USB w/O/M. (CC) (RP)

13346: O/M possible Tagalog): 2236 USB w/O/M (possible Tagalog). (RP)

13346: O/M (SS): 2249 USB w/O/M (SS). (RP)

13346: Encrypted voice: 2327 USB. (RP)

13357: Swiss Air 147 (EE): 2216 USB w/unheard ground station in position report. Probably MWARA AFI-1/SAT-1. (RP)

13351: 05 ARINC Auckland 0950 HFDDL squitters. (ML)

13354: San Francisco (MWARA CEP-1): 0236 USB calling Aloha 484 w/no response. (RP)

13354: San Francisco (MWARA CEP-1): 0321 USB w/Fedex 1800 & Hawaiian 32 in position reports. Sets 5574 as sec. freq. (RP)

13357: Casablanca (MWARA SAT-1/AFI-1): 2124 USB w/flight 1719 (identifier missed) in SELCAL check (BM-AR). (RP)

13357: Swiss Air 147 (EE): 2216 USB w/unheard ground station in position report. Probably MWARA AFI-1/SAT-1. (RP)

13360: O/M (Vietnamese): 2137 LSB w/O/M (Vietnamese). (RP)

13400: UNID SS YL numbers station, tuned in 0410 to 0418 off in USB. Five number groups. (RW)

13565: UNID: Brit Mil Cyprus 1637 MFSK 195.3bd. (RH2)

13900: BMF TAIPEI MET FAX//120/576/N/850 WX forecast in Chinese text. (DW)

13900: BMF: Taipei, Taiwan 19.30 FAX 120/576 Satellite image of South China Sea. (PT)

13907: Service Center (US Customs AMICC, Oklahoma City, OK): 2333 USB w/Julliet 03 (helo) and informing J03 that Delta 07 (UNID) is not up at this time. Asks if J03 wants Service Center to call D07 and get them up on the proper scan. (RP)

13907: Service Center: 2319 USB w/aircraft 63Y (UNID) telling him to call Hammer. (RP)

13953: P6Z: Paris, France 14.00 FEC-A 192/400 MFA, mainly idling but some svc tfc to H6L, Algiers embassy. (PT)

13956.5: UNID: MFA Tunis 1815 fec RY's & clg AZQ. (RH2)

13958.5: HBD27: Bucharest, Roumania 10.40 ARQ Swiss emb working MFA in Bern. (PT)

13980: UNID USB Irish/Dutch pirates? (DW)

13987.5: UNID: UNID: 1630 Mode unk 75/229 Strong sigs! (RH2)

14373.4: UNID: FAPSI 1755 Crowd36 40bd Smack on top of WA SANT net!! (RH2)

14404: FAPSI 1210 RTTY 75/500 5FG msg, link 00104. (ML)

14525: UNID: Jama Tripoli 1702 RTTY 50/400 Idling. (RH2)

14551: H6L: Algiers, Algeria 10.45 FEC-A 192/400 French emb with 5-lg tfc to Paris. (PT)

14575: rfgw MFA PARIS FEC/A//192/E/400 Tfc in offline encrypt with "c" procedures. (DW)

14575: RFGW: MFA Paris 1746 fec-a 192/400 Pages of letsub stuff! (RH2)

14670.7: RFTJF: Port Bouet, Ivory Coast 19.25 ARQ-E 1920/400 Svc tfc to RFTJD, Libreville on JDF cct. JDF cct normally shown as Libreville to Port Bouet but here was opposite way. (PT)

14686: Atlas: 2144 USB w/UNID identified Flint closing out radio guard. (20/MAR/02) (RP3)

14686: Atlas: 2144 USB w/UNID identified Flint closing out radio guard. (20/MAR/02) (RP3)

14700: BAA: Beijing, China 21.05 ITA2 50/1600 Beijing Meteo with RYRY's, count and "CQ CQ CQ DE BAA2/4/9/23/29" then into meteo tfc. Note huge shift. (PT)

14802.5: UNID: French mil 16.45 ARQ-E 72/400 Idling with betas. (PT)

14857: MKD RAF AKROTIRI PICC// 2 chan vft on USB. (DW)

14857.5: MKD RAF AKROTIRI PICC// 14857.510. 6 tone eng channel in vft. "GEP44 de MKD zub 0732 and you 555ers int zbz me pal kkk" etc. Offair 0754. (DW)

14857.9: MKD RAF AKROTIRI PICC// 14857.910. Tfc channel in vft. 6 tone. On line encrypted. (DW)

14867.7: UNID: MFA Cairo 1646 arq Msg\AA ending with selcal kxxu kxxu kxxu (Harare Emb.). (RH2)

14966.7: No-Call: Cairo, Egypt 15.10 ARQ MFA with 5-lg and AA tfc to Moscow embassy (JLPW—L). (PT)

15034: Trenton Military (CANFORCE) at 2220 in USB with VOLMET. (RW)

15515.1: AXI35 DARWIN MET FAX//120/576/N/800 250 hPa streamline analysis. (DW)

15615.5: AXI35: Darwin Meteo 1008 fax 120/576 Feint & blurred. (RH2)

15633.3: HMF26: Pyongyang, N. Korea 10.25 ITA2 50/200 KCNA in EE with usual rant about "US imperialists and South Korean warmongers". (PT)

15633.4: HMF26 KCNA PYONGYANG RTTY//50/R/250 Marker "RY's QRA de freq 10580 /8152/15133/11430 kHz k c n a pyohyang" then 0958 into px in EE. Tape jam 1003, restart 1018. (DW)

15867: Service Center: 2312 USB w/3SK who confirms that Service Center has 42's flight time and that 3SK landed at 2315 for total of 9.3 hours flight time. 3SK then asks Service Center to relay information to Hammer (Customs AMICC, March AFB). 3SK then advises that they are shutting down and going back to scan. (RP)

15867: Service Center: 2149 USB in encrypted voice. Then in clear tells unheard station to go back to scan and come up on 302.

15867: Service Center: 2149 USB in encrypted voice. Then in clear tells unheard station to go back to scan and come up on 302.

15980: UNID station with YL repeating "x-ray, zulu, india" then into phonetic alphabet message in USB 2233-39. (RW)

16014.2: RFVI FF LE PORT ARQ/E3/100/E/400 8rc. Betas. 2053. Cct [RUN] C de V svc RFQP de RFQP. (DW)

16027: BAF: Beijing, China 19.15 FAX 120/576 Weather chart of Yellow Sea/Sea of Japan area. (PT)

16034.7: — EGYPTAIN DIPLO ?SITOR/A//100/E/170 Tfc in AA(ATU80). Weak, poor copy. Offair. (DW)

16048.3: UNID: loc. unknown 10.47 ITA2 50/300 Lots of RYRYs then shuts down. (PT)

16184: — UNID CW Tfc in offline encrypt (5 fig grps) [28wpm]. offair 1456. (DW)

16200: UNID: CIS Navrad 1706 36-50 50/240. (RH2)

16209.9: OZU25 MFA COPENHAGEN TWINPLEX//100/E/ -400/-200/200/400 F7b-1. Tfc in offline encrypt. Msgs end ENDUMTXT. (DW)

16223.7: UNID: MFA Cairo 1659 Arq-E3 SELCAL KBVQ (Paris Emb). (RH2)

16240: Z4D FRENCH EMB NOUACHOTT FEC//192/E/850 CIng Paris/P6Z, using cct [TKN]. No app qso, ceases 1033. (DW)

16260: H6L: Algiers, Algeria 11.15 FEC-A 192/400 French emb with 5-1g tfc to Paris. (PT)

16275.5: MKD: Akrotiri, Cyprus 16.30 Piccolo 6 Op chat to GEP44. (PT)

16276.7: RFKPS: Egy Emb. Harare 1740 arq Msg\AA to Cairo. (RH2)

16276.7: RFKPS: Egy Emb. Harare 1720 arq Msg\AA to Cairo(kdfkdqo-h). (RH2)

16291: RFFX FF PARIS ARQ/E//184.7/1/400 8rc. Betas. 1047 cct [XXL]. Tfc (to Naqoura) in FF. (DW)

16341.4: 7RQ20: Algiers, Algeria 15.19 Coquelet 8 MFA with tfc in AA to UNID embassy. (PT)

16366.9: UNID: UNID 1726 G-Tor 300/200 Unable read ASCII type characters. (RH2)

16386: No-Call: Islamabad, Pakistan 15.30 ARQ FOREIGN ISLAMABAD with 5-1g tfc top PAREP STOCKHOLM. (PT)

16528: UNID vessel to shore at 1311 in USB. talk about cracked tank and fuel level (RW)

16528: SSB WX net, BVI, to vessel "Molucca" at 1331 in USB. (RW)

16606: UNID: UK Mil Cyprus 1636 MFSK 195.3bd. (RH2)

16631.7: dlkgmk: Egy Emb Luanda 1510 arq V long Msg\AA to Cairo. (RH2)

16985.7: CTP: NATO Lisbon 1714 RTTY 75/850 "NAWS DE CTP" etc. (RH2)

17024: SAB, GW NODE GOETEBORG 0836 CW Chan free marker (Globe Wireless) "SAB." (DW)

17048: DAO17, KIEL RADIO 0844 CW Chan free marker with CWID "cq de DAO17" every three mins. (DW)

17053.3: MGJ RN FASLANE 0907 VFT on USB. 4 chan fleet bdcst. (DW)

17055.1: MGJ RN FASLANE 0917 RTTY 75/N/340 CARB. Chan3 in vft. (DW)

17066.5: A9M GW NODE BAHRAIN 0928 CW Chan free marker (Globe Wireless) "A9M." Wkng ships in Globe Wirelessdata. (DW)

17069.6: JJC KYODO TOKYO 1627 FAX 60/576/N/800 Japanese text print. Labeled Navigational warnings. (DW)

17147: URL SEVASTOPOL RADIO 1157 CW Marker "CQ de URL ans 16669/22371 k." (DW)

17165.6: CLA41 HAVANA RADIO 1200 CW Marker "CQ de CLA qsx c/11 8368/12552/16736 tx 8573/12673.5/16961 qsw/CLA20/32/41/50 qrj c/1217 k." (DW)

17170.4: ZLA GW NODE AWAN.UI 1211 CW Chan mrk (Globe Wireless) "ZLA". Brief qso with ship in Globe Wirelessdata. (DW)

17175.5: A9M BAHRAIN RADIO 1214 CW Marker "CQ de A9M" (06/Apr)(DW)

17180.0: FUG: FN LA REGINE 1216 RTTY 75/N/850 Wkng w/ship "FT." QSLs various msgs. S/off 1230 with "qru bonne mer" and rtns to marker "FAA de FUG ry's sg's figs kkkk." (DW)

17198: SAB GW NODE GOETEBORG 1232 CW Chan free marker (Globe Wireless) "SAB." (DW)

17206.1: IAR ROME RADIO 1238 CW Marker "VVV de IAR K 4 8 12 16 22 MHz = we lsn 22 and reply on 17206.1 kHz" (spur on 17204.4kHz). (DW)

17207: IAR, ROME radio, with VVV markers at 0120 in CW. (RW)

17224.4: A4M MUSCAT RADIO 1259 CW Marker "de A4M." Offair 1303. (DW)

17230: 28 DANISH ARMY ?LOC MIL.STD 188-141A ALE on USB. CIng 68. 1659 cIng 68. (DW)

17234.5: VCS GW NODE HALIFAX 1315 CW Chan free marker (Globe Wireless) "VCS" Wkng ships in Globe Wirelessdata. (DW)

17239.7: PKX JAKARTA RADIO 1318 CW Marker "CQ de PKX QRU K." (DW)

17240.5: VIE GW NODE DARWIN ? 1322 - Chan free marker (Globe Wireless) and Wkng ship in Globe Wirelessdata. (DW)

17359: O/M (accented English): 2255 USB w/vessel P3TG7 (XX BLK Pachalis, Cyprus) in pp w/Y/L (Tagalog). (RP)

17359.1: UNID STN at 0040 in USB with high seas phone calls in unknown language. (RW)

17362: WLO (Mobile AL): 2300 USB w/automated voice announcements, transmission schedules & rates. (RP)

17372.4: KPH GW NODE SAN FRANCISCO ? 1340 - Chan free marker (Globe Wireless) and wkng ships in Globe Wirelessdata. (DW)

17402.4: VCT GW NODE NEWFOUNDLAND 1612 CW Chan free marker (Globe Wireless) "VCT." Wkng ships in Globe Wirelessdata. (DW)

17408.4: HEC GW NODE BERN 1616 CW Chan free marker (Globe Wireless) "HEC." Wkng ship in Globe Wirelessdata. (DW)

17421: UNID: FAPSI 1718 Crowd36 40bd. (RH2)

17430: 9VF209 KYODO SINGAPORE 1619 FAX 60/576/N/800 Japanese text print — grainy. (DW)

17430.3: 9VF209: Kyodo Singapore 1555 FAX 60/576 JJ Nxpaper. Small print. Interesting article about globalization and world sustainable development. (RH2)

17441.6: 5YE NAIROBI MET 1812 RTTY 100/N/850 Met tfc. (DW)

17550.9: RFTJ: FF DAKAR 1821 ARQ/E3 192/E/400 8rc. Cct [AFL] Tfc in off line encrypt then betas. Spurs on 17547.3 and 17554.4. (DW)

17460: UNID: CIS Navrad 1658 36-50 50/500. (RH2)

17550.7: RFTJC: Cap Vert, Senegal 09.35 ARQ-E3 192/400 AIR SERMEDI CAP VERT with tfc in FF to RFFHCC - INSTMEDTROPARM MARSEILLE on AFL, Dakar - Paris, cct. (PT)

17920: Encrypted voice: 2259 USB. (RP)

17925: ARINC NY: 1315 USB w/Mexicana 1693 in position report. (RP)

17925: Springbok Operations: 1900 USB w/aircraft (call missed) in position report. (RP)

17925: Springbok Operations: 1900 USB w/aircraft (call missed) in position report. (RP)

17985: 003 ARINC REYKAVICK HFDL// on USB. Squitters. 1'908 Uplink to ICAO a/c 23200740 log-off request other reason. 1945 logon cfm to a/c ICAO 50655724 air ID 199. 1950 logon cfm to a/c ICAO 23200740 Air ID 201. (DW)

17985: FLIGHT ICAO 17070143 HFDL// on USB. Log-on request (dls) — sent twice. (DW)

17985: FLIGHT ICAO 23200740 HFDL// on USB. Log on request (dls). (DW)

17985: D-ALCC FLIGHT LH8265 HFDL// on USB. ACARS msg label Q0 link test. (DW)

17985: N458UP FLIGHT UP6161 HFDL// on USB. ACARS msg label Q0 link test. (DW)

17994: Trenton Military calling CANFORCE 4218. Returned to 11232. (DS2)

18000: O/M (SS): 2301 USB w/O/M (SS). (RP)

18010: Y/L (Portuguese): 2251 USB w/O/M (weak). (RP)

18010: Y/L (Portuguese): 2251 USB w/O/M (weak). (RP)

18028: O/M (IT): LSB w/O/M (IT). (RP)

18028: O/M (IT): LSB w/O/M (IT). (RP)

18042.7: RFTJ: Dakar, Senegal 15.27 ARQ-E3 192/400 CdeV being relayed on JDJ, Libreville — Dakar cct, although at one point sends "ZCZC JDJ332 ZCZC TJD640" before one CdeV. (PT)

18183.4: KIN: Kinshasa, Congo 14.45 Coquelet 8 Algerian emb with tfc in FF to MAE Algiers. (PT)

18211.5: KHF GW NODE GUAM C W Chan free marker (Globe Wireless) "KHF". Wkng ships in Globe Wirelessdata. (DW)

18216.7: EGYPTIAN DIPLO SITOR/A//100/E/170 Opchat in AA(ATU80) then irs. Further opchat and s/off. (DW)

18220: JMH5 TOKYO MET FAX//120/576/N/800 700 hPa chart. (DW)

18226.7: — MFA CAIRO ? SITOR/A//100/E/170 Tfc in AA(ATU80). (DW)

18230: 68 DANISH ARMY ?LOC MIL.STD 188-141A on USB. CIng DK11. Also at 1607. (DW)

18230: 50 DANISH ARMY ?LOC MIL.STD 188-141A ALE on USB. CIng 68. 1634 cIng 45. (DW)

18230: 69 DANISH ARMY ?LOC MIL.STD 188-141A ALE on USB. CIng 68. (DW)

Tuning In (from page 4)

ignoring new hams on the local repeater. I hear plenty of antics on the bands every day that aren't greenhorns falling off a truck-full of 11-meter operators. I hear this with my own ears more often than I hear a friendly *welcome* on 2-meter machines. If I hear it, so do others, and so do those deciding how many billions of dollars a few MHz of frequencies might be worth to today's telecommunications industry. That's right, billions!

It's interesting though how you can just pop on a CB channel and start up a conversation. Sure, sometimes the folks there are a bit wild, and there's inevitably someone playing music or telling jokes. I get a lot of jokes emailed to me. I don't know why, but people must think I can tell them at our monthly *Pop'Comm* meetings (which sometimes I do, much to the chagrin of the boss). Most are usually G rated — cute, if you will — so when I'm traveling I make a point of trying to remember a couple and tell them to a fellow driver on Channel 19. It makes the miles go quicker and we all get a good laugh. On a recent trip to Baltimore I brought along the Cobra 148 and kept it glued to Channel 19 all the way down and back home. There were the usual antics from the usual birdbrains, but a few miles down the road they were silenced by the distance.

Just north of Baltimore, a group of professional drivers — truckers — and I were hearing reports of a major accident about 25 miles ahead, and already traffic was slowing down to a near crawl. Up ahead I could see the exit they were talking about that would bypass the massive delay and magically put us back on Route 95 beyond the accident. I jumped in and asked one driver to confirm that this "alternate" route would indeed work without any tricky "you can't miss it" turns. We both hopped off the interstate and ran up Route 40 and hopped onto 896 back onto 95; total time: 30 minutes. Time saved estimated at two or three hours! The driver didn't use a "handle" but was making deliveries for the Checkers restaurants in Newark and Jersey City. If he reads this, here's a special thanks to him and the others for helping explain the detour to a frazzled four-wheeler.

Go ahead, try that on 2-meters. With that "detour" exit looming a few hundred yards ahead, there was no time to "hope" I'd get a response. The time was now and CB answered the call. I didn't bring my mobile dual bander — maybe next time. ■

18230: 45 DANISH ARMY ?LOC MIL.STD 188-141A ALE on USB. Clnq 68. 1633 clnq 50. (DW)

18232.4: UY0MM UNID CW Calls "cq de UY0MM k" - r/am spur? "qth Lincansk." (DW)

18238: ZSJ SAN CAPETOWN FAX//120/576/N/800 Scheduled start 13min late. Sfc analysis for S Africa/southern Ocean. M/path blurring. (DW)

18296.7: RFQP FF DJIBOUTI ARQ/E3//100/E/400 8rc. Betas. 1720cct [DJI]. Controle de voie. RFQP de RFQP. (DW)

18296.7: RFQP: Djibouti 19.22 ARQ-E3 100/400 Svc tfc to RFVI, Reunion, on DJI cct. (PT)

18306: ZSC GW NODE CAPETOWN CW Chan free marker (Globe Wireless) "ZSC." Wking ship in Globe Wirelessdata. (DW)

18444.5: RFFXL: Naqoura, Lebanon 09.15 ARQ-E 184.6/400 5-lg tfc to RFFBCT, Paris, via XZL cct. (PT)

18447.7: RFTPA: N'djameina, Chad 18.30 ARQ-E3 200/400 Svc msg to RFFVA, Paris on FDZ cct. (PT)

18464.7: No-Call: Cairo, Egypt 13.50 ARQ MFA with tfc to Warsaw emb — "BOUSTAN WARSOW." (PT)

18527.5: No-call: Geneva, Switzerland 15.00 Coquelet 8 Algerian consulate(?) with svc tfc to Algiers. (PT)

18553.7: RFTJ: Dakar, Senegal 09.35 ARQ-E3 192/400 CdeV to self on TJI cct to Fort de France. (PT)

18571.4: PJ3: Tunisia??? 20.20 FEC 5-lg tfc and FF op chat to GTF. (PT)

18594: Encrypted voice: 2135 USB. Possibly US Customs. (RP)

18594: Encrypted voice 2243 USB. Possible US Customs. ALE also noted on this freq. Then Hammer (U.S. Customs DAICC, March AFB, CA) in the clear with Omaha 00N (probably Cessna 550, N1200N). Omaha 00N reports operations normal and returns to scan. (RP)

18594: Encrypted voice 2243 USB. Possible US Customs. ALE also noted on this freq. Then Hammer (US Customs DAICC, March AFB, CA) in the clear with Omaha 00N (probably Cessna 550, N1200N). Omaha 00N reports operations normal and returns to scan. (RP)

18780: UNID: Vilnius, Lithuania?? 09.15 ITA2 50/500 Tfc in 3rd shift Cyrillic datelined Vilnius. Then sits on mark except for short lines transmitted every few minutes, eg 01 340121/2 CPT and 01 340121/2 CBP. Strangely tfc at the moment (04Apr 09.00) is datelined Moscow — eg MOSKVA CSS MPS 04.04.2002 12.49. (PT)

18986.7: RFHJTPG: FS Tapageus 15.50 ARQ-E3 100/400 Confirmation (in EE) of fuel order to RFHJC - EXXONMOBIL, to be delivered on arrival Apia Harbour being relayed on HJI, Papeete — Noumea cct (10Apr02). (PT)

19036.4: Harare, Zimbabwe 15.11 Coquelet 8 Algerian emb with tfc in FF to MAE Algiers. (PT)

19036.5: UNID: Ambalg Luanda 1615 Coq8 13.33 MsgFF to MAE Algiers, who respond on 26.67bd! (RH2)

19036.5: UNID: Ambalg Harare 1530 Coq8 26.67 MsgFF to MAE Algiers cc Ambalgs Abuja, Pretoria, Copenhagen & London — re Zimbabwe crisis! (RH2)

19131: Atlas (DEA contract facility, Iowa): 2344 USB w/Swordfish 27 who reports in final for landing at Exuma (Bahamas). Swordfish 27 will contact Atlas when airborne again. (RP)

19131: Atlas (DEA contract facility, Iowa): 2105 USB w/Flint 411 (DEA pilot) in pp w/Flint 424 w/arrival information. (RP)

19131: Atlas (DEA contract facility, Iowa): 2105 USB w/Flint 411 (DEA pilot) in pp w/Flint 424 w/arrival information. (RP)

19145.7: RFQP: Djibouti 16.30 ARQ0E3 200/400 CdeV being relayed on DKJ, Dakar - Djibouti cct. (PT)

19216.7: RFL: Fort de France, Martinique 23.00 ARQ-E3 96/400 CdeV to self on LIH cct to Papeete. (PT)

19241.7: EGYPTIAN EMB ?LOC SITOR/A//100/E/170 in irs then tfc in AA(ATU80). Fm B—raj/UNID. (DW)

19246.7: MFA Cairo 0850 ARQ in IRS mode for tfc ex Kuala Lumpur on 21956.7. (ML)

19432: MKD RAF AKROTIRI PICC// vft on USB. 2 channel. (DW)

19432.5: MKD RAF AKROTIRI PICC// 19432.510. Eng chan in vft. "de MKD" opchat re resyns. 6 tone. (DW)

19432.9: MKD RAF AKROTIRI PICC// 19432.910. 6-tone tfc channel in vft. On line encrypted. (DW)

19650: A9C: Bucharest, Roumania 15.40 FEC-A 192/850 French emb with 5-lg tfc using letter subs to P6Z, Paris. (PT)

19736.4: SAB GW NODE GOETEBORG CW Chan free marker (Globe Wireless) "SAB". (DW)

20035: HGX21 MFA BUDAPEST ARTRAC//125/N/170 Testing phase passing up thru/USB (5 channels). Also at 1106. (DW)

20036.7: — EGYPTIAN EMB DAKAR SITOR/A//100/E/170 Tfc in AA (ATU80). (DW)

20056.7: — EGYPTIAN DIPLO SITOR/A//100/E/170 Opchat in AA (ATU80). (DW)

20120: UNID: loc. unknown 10.40 ITA2 50/500 5-lg and AA tfc then shuts down. (PT)

20126.7: — MFA CAIRO SITOR/A//100/E/170 Selcals KKXE (Luanda or Lusaka?) until 1144. irs for one min, revert selcals then offair 1147. (DW)

20126.7: — MFA CAIROSITOR/A//100/E/170 sclcs KKXO/Abidjan. Brief fec no rtnn freq. Scls, irs, offair. Fec w/msg in AA addrssd unspc emb (px?) thru 1008. Scls KKXO, revert arq, irs, s/off 1014. (DW)

20469.1: AXM37 CANBERRA MET FAX//120/576/N/800 End of 500 hPa chart, slightly blurred. 0941 700 hPa analysis. (DW)

20610: HBD48 SWISS EMB RIYADH SITOR/A//100/E/170 In irs mode, interleaved with weak ISS stn (Berne?) (offline encryption). Ends "No message d48." (DW)

20715: RFFXL: Naqoura, Lebanon 15.45 ARQ-E 184.6/400 DETINF FRANCE NAQOURA with tfc in FF to RFFAB — COMIS PARIS on XZL cct. (PT)

20716.7: — FF PARIS? ARQ/E3//192/E/400 8rc. Weak, little/no sync thru. (DW)

20780: P6Z MFA Paris 0740 FEC-A 192/400 5LG msg to C3P Tokyo. (ML)

20840: C3P French Emb Tokyo 0730 FEC-A 192/850 w/DE C3P SLT VX ZBZ4 QRURYs tape, then off-air (ML)

20847.7: — FF PARIS ? ARQ/E3//200/E/400 8rc. Betas. Poor sync. (DW)

20847.7: — FF UNID ARQ/E3//200/E/400 8rc. Betas. Weak sync. No app tfc thru 1605. (DW)

20856.7: RFQP: Djibouti 12.43 ARQ-E3 200/400 CdeV to self on DJK cct to Dakar. (PT)

20882.2: — FF UNID ARQ/342//200/E/400 4rc. 2 chan tdm. Poor/little sync. (DW)

20917.5: s00 MFA STOCKHOLM MIL.STD 188-141A ALE on USB. Sounding. Also at 1726. (DW)

20917.5: s72 SWEDISH EMB KINSHASA MIL.STD 188-141A ALE on USB. Sounding. Also at 1726. (DW)

20976.9: P6Z: MFA Paris 1733 fec-a 192/400 Clg Z4D/Nouackott. (RH2)

21931: 04 ARINC RIVERHEAD HFDL//on USB. Squitters (DW)

21934: FLIGHT UNKNOWN HFDL//on USB. Air psn 40.36N 75.15W at 1913. (DW)

21934: FLIGHT UP2981HFDL// on USB. ACARS msgs. Label Q0 link test. (DW)

21934: FLIGHT UP6127 HFDL// on USB. Air psn 12.09N 86.11.w at 1836 (to San Francisco). 1914 Air psn 12.09N 86.11W at 1842. (DW)

21948: 08 ARINC JOHANNESBURG HFDL// on USB. Uplink to a/c D-ALCA. Label: Demand mode. No text. (DW)

21949: 06 ARINC Hat Yai THA 0950 HFDL squitters. (ML)

21982: 15 ARINC BAHRAIN HFDL// on USB. Squitters. (DW)

22311: UAU A BATM Valerij Dzhaparidze 0957 ARQ KYMV selcal. UAU log on & crew msg to Kaliningrad. (ML)

22475.5: PWZ33: BN Rio 1635 Pactor/fec 200 Chart Co-ordinates & WX\PP — very slow transfer! (RH2)

22523.4: JMH6: Tokio Meteo 1632 fax 120/576 Smudged chart.(RH2)

22542.3: JJC: Tokio R 1623 fax 60/576 JJ Nx\paper. Very big and clear characters! (RH2)

22691.5: VIE GW Darwin AUS 0740 CW id & tuning bursts.(ML)

22857.7: RFVI FF LE PORT ARQ/E3//100/E/400 8rc. Betas. 1625 cct [VII] C de V svc RFHI de RFHI.(DW)

22887: v5g MFA BUCHAREST FEC/ROU//164.5/R/400 Tfc in online encrypt. bit inv 24.0934 tfc in Romanian.0936CW (poor) and sign-off. (DW)

22912.7: RFHI FF NOUMEA ? ARQ/E3//100/E/400 8rc. Weak, little/no sync. Betas. (DW)

22912.7: RFHI: FF Noumea 0743 Arq-E3 100/400 CdeV to itself HII cid. (RH2)

22912.7: RFVI: FF Le Port 0844 Arq-E3 100/400 CdeV to itself on HII cid. (RH2)

22917: FAPSI 0820 RTTY 75/500 5LG msg, link 80038. (ML)

22928.6: S97 SWEDISH EMB ABIDJAN MIL.STD 188-141A ALE on USB. Sounding. (DW)

22981.7: MFA CAIRO SITOR/A//100/E/170 In irs mode, then iss and selcals OOVF/Pyongyang but no further QSO. (DW)

23030: djibouti R+S GMBH NET MIL.STD 188-141A ALE on USB. Clng PARIS. (DW)

23101.7: MFA CAIRO ? SITOR/A//100/E/170 Tfc in AA(ATU80). 1207 switches to irs. 1214 betas. 1217 signoff. (DW)

23190: RFGW: MFA Paris 0856 fec-a 192/400 Pages of 5LG to unk. (RH2)

23522.9: JMH6 TOKYO MET FAX//120/576/N/800 End of sfc analysis. Grainy. (DW)

23523: JMH6: Tokio Meteo 1016 FAX 120/576 Clear. (RH2)

23680.5: UNID: British mil 18.50 Piccolo 6 On idle all night. (PT)

23781.7: Egyptian Emb Jakarta (JG QKWFHK)0705 FEC op msg & off-air. (ML)

23999.7: RFGW: Paris, France 08.30 FEC-A 192/400 5-1g tfc to A9C, Bucharest emb with cct ID GCT. (PT)

24370: P6Z: MFA Paris 0631 fec-a 192/400 Clg N2G (San'a) then 5LG. (RH2)

24370: RFGW: MFA Paris 0655 fec-a 192/400 5LG Embassy Circular. (RH2)

24711.7: FF DAKAR ? ARQ/E3//192/E/400 8rc. Betas. Spurs at 24704.2/24708/24715.2/24719.3. 1210 changes to "hp" and six betas per block, and periodically various like patterns. No app tfc thru 1930. (DW)

25350: 5AB TRIPOLI RADIO CW Marker "cq de 5AB" - harmonic of 8450 kHz. (DW)

26241.7: RFFKMLO: FN Brest 0940 Arq-E3 100/400 5LG to RFFKV & RFFKA cc RFVIE on REI cid. (RH2)

26241.7: RFVI: FF Le Port 0813 Arq-E3 100/400 CdeV to itself on REI cid. (RH2)

26241.7: RFVIC: Basenav Port des Galets 0829 Arq-E3 100/400 Admin Msgs\FF to "Tous Marine La Reunion" on REI cid. (RH2)

26241.7: RFFKC: Marine Sirpa Brest 1145 Arq-3 100/400 Press\FF to RFFKVBN/ Basenav Brest; Zen Ceclant Brest; RFLIGM/ Comar Guyane; RFFLC/Sirpa Toulon; RFFIC/Marine Sirpa Paris; RFINVS/Nivoise & many other calls! on REI cid. (RH2)

26441.7: RFFIVAR: FN Paris/Alindien 1040 Arq-E3 100/400 5LG to ZOC/AIG1935 & all Indo FN ships & shore stations — on IRE cid. (RH2)

29750: UNID, phone patch, 2 OM/RR 1430 FM. (LA)

This month's contributors were:

Alan Stern (ALS)
Chris Gay (CG)

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Peter Thompson (PT)
Ron Perron (RP)
Robert Hall (RH2)
Tom Ziko (TZ)

Again, thank you all very much. Your work and efforts are very much appreciated, as always. Likewise I still welcome new contributions. Those of you, who we have not heard from for a while, please write soon and tell us how you are doing. No one's efforts are ever forgotten.

Coming Next Month

Next month I hope to roll out a new look with new topics. We are now firmly in the 21st Century and ute radio has come a long way from the early days of spark gaps and mechanical detectors. While the technology has changed, the purpose of ute radio has not — which is to provide efficient, reliable radio communications of a non-broadcasted nature.

Until then, please remember to say a prayer for the men and women who are part of the armed forces serving overseas, as well as our security forces at home helping us to keep our communities safe and secure. A very big thank you to all of them, wherever they may be. ■

BBC's New Oman Relay Site Open For Business

The new station, located at a place called A'Seela, uses 250 kW transmitters to beam programming to the Middle East and South Asia. The initial schedule is 0000-0100 on **5970**; 0100-0300 on **11955**; 0300-0600 on **15310**; 0300-0500 on **15575**; 0500-0600 and 0700-1400 on **11760**; 0700 to 0805 (correct) and 0900-1100 on **17790**; 1100-1700 on **17700**. It's not clear at this point whether use of the old relay site at Misirah Island will be phased out or whether the BBC will (or already has) pulled the plug completely.

Hungary's Kossuth Radio, also known as the first national program. Thus Hungarian language programming on shortwave will consist mostly of relays from Kossuth Radio. Hungary's other foreign language shortwave broadcasts are being cut from 30 to 15 minutes. Broadcasts in Italian, French, and Spanish are being added to the shortwave programming mix. All this leaves us wondering what we're supposed to call the station from now on. (Maybe we could find out by tuning in!)

Finland Tries Something New

YLE/Radio Finland is trying something new; something not too many international broadcasters do. The station has begun to carry programs from various local broadcasters. The schedule is a bit involved but runs something like this: Saturdays 0700-0830 Radio Keski-Suomi on **6120** and **11755**. 0830 to 0900 on **6120**, **11755** and **21800** and repeating from 0915 to 0945 on **6120** and **11755**; Mondays: Etela-Savon Radio, Tuesdays Radio Perameri, Wednesdays Kymenlaakson Radio, Thursdays Radio Hame, Fridays Radio Keski-Pohjanmaa and Saturdays Pohjois-Karjalan Radio. Then from 1205 to 1300 on **6120** and **11755**: Monday, Lahden Radio, Tuesdays Satakunnan Radio, Wednesdays Tampereen Radio, Thursdays Etela-Karjalan Radio and Fridays Lapin Radio. From 1300 to 1400 on **9630** (these are in Swedish): Monday, Radio Aboland, Tuesday, Radio Osterbotten, Wednesday, Radio Vastnyland, Thursday Radio Mellannyländ and Friday, Radio Ostnyland. Then from 1310 to 1400 on **6120**, **9705**, **11755**: Monday, Turun Radio, Tuesday, Radio Savo, Wednesday, Kainuun Radio, Thursdays Oulu Radio, Fridays, Pohjanmaan Radio. From 1400 to 1430 on **6120** and **11755** Ylen Aikaianen airs Monday through Friday. Except where noted, all programming is in Finnish. Finnish domestic stations are generally very good about replying to reception reports so this exercise should prove to be loads of fun for QSL hunters. You'll have to check your current copy of the World Radio TV Handbook for addresses (and proper accent markings) if you plan to write them. Frankly, we think YLE has made a positive change here — reaching its Finnish speaking overseas audience with "home town" broadcasters.

In another change, YLE has increased the amount English they carry. It's a relay of a local FM station called Capital FM and it's on Saturdays from 1100 to 1200 on **13755** and **17820** and on Sundays from 2100-2200 on **9720** and **11985**.

Changes In Hungary

Changes have also taken place at Radio Budapest. It has become part of

Radio Okapi From The Congo

Not surprisingly, reception of the new Radio Okapi has been limited mostly to a few EST DX'ers. Radio Okapi is the UN-connected broadcaster promoting peace in the long-troubled Democratic Republic of the Congo. The station is operating from 0600 to 0830 and 1700 to 1930 on **9550** — some days to nearly 2300. And now they seem to have added 0200 to 0400. It's unclear yet, but the latter may be on weekends only. The program content is focused on Congolaise affairs. The broadcasts go out in several of the local languages, as well as French. Various other UN agencies are said to also have access to the station's microphones. The country is suffering fresh trouble with Rwandan-backed rebels causing still more conflict.

Liberia, HCJB, Iraq, And Paraguay

It's hard to believe, but word is that Liberian leader Charles Taylor has given the go-ahead for a shortwave frequency for **Radio Veritas**, a local Catholic station there. That's the good news. The bad news is that the station doesn't have a shortwave transmitter, nor very much in the way of prospects for obtaining one. Usually, these things work just the opposite! Radio Veritas has apparently been active on shortwave in the past, though never much reported outside its immediate listening

PHILIPPINE BROADCASTING SERVICE
RADIO PILIPINAS - Overseas

VERIFICATION CARD

8 January 2001
Date

Dear Mr. Clapshaw:

Your reception report of our English broadcast on 11.885 mhz in the 15 meter band on 1 December 2000 from 19:00 to 19:30 UTC has been verified against our program log and found to be correct.

Thank you so much for your report. We shall highly appreciate it if you could again send us more reports including your comments and suggestions.

Our best wishes and happy listening!

Sincerely yours,
[Signature]
STATION MANAGER

ADDRESS: 4th FLR., PIA BLDG., VISAYAS AVENUE, QUEZON CITY, PHILIPPINES. TEL. NO. 926-39-26 TELFAX 924-2745
E-MAIL: pbs.pao@pbs.gov.ph

This neat paper QSL is from Radyo Pilipinas, the overseas service of the Philippine Broadcasting Service.

Verification Letter.

To: Robert Brossell

We, Lao National Radio, are pleased to know that you are one of our listeners abroad, and we would like to thank you for your reception report :October 11 2001, saying that you have heard our programme on February 24,2001 , on the frequency of 6,130 kHz short wave at 1310 GMT - 1333 GMT hours (local time).

We also have foreign language programmes on the frequency of 1030 kHz on the medium wave band and on FM 97.25, but not on short wave. We broadcast 5 languages: French, English, Thai, Khmer, and Vietnamese.

Once again, thank you for your report, and hope to receive more information from your side.

Yours sincerely,



English Language Service
Lao National Radio
P.O. Box 310, Vientiane, Lao PDR.
Fax: (856-21)212430, Email: inpanhs@hotmail.com

Robert Brossell (WI) saw his four-year quest end when he received this full-size verification letter from Lao National Radio. Bob sent several letters to the station before a FAX finally did the trick. Congrats, OM!

area. If we were running the station, we wouldn't put too much faith in the promises of Mr. Taylor.

Oooops! The U.S. Armed Forces Network showed up on **3903** for a short time but it turned out the transmitter belongs to the Iceland PTA (utility station) and is normally used by the Icelandic Defense Force for aeronautical communications. Somebody goofed and had AFRTS punched up on the frequency.

HCJB is gonna do it! The long studied and discussed close-down of the Pifo transmitter site is, in fact, going to happen, after which HCJB will transmit from a place called Santa Elena, which is between Guayaquil and Salinas in the far western part of the country. The change is a ways off though — transmissions from the new site aren't scheduled to begin until about a year from now. Pifo will linger on for a while until the new site is fully operational which, if all goes as planned, won't be until mid-2006. All this, of course, was brought on by the Ecuadorian government's plan to build a huge airport close enough to the Pifo site to make cohabitation untenable. HCJB has also announced December 31 of this year as the date they hope to be on the air from their new station in Australia.

Radio Iraq International, which has been in a much weakened and very iffy state since it was whacked during the Gulf War, is showing up again. Check for an English language broadcast around 0230 on **11787**.

Aside from Radio Nacional (9737), the few shortwave stations operating in Paraguay are devilishly hard to hear. There seems to be a new one toying with shortwave, which also fits this description. Radio America has been running shortwave tests beamed to Buenos Aires and has been using such frequencies as **7300, 7345, 7375, 7385 and 7740**. (All but the latter spot are likely to suffer from co-channel interference.) Although they have tried the 49 and 31 meter bands, 41 meters is proving best for their needs. Eventually they expect to go into regular operation with a lot more power than they are using now.

Zimbabwe Upgrades

Another country busy upgrading their shortwave infrastructure is troubled Zimbabwe. All the transmitters are said to be

Abbreviations Used In This Month's Column

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

back at full-power levels. This has been combined with a shuffling and renaming of services. The multi-lingual National FM, broadcasting in various indigenous languages is using **4828 and 5978** and Radio Zimbabwe is operating on **6045**.

Radio Japan's E-mail Newsletter, And Your SWL Reports!

Radio Japan/NHK has begun producing an E-mail newsletter for its listeners. "NHK World E-Guide" supplies the latest program information and schedules. You can sign up to receive the newsletter at www.nhk.or.jp/nhkworld.

Speaking of web sites, faithful reporter Dave Jeffery has a nice one, which includes links to several shortwave and related sites. It's at www.angelfire.com/trek/amsguy.

Reporter Lee Silvi sends reports to Radio Romania International every month and suddenly his letters are bouncing back! His letter to the usual P.O. Box 111 address in Bucharest was returned marked insufficient address. It's hard to get more specific than a P.O. Box number! Probably some Romanian mail sorter having an unhappy day!

Jack Linonis of Pennsylvania is our book winner this month. Jack receives a copy of Harry Helms' Shortwave Listening Handbook, courtesy of Universal Radio. Jack will also find a copy of Universal's gigantic shortwave catalog in the package. You should definitely have a copy of this 100-plus page catalog in your shack. You can get one by calling Universal at 614-866-4267 or writing them at 6830 Americana Parkway, Reynoldsburg, OH 43068.

Remember, your shortwave broadcast logs are always sought and forever welcome. Just remember to list your catches by

Reception Report

Radio Amistad gratefully acknowledges your report.

Richard A. D'Angelo

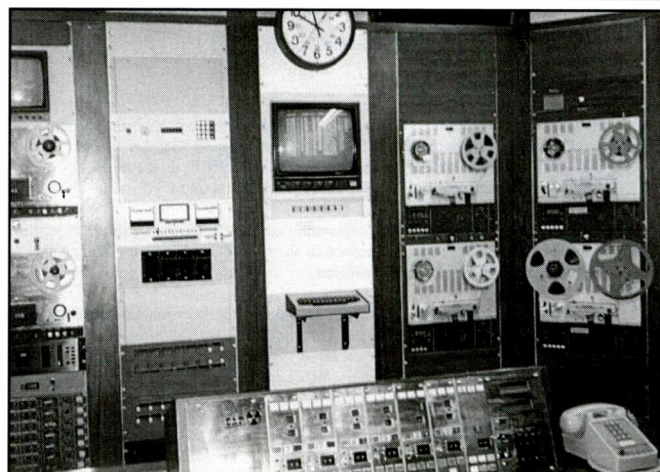
Your correspondence and reception report is a great encouragement to the announcers and staff of

Radio Amistad

90.7 FM & 4700 SW

San Pedro La Laguna, Sololá,
Guatemala

Quality
Christian
Broadcasting



Radio Amistad, newest of the Guatemalan religious/cultural broadcasters, has already been QSL'd by Rich D'Angelo (PA).

Here's a shot of the transmitter control room at HCJB's Pifo site. (Tx: Ed Newbury, NE)

country, double or triple space between them and add your last name and state abbreviation after each. SPECIAL NOTE: Please use the current edition of Passport to World Band Radio as your reference for station names, spellings, and relay sites. We're also looking for spare QSL cards we can use as illustrations. Also station schedules, photos — anything and everything you'd care to lay on us! And don't forget those photos of you at your receiving position! Thanks for your continued interest and support!

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

ALASKA — KNLS, **11765** with religious EE talk and ID at 1310. (Newbury, NE)

ALBANIA — Radio Tirana **6165//7160** at 0349 with music, headlines, ID, anthem and off at 0356. (Burrow, WA) **7160** at 0355 on Albanian art. (Brossell, WI)

ANGOLA — Radio Nacional, **4950** at 0328 with Afro-pops. (Strawman, IA) 0335 with pop and rap. Woman PP anncr, ID, 5 time pips at 0400 and news. (D'Angelo, PA)

ANTIGUA — BBC relay, **15190** at 1346. (Newbury, NE)

ARGENTINA — Radio Nacional, **15345** with live sports event in SS at 2305. (Brossell, WI) Radio Continental SSB relay, **15820** LSB at 2345 with soccer match in SS. ID and ad string around 0015. (D'Angelo, PA)

ARMENIA — Radio International, **9960** at 1858 sign on. Open carrier, brief IS or opening music, man with ID in GG. Then a choir and long religious talk. Sign off with closing anmts by a woman, ID and frequency. (D'Angelo, PA) Voice of Armenia, **9960** at 2039 with ID, IS, anthem, ID and news. (Burrow, WA)

ASCENSION ISLAND — BBC relay **17830** at 2001. (Jeffery, NY) **21470** at 1820. (Watts, KY) VOA relay, **17785** in PP at 1758. VOA ID at 1759 and off. (Brossell, WI)

AUSTRALIA — Radio Australia, **9580** at 1226. (Jeffery, NY) **11650//6020** at 1330. (Brossell, WI) **15515** at 0528. (Newbury, NE) **21740** at 2240. //17795 and 17715. (MacKenzie, CA) Vision International (Christian Voice) **21680** at 0056 in EE and presumed Indonesian to 0205 when it began to fade out. (Silvi, OH)

AUSTRIA — Radio Austria Int'l, **7325** with news at 0230. (Weronka, NC)

BANGLADESH — Bangladesh Betar, **7185//9550** at 1741. The transmitters were putting out a hum. IS at 1742, time check at 1745, ID with frequencies, Islamic recitations to 1752, ID and into "Voice of Islam." (Burrow, WA)

BELGIUM — Radio Vlaanderen Int'l, **13700** at 2230. (Via Bonaire. gld) **17525** at 1530. (Northrup, MO) (Site? — Ed)

BELARUS — Radio Minsk, **5970** at 0259 sign-on with IS and multi-lingual IDs, schedule, address, then news in EE. Better on //7210. (Alexander, PA)

BENIN — Rdf. du Benin, **7210.3** heard at 2233 with man and woman in FF, woman hosting phone calls with short music segments, ID and sign-off at 2259 followed by orchestral national anthem. (D'Angelo, PA)

BRAZIL — Radio Nacional Amazonia, **6180** in PP at 0046. (Miller, WA) Radio Aparecida, **5035.1** in PP with talks and brief music breaks from 0010. //6135 and 9630, all of them good. (Alexander, PA) Radio Tupi, presumed, **9565** with sports event in PP at 2358. Into a church service at 0000. (Strawman, IA)

BULGARIA — Radio Bulgaria, **9400** at 0010 with ID, local music. (Newbury, NE) 0305 with domestic news. (Burrow, WA)

BURKINA FASO — Radio Burkina, **5030** in FF with clear ID at 2344, then more music to 0000 close. (Brossell, WI)

CANADA — Radio Canada Int'l, **11600** at 2140 with mailbag show. (Weronka, NC)

CHINA — China Radio Int'l, **9790** (via Canada — Ed) at 0112. (Newbury, NE) **9810** at 1330, **9830** at 1405, **9840** at 1320, **9855** at 1325 and **12000** at 1415, all in CC. (Northrup, MO) Voice of Pujiang, presumed, **3279.9** at 1254 with light operatic vocal. (Strawman, IA) **5075//4950** at 1205 with what sounded like a CC version of "I Love Lucy." (Barton, AZ) Guangxi Foreign BS (presumed) on **5050** at 1309 with woman talking in news format. (Strawman, IA) CPBS, **15505** in CC at 1357. (Newbury, NE) Huayi Broadcasting Company, Fuzhou, **11590** in CC at 0340 with pop/rock. (Foss, Philippines) China National Radio, Beijing 2, in CC at 1355 mixing with a second station which might have been Mongolia. (Strawman, IA) Radio Xinjiang, presumed, **3950** in CC at 1301 under heavy ham QRM. (Strawman, IA)

COLOMBIA — Radio Autentica, **5975.2** at 0925 with SS religious talk, choir, more religious vocals, anmts, ID and program info at 0956 until new program started at 1001. (D'Angelo, PA)

COSTA RICA — Faro del Caribe, **9644.6**, just off nominal **9645**, at 1200. (Barton, AZ)

CROATIA — Voice of Croatia, via Germany, **9925** at 0341 with multi-lingual ID and news in EE. (Burton, WA) 0401 with ID and frequencies. (Brossell, WI)

CUBA — Radio Havana Cuba, **9820** with EE news and comments at 0110. (Newbury, NE)

CYPRUS — BBC relay, **15180** in AA at 1738. (Brossell, WI)

CZECH REPUBLIC — Radio Prague, **7345** with news at 0100. (Newbury, NE) **9865** at 0435 with talk on Czech folk songs and **11615** at 0000 with news in SS. (Weronka, NC) **17845** at 1718 with features, ID. (Burrow, WA) **21745** at 1420 with news. (Northrup, MO)



About the only equipment in this shack that no DX'er would lust after is the TV set! We spot a Watkins-Johnson 1000 underneath a Ten-Tec 340. That looks like one of the Drake R8 series (top right) and that may be a couple of NRD 5-whatevers on the lower left. (Tnx: Ed Newbury who always knows what time it is!)

DENMARK — Radio Danmark, **13800** via Norway in DD at 1334. Also at 1749 on **18950** in DD and a mention of "Communications World on the Voice of America." (Brossell, WI)

DOMINICAN REPUBLIC — Cristal Int'l, **5010** in SS at 2337 with ID at 2344. (Brossell, WI)

ECUADOR — La Voz del Napo, **3279.6** at 1006 with two men in SS talk, ID, group vocals. (D'Angelo, PA) HCJB, **21455** USB in SS at 2248. (Northrup, MO)

EGYPT — Radio Cairo, **9475** at 0320 with music, anthem, and end of EE broadcast at 0326. Also **9900** at 0003 with "History of Palestine," news, program items, music, time pips and into AA. (Burrow, WA) **9900** with news at 2130. Also at 0152 with AA lesson. (Weronka, NC) 0400 with singing, time pips and ID in AA. Also at 0400 Egyptian Radio in AA on **9755**. (Brossell, WI)

ENGLAND — BBC, **11680** at 2130 with "Calling the Falklands." (Jeffery, NY)

FINLAND — YLE — Radio Finland, **9720/11985** at 2100 in various languages. Address given in various languages, with mentions of Radio Aurora, Radio Finland-YLE, Radio Mundo, all with Helsinki addresses. Modulation off abruptly at 2105, back again at

2138 with "Capital Weekend" program in EE to 2155 and dead air until carrier went off at 2200. (Burrow, WA) **9885** in FF at 1330. (Northrup, MO) 17660 at 1337. (Brossell, WI)

FRANCE — Radio France Int'l, **11995/12015/15605// 17850** in EE at 1600 with news and reports beamed to Africa. (Burrow, WA) **11995** at 0409 with EE news. **13610** at 0501 with EE news. **15605** in FF at 1530. (Jeffery, NY) **17680** at 1315 and **21685** at 1355, both in FF. (Northrup, MO)

GERMANY — Sudwestrundfunk, **7265** in GG with US pops, ID at 0500 and news. (Brossell, WI) Deutsche Welle, **6100** in GG at 0300. (Weronka, NC) **15275** at 1440; **17730** at 1320 (via Antigua, gld) and **17765** (Antigua — Ed) at 1320, all in GG. (Northrup, MO)

GREECE — VOA relay, **7115** in AA at 0445. (Brossell, WI)

GUAM — (presumed) AFRTS, **5765** USB with news at 1430. (Barton, AZ) Adventist World Radio, **11970/17880** at 2200 in Mandarin. Also **11980** at 2129 in EE. //to 9660 via Austria but running a minute or so behind. (Silvi, OH) **17835** at 2355 in EE/VV and **17880** at 2250 in CC. (MacKenzie, CA)

GUATEMALA — Radio Maya de Barillas, **3324.8** at 1200 with Mexican-sounding music. Faded by 1250. (Barton, AZ) Radio Verdad, **5052.4** at 0330 with SS religious talks but mostly continuous religious music, woman anncr with ID at 0444. Off with long choral anthem. (Alexander, PA) 0450 in SS. (Brossell, WI) Radio Cultural, **3300** with sermon in EE at 0405. (Brossell, WI) La Voz de Nahuuala, **3360** at 0345 with marimbas, local pops, some SS anmts. Sign off anmts at 0432 and off 0433. (Alexander, PA) Radio K'ekchi, **4845** at 0310 with religious programming in K'ekchi, church service, preaching. ID at 0402 and many IDs between 0442 and 0443. Off abruptly at 0451. Not heard often and not usually on this late. (Alexander, PA)

HAWAII — AFN/AFRTS, **6350** USB at 0500 with world news. (Brossell, WI) 0831 with CNN news, promos, features. (D'Angelo, PA)

HUNGARY — Radio Budapest, **9835** heard at 0333 with features on Hungarian politics. (Newbury, NE) 0343 with health report. (Burrow, WA)

INDIA — All India Radio, **11585** in presumed Hindi at 1322 with music and anmts. Also **11735** at 0334. (Brossell, WI) **11620** with news at 2104. (Miller, WA)

INDONESIA — Radio Republik Indonesia-Makassar, **4757** in II with pops at 1317. (Miller, WA) Voice of Indonesia, **15150** at 1840 with pops, EE ID at 1901, final ID and schedule at 2100 then a short sub continental music selection and off. (Strawman, IA) 2015 with political comments, "Headline News" and into music. (Burrow, WA)

IRAN — VOIRI, **9605/11640/11870** with report on the Islamic revolution, ID, schedule, address and off at 1627. (Burrow, WA) **11710** in Farsi at 2255. (Miller, WA) **11720** with Holy Koran in AA at 0333. (Brossell, WI)

IRELAND — Radio Telefis Eireann, via Canada, **13640** at 1847 with domestic politics, promos, news and traffic. (Newbury, NE) **13640/21630** (via Ascension) at 1850 — get your TV license before the knock on the door. (Burrow, WA)

ISRAEL — Kol Israel, **11585** in HH at 2228. (Miller, WA) **11605** heard at 1000 with news. (Weronka, NC) **11605/17545** at 1710 with news. (Burrow, WA) **17535** in HH at 1700 and **17545** not parallel. (Newbury, NE)

ITALY — RAI Int'l, **7235** at 0446 with ID, news. (Burrow, WA) 0450 with news in EE. (Brossell, WI) **9670** in II with Italian pop/rock at 0208. (Newbury, NE) **11810** in II at 2250. (Miller, WA)

JAPAN — Radio Japan/NHK, **6110** via Canada at 0513. Bio of a Chinese rock star. (Newbury, NE) **9660** via French Guiana in JJ at 0355. (Brossell, WI) **9845** in EE at 1315. (Northrup, MO) **15325** in JJ at 0249. (Jeffery, NY) **17810** in possible Indonesian at 2310. (MacKenzie, CA) Radio Tampa, **6115** in JJ at 0845 with music to 0859 ID. (D'Angelo, PA)

JORDAN — Radio Jordan, **11690** at 1632 with "Interaction" call-in program. (Brossell, WI) **11960** in AA at 0645. (Barton, AZ)

KUWAIT — Radio Kuwait, **11625** in AA at 2231. (Miller, WA) **11990** in EE at 2030; 2031. (Weronka, NC; Newbury, NE) **15110** in EE at 0503; 0511. (Burrow, WA; Jeffery, NY) **15495** at 2302 with "Huna al Kuwait" ID. (Brossell, WI) **15505** in AA at 0525. (Newbury, NE) **21675** in AA at 1410. (Northrup, MO)

LIBYA — Voice of Africa, **15435** heard at 2042 with news, ID and into AA at 2047. (Jeffery, NY) EE news at 0228-0231, ID, FF news at 0231. //17750, both very good. (Alexander, PA)

LITHUANIA — Radio Vilnius, **7325** at 0030 with start of EE service. ID and news. (Burrow, WA) **9875** at 2350 with history program, Radio Vilnius' first broadcast in 1946 and first EE service in 1965. Off at 2359. (Brossell, WI)

MALAYSIA — Radio Malaysia, **7295** at 1628 with EE features, music dedications and "Radio 4" IDs. News at 1700 and into "Midnight Madness" program. (Burrow, WA)

MALI — RTV Malienne, **4835** heard at 2335 with FF talk, highlife music, brief ID and sign off with marching band national anthem. Fair and on //5995 but //4783 was poor (D'Angelo, PA)

MEXICO — Radio Mexico Int'l, **11770** with nice music at 1600. (Barton, AZ)

MOLDOVA — Voice of Russia via Moldova on **7125** at 0445. (Brossell, WI)

MOROCCO — VOA relay, **15220** with ID at 2030 and into FF. (Watts, KY) **17895** at 1711. (Newbury, NE) RTV Marocaine, **15345** with AA talks. (Brossell, WI)

NETHERLANDS — Radio Netherlands, **15220** (via Canada, gld) with "Europe Unzipped" at 1445. (Northrup, MO)

NETHERLANDS ANTILLES — Radio Netherlands Bonaire relay, **9790** at 1000 with

"Newline." (Barton, AZ) **9845** at 2340. (Weronka, NC) **17605** at 1933. (Jeffery, NY)

NEW ZEALAND — Radio New Zealand Int'l, **15340** heard at 0504 with news, weather and "This is Radio National" ID. (Brossell, WI) 0517 with interview program. (Jeffery, NY) 0523 on island spirituality. (Newbury, NE) 0626 with program on teachers and teachers aids, "This Week in Parliament." (Wood, TN) **17675** at 0223. (Jeffery, NY) 0332. (Barton, AZ)

NIGERIA — Voice of Nigeria, **7255** at 0457: "You are tuned to the Voice of Nigeria on 7255 kiloHertz." Then more frequencies and program preview. (Brossell, WI) 0500 with African news. (Wood, TN) 0503 with news. // **15120**. (Newbury, NE) **15120** at 2001 with news. (Jeffery, NY) 0502 with news. (Miller, WA) 0506 with news, magazine program. (Burrow, WA)

NORTH KOREA — Voice of Korea, **9325** with opening anthem heard at 0900. (Barton, AZ) **9335** at 1502 with IS, sign on in EE. // **11710**. (Newbury, NDE) **9975//11735.1** at 1602 with news. (Burrow, WA) Korean Central Broadcast Station, **2850** at 1252 with patriotic light opera vocals. (Strawman, IA) 1705 with non-stop female vocals. (Foss, Philippines)

OMAN — Radio Sultanate of Oman, **15335** in EE at 0300 with Koran recitations in AA and EE translations/commentary. U.S. pop, ad for contest to win a Toyota Corolla, chimes and news at 0330, phone talk and abrupt sign off at 0358. (Alexander, PA) 0308 with Holy Koran in AA and EE translations. (Burrow, WA) BBC relay, **15575** at 0312. (Jeffery, NY)

PAKISTAN — Radio Pakistan, **11570//15100** heard at 1558 with IS, ID and news. (Burrow, WA)

PAPUA NEW GUINEA — NBC Port Moresby, **4890** with pop numbers heard at 1130. (Barton, AZ) **1236** with EE pops. (Miller, WA)

PERU — Radio Ilucan, tentative, **5678** with male vocals at 1130. (Barton, AZ) 0030 with OA mix, SS anmts, talk, ID. (Alexander, PA) Radio Super Nueva Sensacion, presumed, **6673.8** at 0030 with OA mx, SS anmts. (Alexander, PA) Rdf. Huancabamba, **6536** at 0030 with OA mx, many mentions of Huancabamba, SS anmts, promos. Abruptly off at 0058. (Alexander, PA) Radio Peru, **5637.2** at 0030 with SS talks and brief music breaks, ID, some mx. Irregular operation. (Alexander, PA)

PHILIPPINES — Far East Broadcasting Co., **15095** at 1332 with talks in unid. language. (Brossell, WI) Radio Veritas Asia, **11820** at 2300 with religious program in Indonesian. (Miller, WA) Radio Pilipinas, **11890** at 1901 with news in Tagalog. (Miller, WA) **11890//15190** at 1730 with EE ID and into Tagalog. (Burrow, WA) VOA relay, **15395** in CC at 0255. (Jeffery, NY) **17820** at 2300. (MacKenzie, CA)

PORTUGAL — RDP Int'l, **17745** with live sports. (Brossell, WI)

PUERTO RICO — AFN/AFRTS, **6458** USB at 0004 with news, "Oldies Radio." (Jeffery, NY)

ROMANIA — Radio Romania Int'l, **11830** in Romanian at 2330. (Miller, WA) **11940** at 0000 in Romanian with ID, narrative, music. (Burrow, WA) 0235 talking about the arts. (Weronka, NC)

RUSSIA — Voice of Russia, **7180** with news at 0300. (Weronka, NC) **7260** at 1513 with news. (Newbury, NE) **9940** in GG at 1310. (Northrup, MO) **15355** in RR at 1245. (Miller, WA) Radio Rossii, **17600** in RR at 1335. (Brossell, WI)

RWANDA — Deutsche Welle relay, **17860** in GG at 1800. (Brossell, WI) 2253 in GG. (MacKenzie, CA)

SAUDI ARABIA — BSKSA, **11820** in AA at 2235. (Miller, WA) **15170** in AA at 0517. (Newbury, NE) **15205** at 1730 in AA. (Brossell, WI) 1630 with prayers. (Barton, AZ) **15230** in AA at 2035. (Watts, KY) **21705** in AA at 1350. (MacKenzie, CA)

SEYCHELLES ISLANDS — Far East Broadcasting Assn., **11640** at 0329 with ID, IS and off at 0330. (Brossell, WI)

SINGAPORE — BBC relay, **6195** at 1342. (Foss, Philippines) **9740** at 1300. (Newbury, NE) **15360//17790** at 0006. (Jeffery, NY) Radio Singapore, **6150** at 1551 with music to ID "Mediacorp Radio Service for Radio Singapore English Service." IS and signal became much weaker. (Burrow, WA)

SLOVAKIA — Radio Slovakia Int'l, **9440** monitored at 0204 with week's news. **5930**. (Newbury, NE)

SOUTH AFRICA — Channel Africa, **15215** at 0508 with news, frequent IDs. (Burrow, WA) 0506. (Newbury) 0506. Also **17870** at 1802 with news. (Jeffery, NY) Adventist World Radio, **12080** at 0431 with news, features and music. (Jeffery, NY) **15225** at 0457. (Miller, WA) **17690** at 2029 ending EE and into FF. (Newbury, NE) BBC relay, **11765**. (Brossell, WI) Radio Sondergrense, **3320** at 0410 in presumed Afrikaans. (Brossell, WI)

SOUTH KOREA — Radio Korea Int'l, **5975//9515//9870** at 1606 with news, ID and commentary. (Burrow, WA) **9650** via Canada at 1205. (Newbury, NE) 1212. (Barton, AZ)

SPAIN — Radio Exterior de Espana, **6055** at 0510. (Newbury, NE)

SRI LANKA — Sri Lanka Broadcasting Corp., **9770//15425** at 0300 with time pips, ID, "Talk for Today, ID as "Radio Sri Lanka" and music. (Burrow, WA) **15425** at 1252 with 50's music. (Miller, WA) Deutsche Welle relay, **15205** in GG at 0231. (Jeffery, NY) VOA relay, **15250** at 0237 in unid. language. (Jeffery, NY) **15305** at 2322. (Brossell, WI) **15395** at 1352. (Newbury, NE)

SURINAME — Radio Apinte, **4991** at 0432 with romantic vocal, ID and presumed ads followed by pops. (D'Angelo, PA)

SWEDEN — Radio Sweden, **9495** at 0338 with features. (Newbury, NE) 0340 — graft and scandal in large companies and government. (Brossell, WI) **18960** at 1445. Pollution in Baltic Sea. (Barton, AZ)

SWITZERLAND — Swiss Radio Int'l, **15555** heard at 1720 in AA, EE ID at 1730. (Brossell, WI)

SYRIA — Radio Damascus, **12085//13610** at 2100 with regional music, ID, news, ID, anthem, music. **12085** signal drops at 2105. (Burrow, WA)

TAIWAN — Radio Taipei Int'l, **9610** at 1255 with CC lesson. (Newbury, NE) **11605** at 1325 in CC. (Brossell, WI) Central Broadcasting System, **15290** in CC at 0244. (Jeffery, NY)

THAILAND — Radio Thailand, **15460** at 0300 with IS, ID, program notes and into Thai news. Also at 0008 on 9680. (Burrow, WA) VOA relay, **9670** at 1741. (Foss, Philippines)

TUNISIA — RTT Tunisienne, **7110** at 0440 with Holy Koran. Also **9720** at 0358 in AA. (Brossell, WI) **7110** in AA at 0601 and **12005** in AA at 0346. (Newbury, NE)

TURKEY — Voice of Turkey, **6020//7240** at 0421 in EE. ID and schedule at 0448. IS and off at 0449. (Burrow, WA) Turkish Meteorology Station, presumed, **6900** at 0528 with continuous Turkish vocals. (D'Angelo, PA)

UGANDA — Radio Uganda, **4976** at 0409 with woman in EE. (Strawman, IA)

UNITED ARAB EMIRATES — UAE Radio, Dubai, **13675** at 0330 with music, news, ID. Address for QSL and comments, "Role of Commerce in Arab Society." (Burrow, WA) **15315** at 1515 with call to prayer. (Barton, AZ)

UZBEKISTAN — Radio Tashkent, **9715** opening in EE at 1330, woman with "Radio Tashkent Calling." (Barton, AZ) **11905** at 2031 with news, music, ID. (Burrow, WA) **2136** with news, ID, music. (Jeffery, NY)

VATICAN — Vatican Radio, **11625**, "Ici Radio Vaticana" and into FF. (Brossell, WI) **15570** with IS and sign-off at 1829. (Miller, WA)

VIETNAM — Voice of Vietnam, **9840** in RR at 1130. (Barton, AZ) **12020** at 2348 with VV songs and EE anmts, including "You are listening to the Voice of Vietnam" at 2350. (Brossell, WI)

VENEZUELA — Ecos del Torbes, **4980** in SS at 1010. (Barton, AZ)

Launch the fireworks in honor of the following who did the right thing this month: Marty Foss, Guinayangan, Philippines; Rick Barton, Phoenix, AZ; Mike Miller, Issaquah, WA; Mark Northrup, Gladstone, MO; R.C. Watts, Louisville, KY; Rich D'Angelo, Wyomissing, PA; Robert Brossell, Pewaukee, WI; Joe Kenneth Wood, Gray, TN; Bruce R. Burrow, Snoqualmie, WA; Lee Silvi, Mentor, OH; Ed Newbury, Kimball, NE; Stewart MacKenzie, Huntington Beach, CA; Jerry Strawman, Des Moines, IA; Dave Jeffery, Niagara Falls, NY; David Weronka, Benson, NC and Brian Alexander, Mechanicsburg, PA. Thanks to each one of you. And, until next month, good listening! ■

v.i.p.

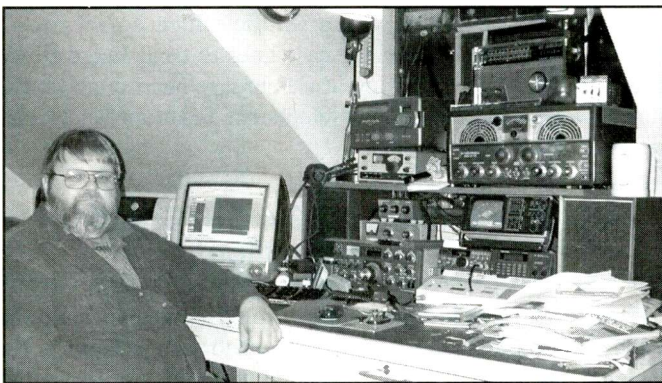
spotlight

Congratulations To Joe Weidner Of Ohio!

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

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

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



Pop'Comm reader Joe Weidner at his shack in Ohio.

Our July Winner, Joe Weidner, KA8CEQ Of Columbus, Ohio

Pop'Comm reader and avid radio enthusiast, Joe Weidner says, "I can pinpoint the day I was bitten by the radio bug as February 20, 1962 — the day Ohio Senator John Glenn became the first American to orbit the earth. I was 11 years old and my father, (KB8GK ex W8JY1) an electronic technician for Goodyear Aircraft in Akron, Ohio, had set up a military surplus ARC-5 radio so we could listen to the mission. He wasn't ready for "the smoke test" until after I went to bed. So, I fell asleep listening to the mysterious hoops and howls native to the late-

"I can pinpoint the day I was bitten by the radio bug as February 20, 1962 — the day Ohio Senator John Glenn became the first American to orbit the earth."

winter 49-meter shortwave band. The next morning there it was on the kitchen table, complete with an R. G. Dunn cigar box speaker enclosure.

As Sen. Glenn blasted off in Friendship 7, I had my own seat at Mission Control. The ARC-5 gave way to a Hallicarfters SX-100, which I still use today. That first year as an SWL, I followed the Project Mercury flights of Carpenter and Scirra, the Cuban missile crisis, and the return of U2 pilot Frances Gary Powers to the U.S. — what a year!

Today, I'm still an avid listener and I use the Internet as an extension of the hobby.

The current KA8CEQ shack includes the SX-100, a Kenwood TS530S, National S54, Yaesu FT-480, an iMac, and a collection of Zenith Trans-Oceanic and other 'suitcase' radios."

Good News for the VHF/UHF Enthusiast CQ VHF is back!

After a two-year absence, the all-time favorite magazine for the VHF/UHF enthusiast - *CQ VHF* - is back to serve you. The new *CQ VHF* will look familiar to former readers. After all, the basic mission of the magazine is the same, but with editorial at a somewhat higher technical level than before. Within the pages of the New *CQ VHF* you'll find more meaty reading for the really serious VHFer than before. That's what our surveys told us you wanted, and that's what you'll get.

Take advantage of our special introductory offer for Charter Subscriptions to the new *CQ VHF*. The regular rate will be \$25 for four information-packed quarterly issues, but subscribe now, and we'll give you the first issue FREE — five issues for the price of four. That's a 25% bonus over the regular four issue subscription. Enter your Charter Subscription for two years, and the introductory offer is ten issues for \$45, a 25% bonus over the regular two year offer. And as always, every subscription comes with our money back guarantee.

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FCC Explores 800 MHz Band Interference To Public Safety

The Federal Communication Commission has adopted a Notice of Proposed Rule Making (NPRM) to explore ways to reduce harmful interference levels affecting public safety operations in the 800-MHz band. The 800-MHz band has been used by police, fire, and emergency medical agencies since 1980, but the emergence of neighboring commercial providers has increased the level of interference in this band. The NPRM solicits comment on how best to remedy this interference and at the same time cause minimum disruption to the existing licensing structure while assuring sufficient spectrum for critical public-safety communications. The Notice describes the current configuration of the 800-MHz band for public safety and non-public safety systems, discusses the causes of interference, concludes that increasing levels of interference to public safety communications on the 800-MHz band must be remedied, requests information on the amount of spectrum needed to meet the needs of public safety agencies, and discusses means of handling licensing and frequency coordination if the 800-MHz band is restructured and incumbent 800-MHz licensees are relocated to other suitable bands, discusses potential relocation bands. For more information on this NPRM, visit the FCC web site at www.fcc.gov and search for FCC 02-81.

laws.” Arguments are expected later this year, but a court ruling won’t come until early 2003.

FCC Refunds NextWave Auction Deposits

The Federal Communications Commission announced that it will refund 85 percent of the down payments made by winning bidders in an auction for licenses previously issued to NextWave Personal Communications, Inc., NextWave Power Partners Inc., and Urban Comm-North Carolina, Inc. The agency will refund \$2.8 billion of the \$3.3 billion in down payments it received.

Court Hearing On Cell Phones And Cancer

Do cellular phones cause cancer? That’s the basic question facing U.S. District Judge Catherine C. Blake. At stake is the \$800 million case against the wireless industry brought by Christopher J. Newman, a Baltimore physician who claims he developed a malignant brain tumor after using a cell phone for many years. Newman’s case isn’t the first try to link cell phones and cancer, but it is the first detailed public probe of the issue and the first to determine what scientific evidence — if any — will be allowed in court if the case goes to trial. Judge Blake heard five days of testimony in a February hearing about the link between handheld cellular telephones and brain cancer. Her decision could take months.

Supreme Court To Hear NextWave Case

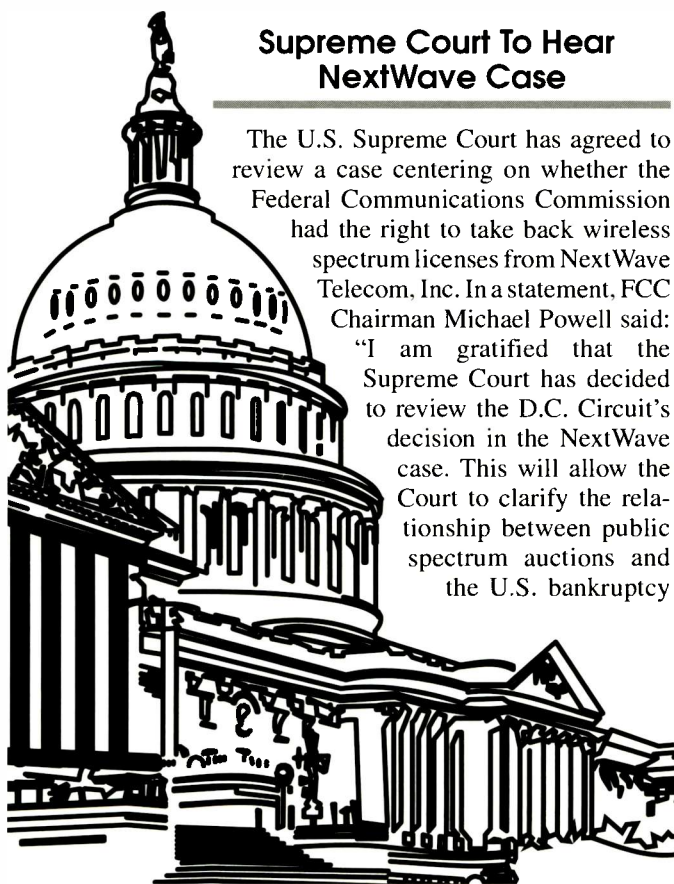
The U.S. Supreme Court has agreed to review a case centering on whether the Federal Communications Commission had the right to take back wireless spectrum licenses from NextWave Telecom, Inc. In a statement, FCC Chairman Michael Powell said: “I am gratified that the Supreme Court has decided to review the D.C. Circuit’s decision in the NextWave case. This will allow the Court to clarify the relationship between public spectrum auctions and the U.S. bankruptcy

FCC May Back Sirius 2.4 GHz Spectrum Change Petition

Several wireless Internet service providers are expecting the Federal Communications Commission to sign a Petition for Rulemaking requested by Sirius Satellite Radio, Inc., that could pit licensed users in the 2.32- to 2.34-GHz spectrum band and unlicensed users in the 2.4-GHz band in a duel over how the 2.4-GHz spectrum will be used. Sirius and other licensed providers are concerned that signals from unlicensed providers will interfere with their services.

Senate Bill To Create Cyber-Swat Team

Two senators have introduced a bill that would create a cyber-SWAT team of experts in technology who would be called on to help the country recover from cyberspace attacks on computer and communications networks. Experts who have volunteered to assist in the past have been hobbled by bureaucracy and lack of access. The bill, sponsored by Sen. Ron Wyden (D.-Oregon) and Sen. George Allen (R-Virginia) would also pro-



vide \$35 million in grants to improve communications systems for fire, police, and other public safety agencies.

Government Unveils Pilot Wireless Priority Program

The National Communications System has unveiled a pilot program that will allow national security and emergency personnel in Washington, D.C. and New York state to obtain priority access to wireless networks in the event of an emergency. "We have a pilot program for wireless priority services with VoiceStream that we are going to put in New York City and Washington, D.C., probably in the May timeframe," said NCS deputy manager Brent Greene. "We have a competition under way, not yet finalized, to put in such capability nationally that would have a much broader national footprint ... by the end of December and then a year later full operational capability." The system was scheduled for a May test in Washington and New York.

Landline telephone networks already have a priority access system in place, but cellular telephone systems lack such a feature. Overloaded wireless systems on September 11th have prompted the search for priority access. The FCC has approved a waiver for VoiceStream Wireless to offer such a priority system, which would be available immediately on a subscription basis. Handsets on the market today would require a pre-programmed chip for priority wireless access, but new handsets

manufactured by Ericsson and Sony are expected to be available soon.

Callers invoking priority access would have their call routed to the next available circuit on wireless networks. Those without priority access would only be bumped off the network if a call by someone with the access is moving from cell site to a cell site where all circuits are busy.

CB Operator Gets Nabbed

The FCC has issued a Forfeiture Order to a Citizens' Band operator for unauthorized operation of a CB radio. Javier Rodriguez of Boqueron, Puerto Rico, was fined \$1,000, reduced from an original fine of \$10,000, for transmitting on 26.715 MHz from a modified Cobra 148 GTL transceiver. The radio was connected to a radio frequency power amplifier. According to the FCC, "frequency 26.715 MHz is in a band allocated exclusively for use by the United States Government. That frequency is not authorized for operation by CB stations and Rodriguez had no authorization to operate on it." Rodriguez was warned, but agents from the FCC's San Juan Office again tracked interference to Rodriguez's residence. This time he was transmitting on 26.705 MHz. The FCC issued a Notice of Apparent Liability for \$10,000. Of course, Rodriguez balked, saying that he was financially unable to pay the forfeiture, and proved it with copies of his tax returns. The Commission dropped the fine to \$1,000. Next time they may not be so nice. ■

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Something A Little Different This Month: Aviation Movies — The Good, Bad And Just Plain Ugly

I've been writing this column for just over two years. Sometimes it's extremely easy to write, sometimes you're brain dead and you just can't come up with an article that would be appealing to the readers.

Unless something happens in the near future I only have a few years 'til mandatory retirement. My original plans for then are still on the back burner. At least for now. This column I will be included in part of these future plans.

My wife, Candy, hates going to aviation movies with me. I nitpick them to death. "We don't say that." "Pilot's can't do that." "That's ridiculous!" You get the picture. So in keeping with that tradition I will institute an award this issue for the movie that portrays aviation and air traffic control in their worst light. I call this award the "BARTCC SAVAGE AWARD." (For those of you who didn't see my earlier columns BARTCC, pronounced bartack, stands for the Berlin Air Route Traffic Control Center, where I worked in the late 1970s.) In actuality, the BARTCC Savage Award is (was, I don't know if it still exists) a real trophy given to the losers of softball/flag football/volleyball games played between the BARTCC controllers in West Berlin and the pilots of Pan American Airlines who flew the corridors to and from West Berlin during the Cold War. It was truly a butt-ugly piece of work. It looked like a flat black painted tiki-doll with the facial features painted day-glo red, green, yellow, etc. You get the picture. I figure that this semi-fictitious award can be given to the most poorly depicted aviation film that I'm aware of. Please understand that these are my thoughts and opinions, not those of Harold, the owners of *Pop'Comm*, Roger Ebert, or anyone else and that my thoughts are only for flying and air traffic control, not the acting or cinematography.

The Nominees

"Skyjacked," later reissued as "Sky Terror." This 1972 film from MGM starred Charlton Heston as a pilot of a commercial airliner en-route to Los Angeles hijacked to Russia. You know something is wrong when the well-known and immense football player Rosey Greer cannot take out James Brolin who plays a demented Viet Nam vet. Though the flying scenes were not that bad, they could have used early F-86 Sabre jets to impersonate Soviet Mig's, because they are almost exact in their design. Instead they used an early Air Force frontline fighter, the F-100 Super Sabre. But the worst was the air traffic control sequence in Alaska, Fairbanks I believe. The controller was running a PAR (Precision Approach Radar) approach in a tower (they aren't in towers), from 50 miles distant (they're only good to 10 miles), in a blinding snow storm (though no precipitation is seen on radar.)

"This is a Hijack" was brought out about the same time as "Skyjacked" above. I don't know who did the movie, or the



From Lakeland's Sun-n-Fun, here's a look at a Bell Aircobra from World War II, and built specifically for the Soviets.



Here's a Europa Motor Glider — a glider that doesn't need a tow plane to get in the air.

actors, but a man successfully hijacks an airplane his boss is on in order to pay off some gambling debts. The air traffic controller is forced to take the plane to a closed runway for a night departure. The limited controlling photography was bad enough, but you could almost see the hand holding up the model airliner for the in-flight sequences.

The "Die Hard" series. I know that Bruce Willis is pretty much a guaranteed draw, but the flying sequences truly were bad. Perhaps Bruce Willis was confused. The first film had him in Washington D.C., but the payphones he used had Pacific Bell all over them. Every controller and pilot I know that saw the



A group of USAF and U.S. Navy T28s on the military flightline.



A group of World War II P51 Mustangs, many in their original paint schemes.

films laughed their heads off when Mr. Willis used the ejection seat in the cargo aircraft. (You only find them in fighters and bombers.)

Anything with "Iron Eagle" in the title. These four films got progressively worse as they went on. I've heard rumors that the U.S. Air Force wanted nothing to do with them. All the F-16 Fighting Falcons were owned and operated by the Israeli military. Again, writers' license comes into play, but there is no way that a teenager would even get close enough to an F-16 on a flightline without proper authorization. And add this to the fact that this teenager could talk an Air Force Colonel into ripping some F-16's off, taking them overseas, including refueling, to rescue his dad. (This ain't Wesley Crusher on *Star Trek: the Next Generation*.) Later films in the series included using F-4 Phantom II fighters as top line Russian fighters, and dogfights between WWII twin-mustangs and modern kit-planes. These films are repulsive enough, but an air traffic controller clears a pilot for take-off while the jet is still in the hanger and the engines aren't even running. Gimme a break.

"Airport 77" is the third of four films in the "Airport" series, starting in the 1960s with Dean "Everybody Loves Somebody Sometime" Martin as the pilot in original film. In this film, a hijacked Boeing 747 (does anybody see a trend here?) laden with priceless art owned by Jimmy Stewart disappears in "the Bermuda Triangle." The film crashed into the Atlantic and promptly sinks, fuselage intact, with most of the passengers surviving. Somehow the U.S. Navy gets involved and uses underwater balloons to raise the jumbo-jets body just long enough to save most of the passengers though losing the art. If you remember the previous "Airport 75" film the U.S. Air Force was



An F4U Corsair, the type flown by Pappy Boyington of the Black Sheep Squadron in World War II.

involved in saving that 747, complete with Charlton Heston. (See "Skyjacked" above.) The chances of the fuselage surviving such a crash is less than zero. Do you remember the hijacked Boeing 757 that was videotaped as it crashed off the African coast a few years ago?

If you thought it was finally over in the Airport series the final of the series: "Airport 79, the Concorde" was introduced. The premise of the film was bad enough, but the one recurring character in the entire series, Joe Patroni, played by George Kennedy, has gone from maintenance man to Concorde pilot in less than 15 years since the first film. In the film the Concorde's engines are shut off in flight so Mr. Kennedy can stick his hand out a side window to shoot a flare gun to throw off some heat seeking missiles fired at them by a French Air Force (I believe) F-4. Many of the flight sequences involve small model aircraft,



Here's a Navion, a post World War II aircraft many owners like to dress up as military. I don't believe it was ever used by the Air Force.



This is a kit plane (type unknown) that collided with and sliced off the tail of the Navion. They are about 1000 feet apart when they came to rest. There were no major injuries in this incident.

ala "This is a Hijack" above. The crash sequence in the Swiss Alps is tacky at best, again the fuselage pretty much survives, with the tail fin finally falling over, relatively intact. It seems that only the wings need to be destroyed in these films. At least the Boeing 747 in "Airport 75" was repairable.

And speaking of Boeing 747's let's look at one of the big films of recent years: "Air Force One." I must admit that much of the flying shots are pretty impressive and much of what is seen inside the plane is speculative, but there are no "escape pod jets" in the bottom of the plane. And in the grand scheme of things the crew members and maintenance personnel of Air Force One (on air traffic computers the call sign is: A1) go through a serious background check, so even the scenario is pretty tacky.

Before I award the prestigious BARTCC Savage Award let me say there are many films that show flying and ATC truthfully and positively, even if only for a moment.

Besides "Airport" and "Airport 75" mentioned above there is a brief roughly five-minute segment in "Close Encounters of the Third Kind" which was filmed in the Indianapolis ARTCC. The phraseology was correct with interplay between controllers, controller data personnel, and supervisors done quite well.

Surprisingly a comedy fits into this category — "Summer Rental" with the late John Candy. All the outside Florida sequences were filmed about 15 miles west of here on the Gulf coast. The ATC sequences were filmed in the training room at Atlanta ARTCC. I've been told that the chair John Candy used has a sign on it and is not used. The ATC is correct.

There was a short-lived program from CBS named "Spencer's Pilots." The program was only on from September to November 1976 but the flying and ATC was all correct and actually *very* commendable.

Even the few times you actually heard controllers on the comedy "Wings" it was, for the most part, right on.

Of course there's always the comedy "Airplane" which is in a category all by itself.

I must say, though, that the best film I've ever seen for ATC is "Pushing Tin" with John Cuzak and Billy Bob Thornton. I went to see the film with the only idea of tearing the film up. I was wrong. Not only was the ATC phraseology correct, the methods of controlling were correct. But what impressed me the most was the non-ATC sequences. The controllers twirling their cords and the off the radar room floor comments such as "deals" and "operational errors" etc., were perfect. My one nit-pick is when the controllers were standing next to a runway to get blown over by the wake turbulence from landing jumbo-jets. This film, as far as ATC and flying goes, gets the biggest thumbs up.

Now for the winner of the first, and hopefully only, BARTCC Savage Award for worst flying/ATC sequences is: the "Iron Eagle" series.

Have you seen any films/TV series not mentioned here that you'd like my opinion on and perhaps may be a nominee for next years BARTCC Savage Award? Drop me a line here at flacap388@hotmail.com or mrr-atc@att.net.

Airshows Coming Your Way During July & August

Here's the listing of the air shows with the Thunderbirds, Blue Angels and Golden Eagles for July and August.

USAF Thunderbirds

July

4	Battle Creek, MI
6-7	Syracuse, NY
13	Terre Haute, IN
14	Fort Wayne, IN
20-21	Dayton, OH
24	Cheyenne, WY
27	Malmstrom AFB, MT
28	Fairchild AFB, WA

August
 10-11 Westover ARB, MA (According to *Pop'Comm* reader Rick Ericksberg this show has been cancelled due to lack of personnel and security concerns. Thanks Rick.)
 17 Portland, OR
 18 NAS Whidbey Is, WA
 31 Cleveland, OH

Blue Angels

July
 6-7 Traverse City, MI
 12-13 Pensacola Beach, FL
 20-21 Helena, MT
 27-28 Point Mugu, CA

August
 3-4 Seattle, WA
 17-18 Chicago, IL

24-25 Offutt AFB, NE
 31 St. Louis, MO

Golden Eagles

July
 3 Dubuque, IA
 6-7 Syracuse, NY
 13-14 Terre Haute, IN
 20-21 Dayton, OH
 20-21 Gary, IN
 27 Minot AFB, ND
 28 Fairchild AFB, WA

August
 3-4 Ellsworth AFB, SD
 17-18 Chicago, IL
 17-18 Hillsboro, OR
 24-25 Offutt AFB, NE
 24-25 Eau Claire, WI
 31 Cleveland, OH
 31 Chesterfield, MO

NEW/CHANGED/DELETED FREQUENCIES

NEW

AK
 Hoonah
 AWOS-3 132.05
 Togiak Village
 CTAF 122.5

GA
 Griffin — Spalding County (6A2)
 AWOS-3 119.750
 Washington-Wilkes County (I1Y)
 AWOS-3 118.375

NY
 Newburgh — Stewart International Airport (SWF)
 Unicom 129.325

PR
 Isla de Vieques — Antonio Rivera Rodriguez (VQS)
 Apch 135.8

TN
 Memphis International Airport (MEM)
 GC 121.65/121.9/379.2

CHANGED

OH
 Dayton — Wright-Patterson AFB (FFO)
 LC was 251.075, now 281.45

DELETED

AK
 Willow Airport (UUO)
 Unicom 123.0

PA
 Revere — Schneiders Field Airport (04PS)
 CTAF 122.9

CT

Bridgeport AFSS (BDR)
 Primary 122.1

FL

Naples Municipal (APF)
 ASOS 134.225

NEW/CHANGED/ABANDONED AIRPORT ID'S

NEW

VA
 Madison — Arrowpoint Airport VG43

CHANGED

PA
 Revere — Schneiders Field Airport was Q01, now 04PS

WV

Pence Springs — Hinton-Alderson Airport was W59, now WV77

ABANDONED/CLOSED

IA

Fort Madison — Iowa State Penitentiary Heliport IA53

ME

Brunswick — Coombs Ultralight ME23

MN

Longville — Girl Lake Seaplane Base 30MN

OK

Idabel Airport IBO

computer assisted by Joe Cooper <joe@provcomm.net> radio monitoring



Last month I introduced the computer sound card and looked at how it works. Most sound cards perform two functions, which is to produce sounds with a wave file and sample sounds using a digital signal processing circuit.

It is the digital signal processing (or DSP) capability of a sound card that is used by many software programs for use by radio monitors. These software programs can do many things, such as filtering audio bandwidth, reducing noise and interference, demodulating signals, and digital recording of sound.

In this month's column I'm going to be looking at the proper installation and configuration of the Sound Card in a Personal Computer next month. I'll be introducing some more monitoring software that is free on the Internet.

Plus, I'll have some letters than too. I have to report that there was a small revolt on the part of the Mac owners out there who insist on being represented in this column. So be it.

Sound Card Installation

There are a multitude of sound cards available for the Personal Computer today, with multiple models manufactured by many different companies. The reason for having so many cards available is due to the many different types of applications that people wish to use these cards for.

Sound cards can be used to play audio from music CDs or DVD movies. They can be hooked up to compatible electronic musical instruments to record and play back music. Voice recognition software can use a sound card to recognize spoken commands in order to operate software programs, or even write text.

The bottom line is that you can spend hundreds of dollars for cards with multiple speaker outputs and data inputs. Fortunately for people who are interested in radio monitoring this type of expense is not required. Frankly, the cheapest and simplest sound card is most likely your best bet for success in this undertaking.

If there is one thing that you *do* need to be certain of when obtaining or installing a sound card for radio monitoring purposes is that you get one that is compatible with the Sound Blaster standard. The Sound Blaster line of sound cards made

Sound Cards — Part II

by Creative Labs has become the de facto standard for the computer industry due to their popularity with the public and ease of programming for software manufacturers.

Having worked with many different sound cards over the years, I have to say here that saying a card is Sound Blaster compatible, and actually being compatible are two different things. Unless you are absolutely certain that a card that is not manufactured by Creative Labs is 100% compatible, it is better to buy the real thing. It is what I have always done and have found that I have fewer problems and better overall performance.

Again, don't go out and buy the high-end product from the Sound Blaster line because it may actually be too good for monitoring purposes. I have found from experience that the cards designed to produce high-fidelity sound through multiple speakers are too sensitive for the wide range of signal strengths encountered when tuning across the HF radio spectrum.

For the best results in radio monitoring applications I would suggest the Sound Blaster Live or Sound Blaster 16 card as they are relatively inexpensive and rugged enough to handle the job waiting for it. Remember, even if you already have a sound card (particularly if it is permanently built into the mother board of the computer) it is possible to install a second sound card in your personal computer — as long as you have a slot to install it in and understand how to set it up so that your computer can "see" it and use it (which I will cover in a moment.)

Given the wide variety of computer design I'm not going to go into the mechanics of installing a sound card. Read the manual that comes with the computer and the one that is supplied with the sound card and follow the instructions provided very carefully. Better still, have the sound card installed by a qualified technician and have the system fully checked out while you are at it.

Sound Card Operation

Once you have the sound card properly installed into an appropriate slot in your personal computer, your next task will be to access the card two ways so that you can use it.

The first way will be through the various input/output jacks available on the metal plate backing on the card that is visible at the back of the computer. While some high-end cards now come with multiple input/output devices, the basic sound cards that I am suggesting come with the following:

Joystick Port — This may also be used to connect MIDI compatible musical instruments to the computer with a special cable. Some Ham radio software uses the port for CW keyer paddle input; so don't ignore this port just yet.

Microphone input — This is most often used to connect the speaker output from a receiver to the soundcard.

Line input — Some monitoring receivers have line output capability in addition to their speaker output. Using the line input/output audio signal is better than the signal from the speaker. It also allows you to continue to use your speaker (and con-

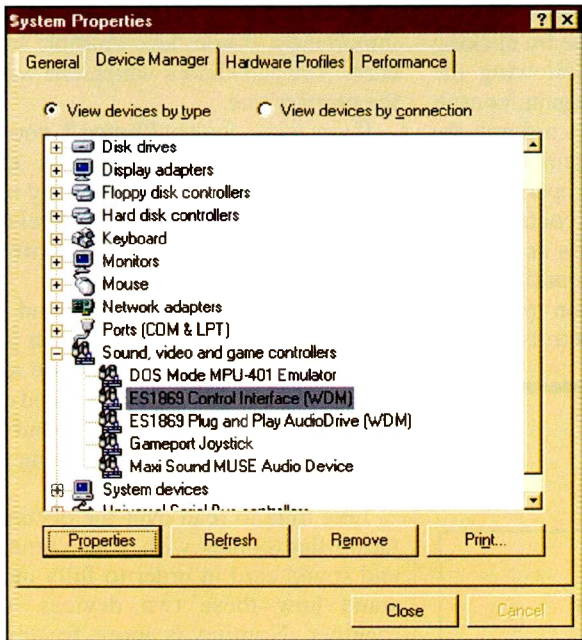


Figure 1 - System properties active window showing the device manager tree with sound card control highlighted. By double clicking the sound card control device you go to the control window.

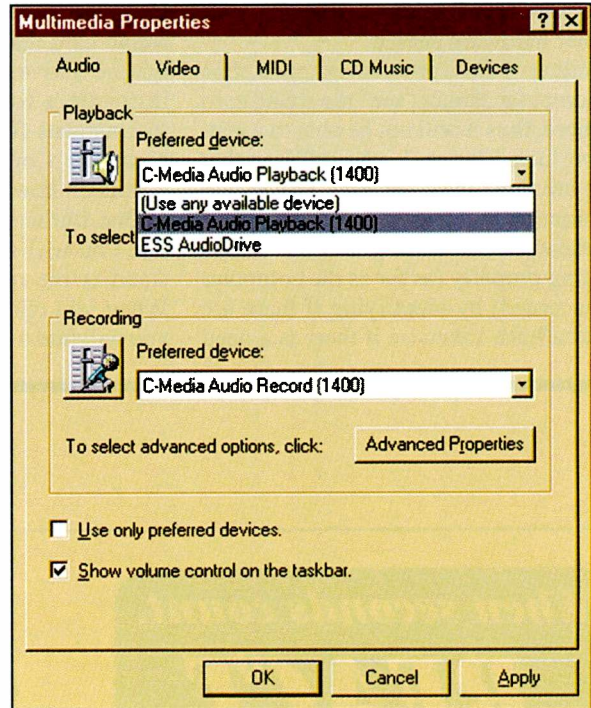


Figure 3 - Multi-media properties window, showing that there are two sound cards available for use. By highlighting one of the two names you can make one the primary sound card. Note that if you select "use any available device" you could cause a conflict with some software due to compatibility issues.

trolling it with the radio's volume control) while monitoring the radio's sound signal at a constant volume that is preferred for best sound card performance.

Speaker Output — This can be used as the receiver's speaker output when you use the sound card for digitally processing the sound coming from your monitor radio once it has been plugged into either your microphone or line input.

The connection is generally made using a standard 1/8" stereo mini-jack and cable. However, there can be problems with RF and electrical noise being picked up by the cable and getting into either the radio or the computer. In future columns I'm going to be looking at ways to isolate the radio and computer (particularly the video monitor) from one another.

The next step is to make sure that the computer can "see" the sound card and use it properly. This is particularly important is your computer is using more than one sound card, such as when you have one built into the mother board of the computer that is not Sound Blaster compatible.

Under Windows 95/98 go to Start and open the control panel. Once there you will then need to look in two places. First are the System settings, which will allow you to see if the sound card is "seen" by the computer and is available for use. To open these settings double click on the system icon (the icon looks like a desktop computer and it is labeled "System").

Once you get into the System settings look for the tab called "device manager," and click on it. You will see a tree, as show in **Figure 1**, with all of the hardware for your computer shown. Click on the icon labeled "Sound, Video and Game Controllers," which will show you all of the available sound card devices that are available on your computer.

At this point you should have your sound card and operating system manuals available in order to proceed properly. All you are doing at this time is becoming familiar with the settings that you will find here, not changing anything.

What is most important about the controls you are looking at is that they allow you to trouble shoot the sound card if it stops functioning. The majority of problems that you will encounter, other than a failure of the card itself, can be traced to one two things. That is; 1) old or corrupted system drivers for the sound-

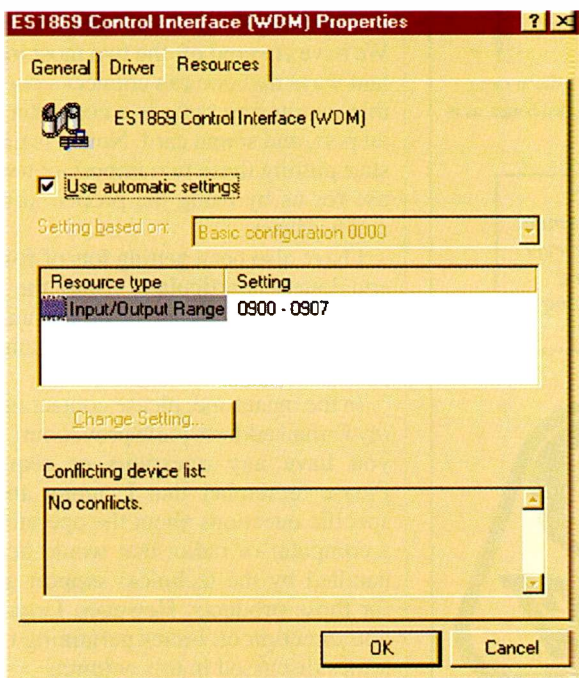


Figure 2 - The Properties Window showing whether the sound card is conflicting with other cards or devices installed in the computer. If there is no conflict the computer can "see" and use the sound card.

card, and 2) an address conflict with another hardware device.

If either of these problems happen, then the computer cannot "see" the sound card anymore, thus it will not be able to use it. If you look **Figure 2**, you will see that there are three tabs; General, Driver and Resources.

Resources will show you if the card is working properly (as far as the computer is concerned) by identifying if there are any conflicts. Likewise if there is a need

to update or re-install the driver for the sound card that can be done by clicking on the Driver tab, and following the instructions found there. Again, consult the manuals for the sound card and the computer's operating system for more details on how to do this properly.

One further icon in the control panel that you will need to access and understand is the one called "multi-media." When you click on this icon to open it, you will find a variety of controls for your

sound card for various applications. More importantly, if you have multiple sound cards, you can choose which one will be the primary one.

If you take a look at **Figure 3**, you will see that there are two sound cards installed on this one computer. By highlighting one, it will become the preferred device, and will be easier for the software that uses the sound card to find.

Again, if your computer's sound card isn't working, this is an important place to check. Likewise, when you are using particular software that uses a sound card, you can find the name that the sound card goes by in the computer when doing your set up and configuration.

Take time to read over the documentation that comes with your computer and sound card in order to fully understand how these two devices work together. Nothing is more frustrating than poor or intermittent software performance.

A bit of knowledge and planning about sound cards at this stage of our exploration of the computer-assisted radio monitoring will make a tremendous difference when we get to the installation and use of the software that works with sound cards, no matter what functions they perform.

Coming Next Month

Next month I will be looking at how to start making things really work together. We have covered off the two most important ways that one can connect a compatible monitoring radio to a computer; serial port, and sound card. Now it is time to start putting these two important tools to use for us by using the proper software and hardware.

I have also been getting lots of E-mails and letters, particularly from the Mac crowd. In a few months I'll have another "readers speak" column, which I am sure you will find interesting.

In the meantime, please contact me via my E-mail address joe@provcomm.net if you have any questions or requests. Please remember that I cannot answer specific questions about the operation of a computer or radio; that would be best handled by the technical support group for those products. However, I can give you direction on issues pertaining to the topics discussed in this column.

Until then, don't forget to say a prayer for the people overseas in our armed forces, and the security people working to protect us here at home. ■

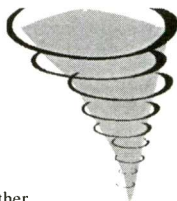
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Digital, Anyone?

Jerry writes "I've been an avid reader of *Popular Communications* since 1987. Love it. A question comes to mind with all the digital stuff out there. How prepared is the handheld scanner market to enter into the digital signal world? Will our old analog handsets become antiques overnight or is there a possibility of an antenna 'add on' to convert digital RF to analog?"

Well, Jerry, you're in luck. Unfortunately Jerry wrote this question almost a year ago and up until recently I haven't had a very good answer for him. But there is hope on the horizon.

Let's tackle the later questions first. Will our old analog handsets become antiques overnight? Probably, if your local area converts to a digital system. One thing to keep in mind is that digital systems are relatively expensive for agencies to make the switch. So even though digital systems have been around for some time, most areas in the United States are not abandoning their older technology.

Probably the next time your city, county, or state radio system comes up for replacement, digital will be a concern. Depending on how many units and the geography of the area, it may or may not be practical to consider digital technology. If they do, however, your existing radio won't work to receive it. While some sort of external converter is possible, in all reality, it would almost have to be a complete receiver that outputs the signal on a frequency your regular scanner could receive. Possible, but not practical, I don't think.

Digital is really not much more than another way of sending the signal. First there was CW (Continuous Wave) and that was good, particularly for ships (the survivors of the Titanic disaster were the first to see real benefit from this). The continuous part means that the transmitter is on as long as you hold the key down. You sent intelligence by turning the transmitter on and off in some form of organized sequence that can be understood at the other end. We call that organized sequence Morse Code.

Then, along came Amplitude Modulation or AM as we know it. Aircraft still use this method of encoding a voice onto a radio wave. The transmitter is on constantly, but the intelligence is sent by changing, or modulating the signal's amplitude — height of the wave.

FM is next, which is the Frequency Modulation that we use for most other forms of two way communications. It's hard to believe today, but at one time FM was a military secret! Here, the modulation causes the frequency to change, rather than the amplitude of the signal. Television signals modulate both amplitude (for sending the picture) and frequency (for sending the sound).



Airplanes were the first to adopt radio on a wide scale after ships, and the prevailing mode was AM. This older aircraft has new radios added to it which are just visible at the bottom of the center console.

Digital is the new kid on the block. Instead of feeding the raw audio into the transmitter, the audio signal is processed first and turned into data. A very similar technique is used to encode your music into digital before it's turned into a CD. It's not quite the same method, but the analogy works fairly well for our purposes.

Once we have this digital data which represents the voice, we need to send it someplace else. Hey, radio would be good for that! So the data is modulated onto the RF signal and the whole mess goes off to be received, decoded, and turned back into audio.

One easy fallacy to fall into is that digital is encrypted. For all practical purposes right now, since there aren't any digital scanners out there capable of decoding encrypted comms, it may as well be, but that's not necessarily true. That's where APCO 25 comes into play, and you've probably heard about that. If not, you're about to in the next section.

Digital Standards

The trick is how this digital conversion and transmission is done. Each manufacturer has been busy developing their own methods of encoding and transmitting digital voice signals, and no two are compatible with each other, of course.

The people who buy these systems, after they had similar experiences with trunking systems, said wait! There needs to be a compatible standard so that radios from one manufacturer can be put into the system with another manufacturer. This way there can be some competitive bidding down the road when



The military is a big user of both AM and FM, as well as many modes that we've probably never heard of! This SR-71 is sitting on the deck of the aircraft carrier Intrepid in New York City's museum — and well worth the trip if you ever get the chance. Ships have radio equipment that operates over a wide range of the spectrum in many modes.

APCO 25 standard is very similar to the Motorola system for digital modulation. Having a standard way to do this means that the agencies can buy radios from multiple vendors and that scanners can be made to put into police cars, fire stations, and at home. APCO 25 is an important standard for both the future of public safety communications and scanner listening.

Uniden's BC785D is the first scanner being developed to follow the APCO 25 standard. No doubt others will follow as the use of digital modulation becomes more widespread.

Encryption

Digital signals can be sent according to the APCO 25 standard, or they can be deliberately scrambled to prevent unauthorized interception. Most of the major scrambling and voice security systems in use today use encrypted digital transmission techniques. Signals that are intentionally encrypted will not be decoded by the new scanners. Signals from another

agency needs more radios, or wants to replace a piece of their system. APCO 25 is that standard.

APCO is the **Association of Public Safety Communications Officers**, and they have been very involved in radio systems and other things related to communications for some time. The

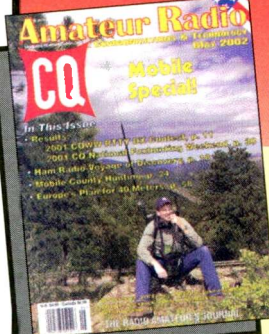
system that do not follow APCO 25 may or may not be decoded by the new scanners either. As we go forward, there will be a lot of pressure on radio manufacturers to make their equipment APCO 25 compatible, but digital systems that are in place now or are adopted in the next couple of years may not be APCO 25 systems.

I won't presume to open the argument about what should and should not be encrypted communications. Some departments seem to feel that all of their communications should be secret, while others feel that a public that is informed can be an asset. There are certainly some forms of communications such as internal affairs and perhaps some types of detective and undercover operations that officer safety could be compromised. With any digital system, adding encryption to those channels where it's needed is relatively easy. In the wake of the 9/11 disaster, I expect we'll see more of this as communications systems are updated.

Infrastructure

One final note on APCO 25 and digital systems. Right now, only trunked systems are being installed as digital systems. At this moment, only 800-MHz systems are in use for public safety, although parts of the country are beginning to see some use of the 700-MHz band as well. 800-MHz radio waves just don't travel the same way as other frequencies do, and with digital, the signal is either there or it's not. There's no "middle ground" of a static riddled signal that's still sort of to mostly readable. Many agencies have found this out the hard way with 800-MHz trunking systems. In the long term, we'll start to see 400-MHz and eventually 150-MHz systems which are trunked, and perhaps digital non-trunked systems and this issue will go away. One of the big pushes for digital technology is the ability to put more channels in the same amount of spectrum space, so it will spread once the standard begins to prove itself.

Over the long term, I read something recently that appears to indicate that not only will many of the signals that we now lis-



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ten to become digital, but they will be multiplexed as well. Multiplexing refers to the ability to put more than one signal on a given transmission. If you have a digital cellular phone, you're using some type of multiplexed system. Essentially, the conversation is broken into packets and sent along with other packets of data on the same frequency. There's no reason it wouldn't work on a public safety system just as well as it works on a cellular system. If you've used a digital cell phone you'll be aware that there are some limitations on this, but most of the time it works reasonably well. If you're interested in more details look for information about Time Division Multiple Access or TDMA on the Internet. There's also no information on the time table for implementation of these standards, or information about whether or not any digital scanners may support this technique. My guess is that they will, but only time will tell.

The good news for now is that it appears that there will be at least some solution for scanning digital systems. How that will work or if the availability of digital receivers will compel agencies to seek more encrypted systems, only time will tell. Keep your fingers crossed, and keep listening. And listen responsibly. Let's not give anyone any more reasons to want to encrypt the whole thing!

There is one piece of bad news in all this. It doesn't take much more processing to change some bits here and there in the digital signal and suddenly you have a new protocol — or an encrypted one. If the users of systems decide there's reason to not follow the APCO 25 standard in favor of security, it's not difficult to do. Or if the manufacturers decide to add additional features to the system, the APCO 25 protocol itself could evolve. The recently announced Uniden scanners will have an extra card for digital reception. This opens the door to replacing that card for updates at some point, but it could be a cat-and-mouse game for some time.

One other issue that raises a red flag in some areas is interagency communications. Unless everyone you want to talk to is

AMTS Frequencies

Automated Marine Telecommunications Service operates in two bands. One for the coastal stations at **216.000 to 218.000** (25 KHz Steps) and the other from **219.000 to 220.000**.

Most of the traffic on AMTS involves telephone communications with shore stations or the Coast Guard. Much of this traffic has been moved to the cellular network which has coverage most of the places that AMTS operates. Since the traffic does involve telephone calls, it may be covered by the Electronic Communications Privacy Act and may not be monitored legally. It's the same law that required removal of the 800-MHz cellular frequencies from your scanner.

on the same band it's difficult to talk. Many areas are using mutual aid and point-to-point frequencies to help overcome this, but in a large scale disaster those frequencies can become clogged with traffic. If everyone's analog, or everyone's digital it's much easier to share frequencies and make other arrangements. However, if there's a mixture of digital and analog systems in the community, it may not be so simple. Stay tuned — this could be an exciting time to be in the scanning hobby!

Automated Maritime Telephone Service

Another letter, this one much more recent, came from Klaus who writes: "Came across two frequencies that I thought you might be interested in: 217.940 MHz — mainly telephone calls and 217.500 MHz — telephone calls and data." Klaus wants to know if there are anymore in that area.

What you're hearing, Klaus is part of AMTS. Automated Marine Telecommunications Service. This service is located near water for the use of ships (usually larger ones) as a way of getting back into the land-based telephone service. Many of these operations have switched to cell phones because of the convenience, but AMTS systems are still in operation in lots of places. If you're near water, there's a good chance that you can hear one or more of these sites.

Frequency Of The Month

Our frequency this month is **118.9**. If you've just joined us, the idea is to listen to the frequency and see what you can hear. Send me an E-mail or snail mail letter with the frequency on the outside of the envelope, or in the subject of the E-mail and we'll enter you into our "Frequency of the Month" contest. About every three months, we draw for a one-year subscription to *Popular Communications*. You can enter even if you don't hear anything.

Recently somebody wrote in and entered the contest, but put a note at the bottom about "Couldn't we get this from a frequency guide?" The answer is yes! The idea of the contest is to get you listening to things you might not



If you're near water, there's a good chance you can hear the Automated Marine Telecommunications Service — AMTS for short!

otherwise look at. Of course, you can always choose to ignore it!

462.6625 Is A Popular Frequency!

Since we have a little room, I thought I'd mention a few entries to our 462.6625 frequency that ran a few months back. Robert wrote "Your frequency 462.6625 is the Family Radio Service Channel 5. My wife and I use this channel when we go to the mall to keep in touch with each other. These are very handy little radios!"

Right you are Robert! Several of you noticed that it was in fact the FRS channel. So what you heard varied all over the board depending on who was using a radio within range!

Steve from Winchester, VA, wrote, "I have been monitoring 462.6625 since reading the January issue and the only thing monitored so far is a high speed CW ID (about 20WPM). It identifies as follows KWU364 WNP867 with no slash in between the two callsigns the signal is full quieting at my QTH."

That sounds like you're hearing a repeater ID for a GMRS system, but it could be something else, Steve. If it's that strong, your receiver could be overload-ing with some other frequency.

Juan from Las Vegas caught on right away. He writes "This is in response to the freq of the month (462.6625) for Jan 2002. That freq is FRS Ch. 5 and I was hearing all sorts of conversations, including, since I'm very near to downtown here in Las Vegas, a lot of intermod. Did you throw this in to see if we were paying attention?"

Well actually Juan, yes. It's a frequen-



Uniden's new digital scanner, the BC785D.

cy that a lot of people had never thought to plug in, so I thought it might be kind of fun. That's as good a reason as any for the Frequency of the Month selection!

Finally, Mike from Ottawa, Ontario, had this to say. "My research started on the Internet to see what service/company might be associated with this frequency. I was quick to discover that the frequency 462.6625 was assigned by the Government of Canada for use in the Family Radio Service (FRS). Seeing as I live in Ottawa, Ontario, Canada, near the airport, I thought I would hear the usual family chit chat. Boy was I wrong — in a comical sense of the way. Here is the scenario: I live in a new subdivision where housing construction is taking a once tranquil area and building approximately 10,000 new homes once finished. The activity I picked up on a daily basis was the construction

crews utilizing the FRS frequency on 462.6625. I was able to pick up a backhoe driver and his spotter as they were putting in place, the large metal/wooden frames that the cement would be poured into. These frames/cement form the foundations that would eventually support the house. Foul language was evident every fourth or fifth word!"

All I can say to that is "Welcome to Family Radio, Mike!"

Send In What You're Hearing!

You can reach me via E-mail at armadillo1@aol.com, or via more traditional methods at Ken Reiss, 9051 Watson Rd. #309. St. Louis, MO 63126. Until next month, Good Listening! ■

The Adventures of Scanner Dweeb by M.A. Coletta

I love listening to these cordless phone conversations. The sex...sex...sex



Hey.... that voice sounds very familiar ??????



Cordless Scandals

Hearing your grandma talk like that takes away the fun.....



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“Where are you, Norm?”

It has been a while since I've seen my friend Norm. In fact, the last time was over five years ago when he came south to visit for a day and spend the night on the couch before heading off to a business appointment the next morning.

For those of you who don't remember Norm, you should definitely pick up some back issues — I believe our editor, Harold “Hey, don't throw those away” Ort has them neatly stacked in the corner of his office. There are tales of Norm's escapades which began with his Cocker Spaniel, Chump, driving his enormous Chevy station wagon into a lake, followed by the time we wheeled a 700-pound AM transmitter into his ground-level apartment, then erected an enormous antenna inside the apartment building's attic.

One of my favorite “Norm Incidents” is when he put a 102-inch CB whip antenna on the roof of his car, and deftly removed something like 72 four-foot fluorescent tubes from the canopy over a gas station. “They should have had a cover over them,” is what I believe he said.

Norm has a very nice 280Z. He didn't drive that down to visit us, though — no, didn't want to put the miles on it. Brought a rag-tag K-car — even worse than the one I was driving at the time. The poor thing was never designed to carry all that weight. The trunk was filled with books and sales literature; the inside was packed to the glass like a jar of fruit salad with just enough room for him to steer. Chump rode along, and was lucky to have a spot on the front floor to curl up, and a barely-adequate crawl-space that allowed him to get his chin on the dashboard to look out the windshield.

And in the immortal words off Ron Popiel, “But wait! There's MORE!” Yes, there was quite a bit more. The roof rack with the “less-important” items — his clothing, toiletries, dog food, and a few R-390 receivers (can you say HEAVY?) that he was taking to trade for something at one of his stops along the way.

Norm was never a fast driver, and that was always a good thing, because he never owned anything that was safe enough to drive fast. No, not even the “Z.” It would have been safe, if only he'd have spent the \$60 for an idler pulley so he could replace the power steering belt. Frugal. The man was nothing if not frugal. Yes, there is something to be said for his logic about wasting money. His quote, “Buddy, two quarts of cheap oil a week sure beats a \$400 car payment every month,” made sense, but for as many times as the thing failed to start, or failed to keep running, hiring a limo and a driver might have been a bargain.

Back to the K-car, though. After his brief visit, Norm's tailpipe fell off as he pulled out of our driveway. I knew full well that the typical \$120 for a “cat-back” job at one of the franchise muffler places was not even an option, so I took him to see my friend, Charles Carter, who would weld it up and put him on his way

“To this day, my wife occasionally asks, ‘When is Norm coming back for his things?’”

for a few bucks. Charles, by the way, is his real name, and although I won't tell you where to find him, I'll tell you that he is so good to people that he makes Will Rogers look like a grouch. Charles did weld that pipe for Norm, and Norm did get off to his next appointment with a “quieter, gentler” car which was not nearly so overloaded as when he arrived.

To this day, my wife occasionally asks, “When is Norm coming back for his things?”

To tell you the truth, I don't know. Haven't heard from him in over a year. Of course, it's a two-way street, and he hasn't heard from me for over a year either.

He's probably fine, though. Always is. He's a survivor no matter what is thrown in his face. If I was in a foxhole somewhere under enemy fire, I'd be glad to have Norm next to me. Not with a gun, of course. Heaven forbid. But Norm would fit anyone's description of a friend — someone you can count on no matter what. And just as soon as I type the words, “I sort of miss having him around,” he'll probably show up and get me involved in some cockamamie project that'll have me pulling my hair out and have my wife rolling her eyes at me. But that's ok — because he can count on me — no matter what — too.

I still have his genuine Black Forest cuckoo clock in a bag in the hall — told him I might be able to fix it. Couple of large speaker enclosures here in my office. Couple cases of books. A big radio receiver — maybe a transceiver, too — sitting at a friend's house — safe and sound. Norm is everywhere.

Someday, maybe we'll talk our editor, Harold “why not just a month's subscription,” Ort into having a contest to see who can find the real Norm — who can identify him and give us some information about him, such as his address, his real name, or his call sign (it's an extra class, FYI).

I think the prize should be to have Norm as a houseguest for a weekend, or an all expense paid weekend to visit his bus. Did I ever tell you about his bus? Oh, now there's a story that'd make Moby Dick sound like a canoe trip across a small pond.

Stay well, Norm — wherever you are.

Ed. Note: Bill has agreed to tell a limited number of people how to find Charles Carter; but only after they pass a thorough examination to see if their motives are pure. Try your luck by E-mailing Bill at billprice@bigfoot.com, but be prepared to have a background check that would upset J. Edgar.

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