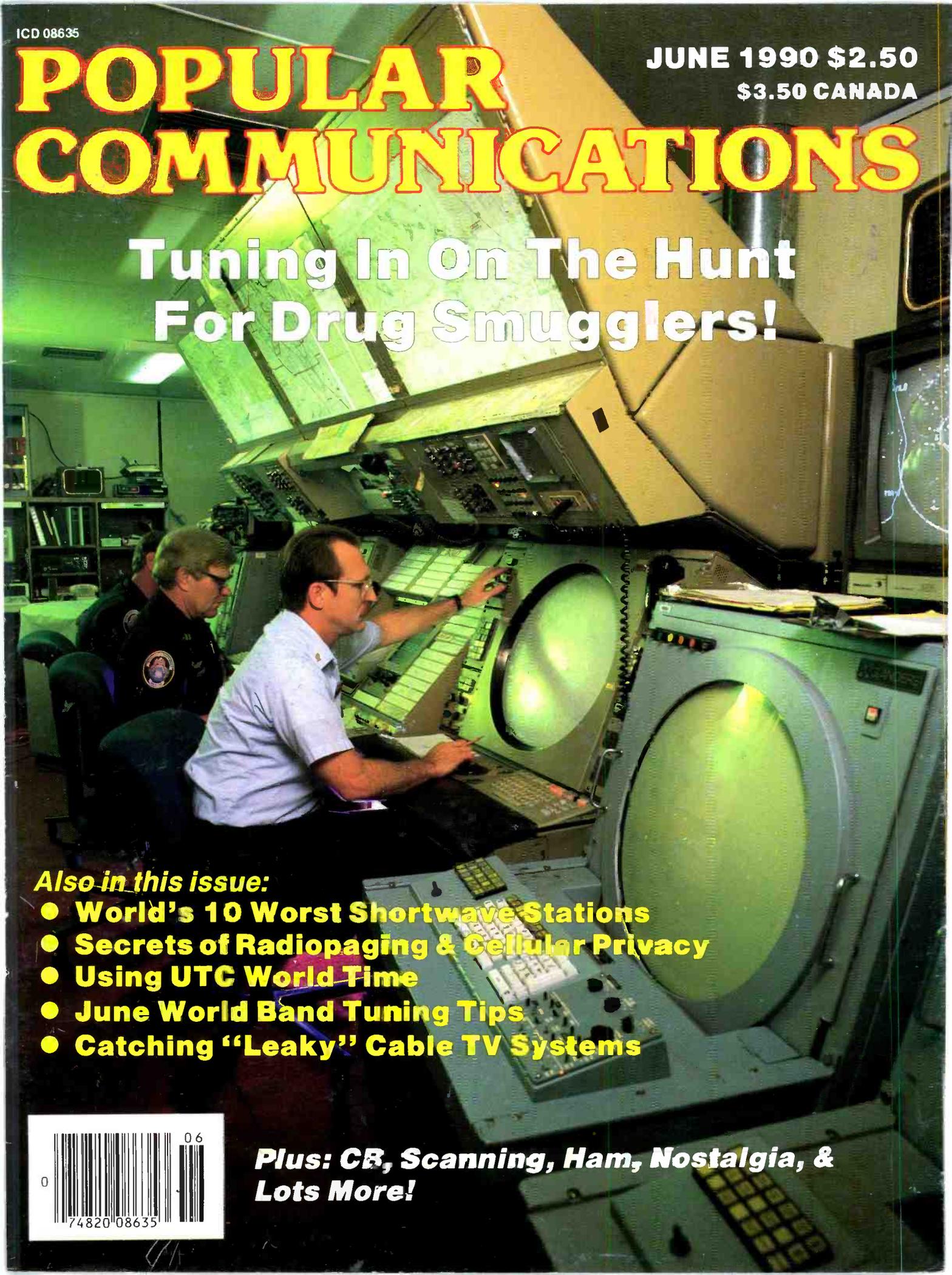


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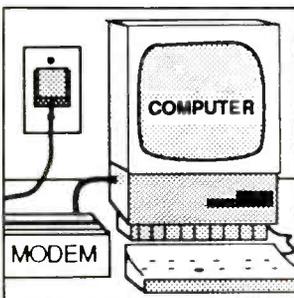
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This month's cover: Members of the U.S. Coast Guard and customs service man radar consoles at "C3" drug interdiction center in Miami. Photo by Larry Mulvehill.

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Note: Radios listed above are all LW-MW-SW-FM digital. Contact us for other models

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Universal now offers a new combined communications catalog covering shortwave, amateur and scanner equipment. There is also an unbeatable selection of antennas, books, parts and accessories. This huge 88 page (8 1/2" by 11") publication covers everything for the radio enthusiast. With prices, photos and full descriptions.

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Waiting For That All-Important Call

More than a year ago, telco began attempting to convince me that what I really needed on my telephone was the addition of *Call Waiting* service. This wasn't a new development, but it just became available on my exchange. When you've got *Call Waiting*, two loud *beeps* are sounded in your ear when you're engaged in a conversation. That lets you know someone else is attempting to get through to your phone. The calling party doesn't get a busy signal, they just think that your phone is ringing. The person to whom you're speaking isn't supposed to be aware of this little drama being played out, but they nevertheless hear all sorts of clicks at their end while you're hearing the *beeps*. When you are *beeped*, you can then press your phone's hang-up button once to toss your existing call over to "hold" status and speak to the new caller. At that point, you can select which of the two calls you want to continue with, and dump the other one. Or you can keep them both going by switching back and forth between them.

The idea of the whole thing is that important calls will be able to get through, even if you're busy yakking about nothing with a friend. For the ability to have this advantage, and the fun of being a switchboard operator, there was only a paltry monthly fee involved. I'm a sucker for trying all of these odd telco schemes, so I told them to plug me in, throw the switch, or do whatever was necessary to add me to the glory roll. It was the 1989 decision that ranks second to my gut feeling to bet on San Francisco in the World Series.

Actually, the first week or two was fine, and I enjoyed the feeling of power at my disposal as I put people on "hold" to see who was calling. But after that, it was downhill all the way.

It was then that I noticed that even if the phone hadn't rung all day, within a minute or two of the first incoming or outgoing call, I'd hear *beeps* to advise me that someone was trying to call me. All too often the incoming calls were from computers attempting to sell me tango lessons, carpeting, or vinyl house siding. I began to suspect that one of the unheralded benefits of *Call Waiting* was that every time I picked up my phone, it activated junk-call computers throughout the county.

Within a month or so I was beginning to chafe at the seemingly inevitable interrupting calls. When *Call Waiting* activated, it set off an unfortunate chain of events. As soon as the two loud *beeps* were heard, I'd be-

come so annoyed and distracted that I'd lose my train of thought. Simultaneously, the person I was speaking with would hear a bunch of clicks and become paranoid about the possibilities of the phone being tapped. For a while, I'd check to see who was trying to get through, but my annoyance was so obvious that I scared everybody off, including at least one computer selling storm windows. Soon, however, I had gotten to the point where I was defiantly refusing to respond to all intruding calls. Problem was that as soon as the *beeps* started going off in my ear, my existing calls were a shambles.

To add to the disaster, when callers expected me to be around didn't get any answer, they figured they had dialed a wrong number. So they tried again, and *again*, producing lots more *beeps* in my ear. On a few occasions, people showed up at my door to find out why I wasn't answering my phone.

When I stopped to assess my experiences with this exciting development in telecommunications, I decided it was as welcome as having someone standing there tapping me on the shoulder with something to say while I was trying to speak with someone else. Even if you try to ignore them, they're such a distraction that they mess up your existing conversation. It's like attempting to get road directions on CB Channel 19 while some other operator keeps screaming *Breaker Breaker* between each transmission—and you have the awful feeling that all the guy wants to do is ask if you have the correct time. You know that if you acknowledge him you'll never be able to recontact the station giving you the road directions.

I don't know why I let it drag on so long, but after almost a year of being subjected to *Ma Bell's Beeping Torture*, I decided to call it quits. Besides, I realized that *Call Waiting* hadn't brought me any more important calls than I had gotten without this service. It made me face the very real possibility that this could be because people who had important calls to make weren't going to make them to me, *Call Waiting* or not. It was one of those unpleasant little realities that sometimes people have to face about themselves. To add insult to injury, it took three calls to telco over a two week period to get them to finally pull the plug on my *Call Waiting*.

Another Telco Boondoggle

Whom do you suppose it was at the phone company that came up with the idea of putting area codes in parenthesis, as in

(800)- 555-1212. Doesn't appear to serve any practical purpose, nor does it match up very well with the rules governing the use of parenthesis.

The other day, I called telco to get to the bottom of this insidious little attempt to complicate a simple serial number. In fact, I told them that I had discovered my phone might be defective because it was missing the symbols necessary to dial long distance calls. I said that I could find a star and a crosshatch on the buttons, but not those curved ones that go around the area code. How was I to make any long distance calls if my phone was missing those buttons?

I got the impression that even though they must have figured they had already heard it all, this one was a bombshell that caught them off guard. A surprising string of supervisors and managers took the time to tell me that it wasn't necessary to actually include the curved symbols in my dialing, but they either handed me off to someone else, or promised to call me back when I demanded to know why the curved lines were there if they were meaningless.

Another twenty minutes of being pushed on this end and I suspect they would have promised to send over a telephone with parenthesis buttons because it was the only way to finally get rid of me.

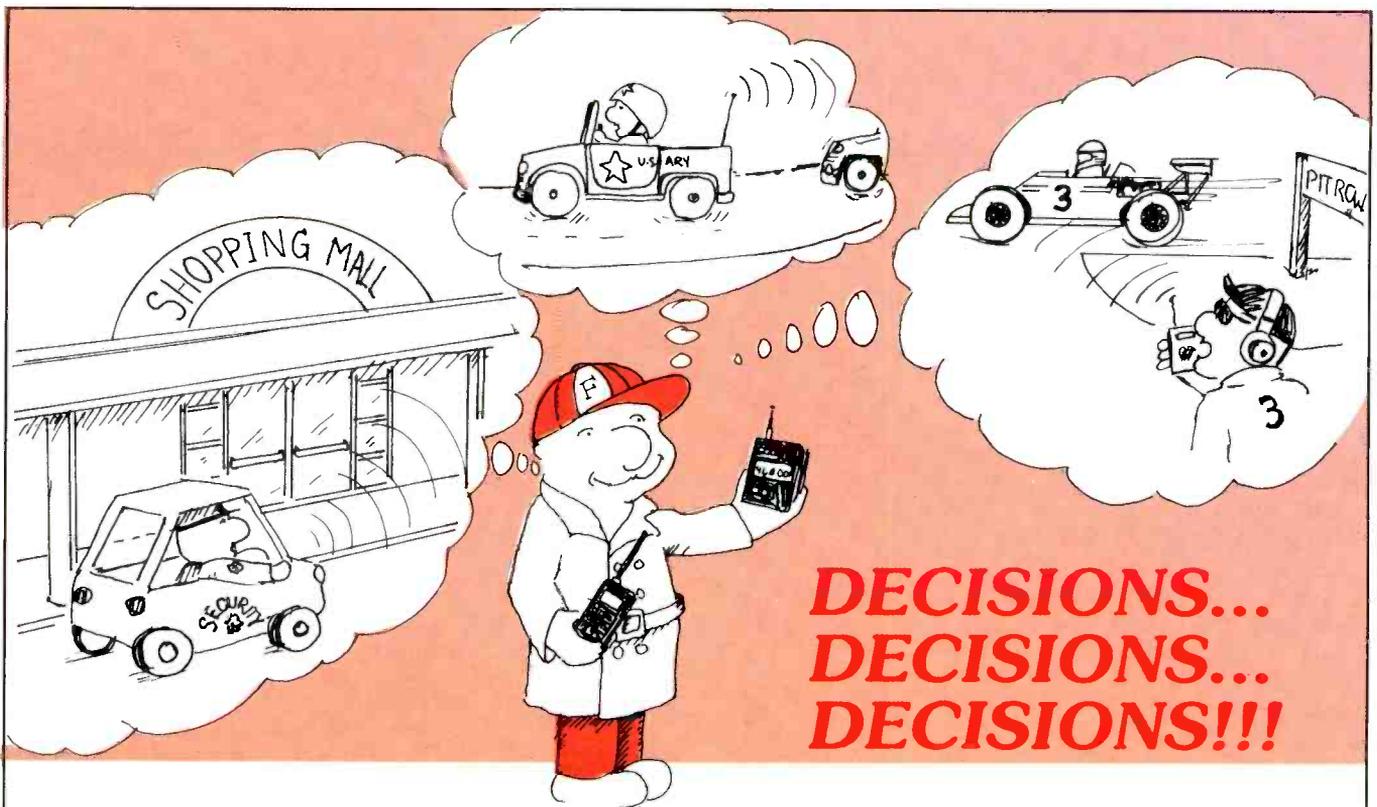
Even so, it was less than an hour of enjoyment for me as they squirmed to keep a straight face while dealing with a crackpot insisting on having a phone with parenthesis buttons. A small price they paid for the year of *beeping* I endured as a result of their infernal *Call Waiting*.

Reading Matter Received

A promising scanner/SWL newsletter arrived here recently. It's called the *Radio Monitors Newsletter of Maryland*, and it covers MD, DC, VA and PA very well. This newsletter is being put out by avid POP-COMM reader Ron Bruckman, and it's chock full of frequencies and features relating to monitoring in the publication's primary target area.

RMNM began last December and quickly attracted a following of enthusiastic followers. I like the issues I've seen thusfar and if you're located in the covered areas, you'll probably find that it has useful scanner and SWL information. RMNM comes out monthly and costs \$12 per year. It's from Ron Bruckman, *Radio Monitors Newsletter of Maryland*, P.O. Box 394, Hampstead, MD 21074.





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MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted for consideration must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801.

More UFO Frequencies

I enjoyed your February editorial very much. It's not the space aliens that are destroying our weather. The other day, I stumbled upon a radio program called the *Voice of Americanism* that comes from Glendale, CA, but is carried on a local AM station here. The commentator said it was an all-Soviet plot to destroy us. They are supposed to be using Tesla's technology via ELF transmissions. I hope you enjoyed this info as much as I always enjoy yours and the others who write for POP'COMM.

Vince Reh, WA2AUY,
Fairport, NY

Unfortunately, your article reinforces the "image" that UFO research and UFO researchers are nothing but a bunch of nuts. The space was wasted. It should (I mean could) have been used to present facts on UFO's that we are trying to get to the public. It's a difficult job due to the many years of nonsense that has been cranked out in the exploitation press.

Steve Zalewski,
Syracuse, NY

I tacked up a copy of your February editorial on the bulletin board at the lab where I work. As usual, your observations were as directly on target as they were funny. I always relish your black humor in POP'COMM.

E.L. Sorenson, Ph. D.,
San Jose, CA

I enjoyed your February editorial, as I have enjoyed your many books and writings over several decades. Keep listening! Keep writing!

Ron Johnson, WA5RON,
Mutual UFO Network, Inc. (MUFON),
Austin, TX

The February editorial has inundated us with mail relating to UFO's. Those interested in pursuing the matter further might wish to tune in the Mutual UFO Network (MUFON) ham nets. There's one every Sat-

urday at 0800 Eastern on 7237 kHz, another on Sundays at 1500 Eastern on 28470 kHz. National MUFON emergency standby on 3990 kHz at 0000, 0400, and 2000 Eastern; also 7237 kHz at 0800, 1200, and 1600 Eastern. Local MUFON emergency standby at the same hours on 28470 kHz. For more information on MUFON, write to Walter H. Andrus, W5VRN, International Director, Mutual UFO Network, Inc., 103 Oldtowne Rd., Seaguin, TX 78155. For those who are seriously interested in the scientific study of UFO's, MUFON is a worthwhile group to join. Many of their members are assorted hams and monitoring enthusiasts — Editor.

Review View

Equipment and book reviews are features I enjoy so much that I sent for the POP'COMM Authors' Guide with the idea of submitting some. I was surprised to note from the large list of features you want and don't want submitted, reviews and evaluations are in the "don't want" category. Why don't you want any? I'm enclosing a few sample reviews I've published in newsletters and club publications so maybe you'll change your mind.

(Name Withheld)

All of our reviews are prepared for us by authors whom we have assigned specific items to be evaluated, and we are supplied with as much of this material as our present needs dictate. While we have come to find that our readers have been a rich and valuable source of many of the features that appear in our pages, this hasn't been true in every single area of our coverage.

Certainly, everybody has opinions on things, but it takes more than that and some good intentions to prepare a review that is relevant, competent, knowledgeable, objective, fair, and also interesting to read. The majority of the many unsolicited reviews that have been submitted to us (including yours) don't hold up in one or more of these critical areas. For some reason, too many people seem to think that in order to be acceptable, their review has to savage the item being evaluated. Or, alternately, they felt that the evaluation might not appear thorough or the reviewer competent, unless a litany of alleged faults were detected and expounded upon at some length. Invariably this meant taking what was essentially a useful product being offered at a reasonable price given some good words, followed by endless nit-picking criticisms over the most insignificant (sometimes imagined) points. We surmised that this was to show all concerned that the reviewer was sufficiently dis-

cerning and knowledgeable to spot things seriously amiss or lacking in virtually everything ever created. We feel that there are so many other types of features in which we are interested, that most readers who feel inclined to try writing for us should be guided in directions where their efforts will have the best chance of turning up in our pages. Our guidelines for prospective authors are available upon request (please enclose a self-addressed stamped return envelope) — Editor.

On The Road Again

My wife and I are retired. We are presently in our motorhome on an extended driving trip that will be taking us through most of the U.S. and Canada. Our scanner has kept us tuned in on each state, county, and local community through which we have driven. Our all-band portable has let us hear hundreds of great local AM and FM broadcasters, and also allowed us to tune in international stations throughout the world. I wonder if other full-time "road hogs," like us, share our interest in communications.

Dr. Harold J. Burnett,
"On-the-Road," Montana

Apparently there are many communications fans in motorhomes. More than 300 of them are members of the "Good Sam Radio Network," which isn't sponsored by the Good Sam Club, but is made up of Good Sam Club members. The net meets on weekdays at 0300 UTC on 7292 kHz, also Sunday at 2000 UTC on 14240 kHz. Of course, you've got to have a ham license to belong to the net, but you don't need one just to listen in. For information on this net, contact Jack. J. Russell, KG5IO, P.O. Box 207, Golden, TX 75444. — Editor

Instant Antiques

Your April *Beaming In* observations about the inability to repair a six year old scanner were well taken. Although you often present your opinions in humorous form, they invariably hit their target with devastating accuracy. Of course, you aren't the only person that has found the new technology of only a few years ago is ancient history today. What about the miracles of quadrasonic sound and 8-track tapes? Try to get that equipment repaired and you'll see some raised eyebrows and smiles behind the service counter. And did you know that collectors of old 78 RPM discs now find that current turntables won't operate at that speed? The advent of CD's will undoubtedly make 33/45 RPM turntables antiques in a few years.

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YAESU: FT-767, 757 GXII, 757 GX, 747, 9600, 736 212, 712

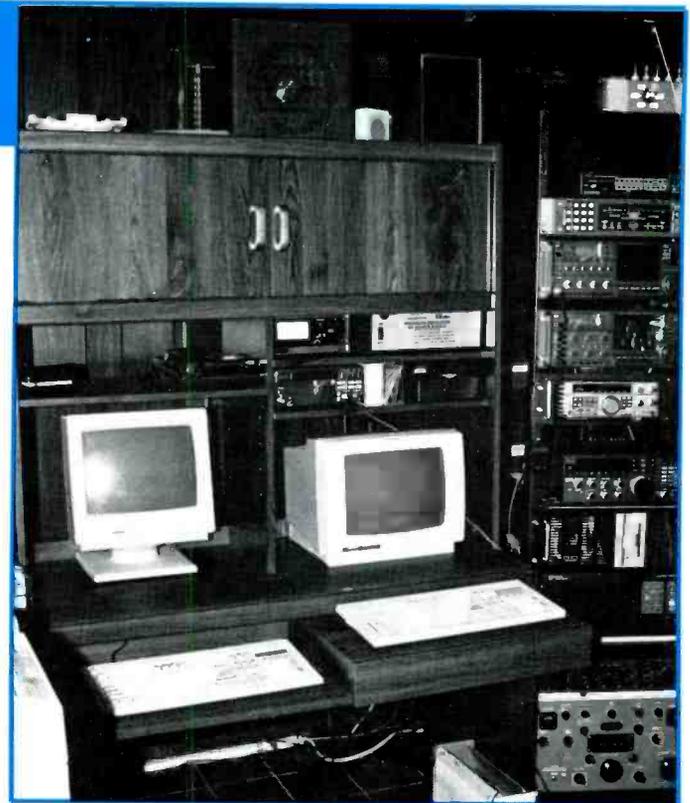
JRC: NRD 525

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MEM 394 K	STACK 1 K	SELECT FUNCTION		MODE= USB	LOCAL : 16:54:00
DATE: 10-24-1989					U.T.C. : 20:54:00
1. READ MEMORY CHANNELS	7. MEMORY CHANNEL	DIAL			
2. INPUT DESIRED FREQUENCY	8. WRITE MEMORY TO VFO	VFO A			
3. 500 KHZ. UP	9. UTILITY MENU	ALT-P. CHANGE MENU PAGE			
4. 500 KHZ. DOWN	ALT-Z. DISPLAY OR PRINT LOG	ALT-Q. END			
5. ACTIVATE/DEACTIVATE CLARIFIER					
6. SWEEP BETWEEN 2 LIMITS					
A. AVIATION (VHF) COMMUNICATION	D. F.M. BROADCASTING				
B. TELEVISION BROADCASTING	E. AMATEUR FREQUENCIES (VHF)				
C. COASTAL MARINE FREQUENCIES	F. MISCELLANEOUS FREQUENCIES (VHF)				
PORT= COM2	BAUD= 9600	CURRENT PARAMETERS	RDLY= 0.138		
UPPER - BAND LIMIT - LOWER	FREQUENCY	MODE	FILTER	SQ. ACTIV.	ADDR
30.000 MHZ	0.100 MHZ	17.44300 MHZ	USB	WIDE	38
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Uniden Bearcat Scanners Programmable

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BP-205	Rechargeable battery pack for 100 XLT/205 XLT	\$34.99	(*)
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BC-590 XLT	Same Scanner as BC 600 XLT		
BC-600 XLT	100 channel, L/H/U/Air, AC/DC	\$199.99	(\$7.00)
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Hear Them Chasing Drug Smugglers!

Your Receiver Puts You Right Where All The Action Is!

BY TOM KNEITEL, K2AES, EDITOR

As many listeners will tell you, there's nothing else like it to be heard on any band. It's the intensive effort to head off drug smugglers before they can smuggle their wares into the U.S. They come from Colombia, Bolivia, Peru, Panama, Mexico, and other places. They come by planes, and on boats—trawlers, freighters, container ships, and private yachts. They are hoping to arrive offshore or at out-of-the-way harbors, or land on open fields or back roads in order to unload their illicit cargoes. But first they must get through an ever-widening barricade of ships, aircraft, radar sites, and ground intelligence facilities operated by the U.S. Coast Guard, Navy, Army, Air Force, Customs Service, DEA, and other federal agencies have combined in a joint effort to seal off our borders to this clandestine invasion.

Communications monitors have been listening to it since the late 1970's when a station calling itself *Atlas* first appeared on 18666 kHz. This was a powerful U.S.-based facility in communication with numerous aircraft (*Flint ID's*) and vessels (*Shark ID's*) spotting and following suspicious incoming aircraft and ships heading towards the U.S. from points unknown in the Caribbean and Latin America. Registrations were being checked, compass headings relayed, descriptions of the craft given along with names of suspects.

It was obvious that this was the coordinated effort to catch smugglers. Soon, other stations with code names (tactical identifiers) were also being monitored: *Home Plate*, *Rampart*, *Slingshot*, etc. Additional frequencies were discovered, too, and duly reported in DX club newsletters and POP'-COMM's *Communications Confidential* column. It didn't take long for the anti-smuggler network to acquire an avid following within the monitoring hobby.

Today, the network continues. Some changes have been made, some questions have been asked, and more listeners than ever are interested in hearing the heroic ef-

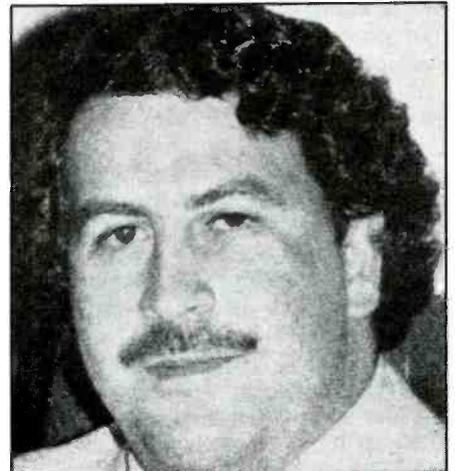
fort being put forth to catch the smugglers before they arrive here.

Where

There are several nerve centers for these operations. Joint Task Force 4 (JTF 4) operates from the navy base in Key West, FL. Its West Coast counterpart is JTF 5, operating out of Oakland, CA. Both JTF's are under the command of U.S. Coast Guard officers, reporting directly to the U.S. Atlantic and Pacific Commands.

There is also a new Customs National Aviation Center. Its task is to control the deployment of interdiction aircraft as well as the coordination of national surveillance data. This facility provides intelligence information to enforcement units in the field.

There are two Customs Service command, control, communications and intelligence (C3I) centers, one for the East Coast, one for the West Coast. The East Coast



Colombian drug king Pablo Escobar-Gaviria is generally blamed for sending a large number of drug-carrying ships and aircraft on their clandestine way towards American shores.



Private boats heading northward across the Caribbean or Gulf of Mexico are usually given close scrutiny by the joint forces looking for smugglers.



This old trawler looks like it's going about the business of commercial fishing. In fact, a thin top-layer of freshly caught fish in its holds could conceal hundreds of kilos of cocaine in colorful plastic wrappers.



This small plane is able to land and take off on a short stretch of any of thousands of backwoods roads that crisscross our coastlines. This makes them well-suited to smuggling, but first they've got to run the gauntlet through an armada of patrol ships and aircraft, as well as a massive radar screen.

center is in Miami, the other one is at the March AFB, Riverside, CA. An administrative facility is in Oklahoma City, OK. The cost of the three facilities was \$32-million. The two C3I centers have radar consoles that provide information on all aircraft flying along the Atlantic, Pacific, and Gulf coasts, as well as along the U.S./Mexican border. The radar inputs come from FAA and military (including NORAD) sources.

In The Field

Field forces include naval vessels (including cruisers, destroyers, and frigates), Coast Guard vessels (including high- and medium-endurance cutters, Island-class and other patrol boats, and Seabird-class Surface effect ships), amphibious support ships (LKA, LPD, LST), and Customs Service high-speed pursuit vessels.

Overhead, there are Customs Service helicopters and fixed wing aircraft, Navy P-3, USCG C-130 long-range surveillance aircraft, USCG E-2C Hawkeye and HU-25 Falcons, USMC UH-1 Iroquois, USAF E-3 AWACS, and Royal Dutch Air Force Fokker F-27 aircraft. Embarked helicopters include the USCG's new HH-65A Dolphin, LAMPS I SH-2F Seasprite, and LAMPS III SH-60B Seahawk.

Also up in the sky are aerostats. These are tethered helium-filled blimp-like platforms for radar sets. Raised to altitudes between 10,000 and 15,000 feet, they are very useful in detecting low altitude aircraft. Several types of units are now in use at various locations.

The General Electric aerostats are equipped with FPS-117 L-band radars that have a range of 150 miles. By the end of this year, these should be operational from southern Puerto Rico, on Great Inagua Island in the Bahamas, at Morgan City, LA; Matagorda, TX; Alabama Port, AL; Venice, FL; Horse-



This large array is located at Freeport, in the Bahamas. Local residents told me that it's owned by the U.S. Government and is part of the anti-smuggling efforts based there.

shoe Beach, FL; Rio Grande City, TX; Marfa, TX; and Eagle Pass, TX.

Westinghouse aerostats are outfitted with the Westinghouse L-band TPS-63 (modified) radar units. They are placed at Fort Huachuca, AZ; Deming, NM; and in the Bahamas at Grand Bahama and George Town.

U.S. Air Force aerostats, which use a modified GE-made RCA Magnetron DPS-5, operate in Florida at Cape Canaveral (soon moving to Venice), and at Cudjoe Key.

Some units are already operational, but all will be working by the end of 1991. The

radar intelligence from the aerostats is sent to the Customs C3I centers for analysis and is passed along to intercept ships and aircraft.

Similar information is also sent to Customs Service C3I from surveillance aircraft, such as the two Customs Service Lockheed P3's. A single sweep of the APS-125 radar in these planes covers more than 196,000 square miles. Flying at 28,000 feet at 380 knots, a P3 can stay aloft for fourteen hours. It can spot all aircraft flying at speeds between 100 and 350 knots, at altitudes from 18,000 feet down to only 100 feet. These aircraft are in constant communications

Some Current ID's Monitored

Almighty	USN, Guantanamo Bay, Cuba
Ambush	
Atlas	HQ, Washington, DC (Transmitters in IA & CA?)
Bally Ho	
Billfish	
Black Sheep	
Bonnie Sue	USMC Radar, Provinciales, Bahamas
Comm-4-Alpha	
Condor 800	This unit sometimes operates from a suitcase transceiver & uses the ID Condor 800M
Cotton+#	
Crownpoint	
Edsel	Aircraft (also UHF 281.4 MHz)
Empire Base	
Freemason	
Fried Chicken	
Gangster	
Hammer	
Homeplate	Customs Air Service base, Homestead, FL
Lima	FAA ARTCC, Miami, FL
Longhorn	Austin, TX
Marlin 350	El Paso (TX) Intelligence Center
Marlin 395	
Oceanside 300	
Omaha+#	Customs Service aircraft
Panther	DEA, U.S. Embassy, Nassau, Bahamas
Ping Pong	Border Patrol, US/Mexican border
Pit Stop	
Pyramid	
Quest 201	
Ranch House	
Roadrunner	
Roadstat	
Rosebud	
Seabass	
Serpent	
Shark-#	USCG Cutters (Number following Shark is ship's official USCG number.)
Shrimp Boat	
Slingshot	Customs Service C3I Center, Miami, FL
Sundance	Lima, Peru
Vulture-#	Aircraft (also UHF 281.4 MHz)

with various patrol ships and aircraft, and with the Customs Service Surveillance Center at Corpus Christi, TX.

Customs also has two P3B surveillance aircraft. These are equipped with APG-63 radars designed by Hughes Aircraft. Other Customs surveillance aircraft include a Cessna Citation C-550 with an X-band (APG-66) radar; a Nomad marine support aircraft (made by Aerospace Technologies of Australia); and eight Piper Cheyenne III aircraft equipped with Hughes AAQ-115 and APG-66 radars.

Communications

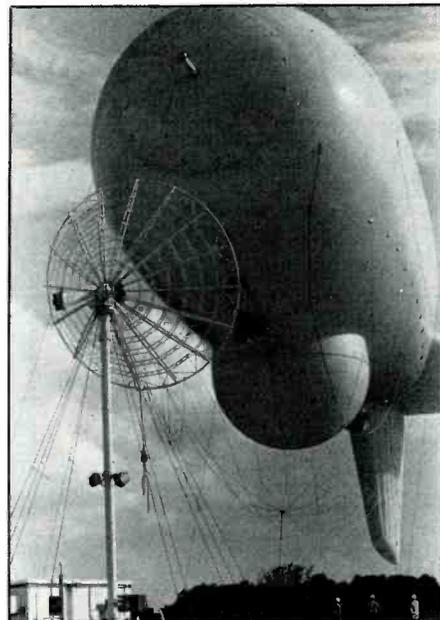
Customs operates UHF air/air and air/ground radios for short distance (line-of-sight) communications. These AM-mode sets use the 225 to 400 MHz band in the clear and with encryption. There are also Customs Service VHF-FM comms on that agency's channels. These sets have voice privacy but no encryption. At some point, it is planned for the VHF systems to be en-

crypted. In fact, the yearly Customs budget for modifying and upgrading is about \$200-million!

On HF, anti-smuggling comms are via a Rockwell (Collins) computer driven system. This is the system that shortwave monitors tune in on, since the SSB comms are usually sent in the clear (that is, unsecured). Monitors note that there is a data burst on one frequency, followed by a series of data bursts following on a string of other frequencies in this particular system.

The data bursts are a recent addition, but right from the start, these comms caused many questions to be asked, and many unusual things to pop up. Like the time one listener heard *Atlas*, followed a few minutes later by the same operator announcing the station as *Rockwell Flight Test!* When you tie this in with reported locations for *Atlas* transmitter sites (Cedar Rapids, IA; Newport Beach, CA), you note that those locations are major Rockwell sites.

This helps bring into sharper focus the



This aerostat gets ready for its anti-smuggler job. Tied to a 15,000 ft. leash, it provides a platform for a radar unit (mounted in the underbelly pod) with a range of 150-miles. That's not a parabolic dish in the left foreground, it's the aerostat's docking mount.

questions that have arisen concerning the HF frequencies. Listeners have recorded a sizeable number of frequencies that have been used. Some have been in continuous service for years. Others have been discarded or replaced, and some have been put back into service after being temporarily withdrawn. At least one frequency was seemingly shut down after it was ruined by what sounded to observers like deliberate jamming.

But, the overriding question has always related to how the frequency allocations come about. Were those frequencies simply whipped up upon the whim of some anonymous bureaucrat? Were they selected at random by a secret computer? Is it possible to see any pattern as to where new frequencies might pop up? As several DX'ers have figured out, they aren't quite as random as they might at first appear. At least some of them seem to fit very neatly into slots.

Table I shows the anti-smuggler comms frequencies that have been monitored as active in recent months. Also shown, where known, are the code names reported in use for these frequencies. Table II shows other channels (and known code names) that had been reported in use in the past, but may not be active at the present time.

Look at these as a single entity, or pool of frequencies. It's interesting to match them up against three other strings of channels. In Table III, we see the fourteen HF frequencies that the FCC has allocated for use by Flight Test stations. Anything look familiar? Like 5571 kHz, or 11288 kHz?

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Next, if we compare the observed frequencies (Tables I and II) against Table III, we learn more. Table III shows the frequency allocations established by the International Civil Aviation Organization in and around the United States for "regional and domestic air route" use. The ICAO is an international organization that includes in its activities, slicing up the globe into many zones for various aviation-related purposes. In most of these zones, the HF channels established for regional and domestic air route use are in heavy use by the airlines. However, in the United States, the FCC has shifted virtually all such operations into a designated portion of the VHF aero band. That leaves the 29 HF channels set aside for airline use in ICAO Zone 11-B just sitting there waiting for a use to be found for some, or all of them. The FCC's "Flight Test" allo-

cations correspond with some of these frequencies. Thusfar, anti-smuggler operations have shown up on three of these ICAO channels.

Perhaps most interesting of all is a comparison of the anti-smuggler HF frequencies against a listing of those authorized for two of Rockwell International's Experimental stations, KC2XKG (Cedar Rapids, IA) and KC2XKJ (Newport Beach, CA). Each of these stations has been licensed since August 1, 1978, and is authorized to transmit SSB with 10 kW output. For the most part, both stations are licensed to operate on the identical frequencies, as indicated in Table V (which shows how the frequencies appear in the FCC records). If you take those frequencies and put the sideband offset to some of them, you come up with a rather startling correlation between many of the

Table I - Recently/Currently Monitored as Active

4500 kHz ZA	7657.5 kHz F	11494 kHz VF	18594 kHz VC
5277 kHz A	8912 kHz YC	13312 kHz YE	19131 kHz SJ
5571 kHz YB	10242 kHz	13907 kHz	20890 kHz
7527 kHz ZB	10076 kHz E	15867 kHz ZE	23214 kHz
7582 kHz	11288 kHz YD	18171 kHz SI	23402.5 kHz R

Table II - May Not be Presently Active

2808.5 kHz XA	7778.5 kHz XD	12138.5 kHz	16348 kHz
4991 kHz XB	9238.5 kHz XE	12222 kHz ZD	17601 kHz XG
5058.5 kHz XC	9497 kHz D	14350 kHz L	18283 kHz
5527 kHz	9802 kHz ZC	14686 kHz P	18666 kHz H
5841 kHz B	11073.5 kHz	14690 kHz G	23675 kHz I
6870 kHz	11076 kHz E	15953.5 kHz XF	
7300 kHz C	11246 kHz	16141 kHz	

Table III - FCC Flight Test Allocations

2851 kHz	5451 kHz	6550 kHz	11288 kHz	17964 kHz
3004 kHz	5469 kHz	8822 kHz	11306 kHz	21931 kHz
3443 kHz	5571 kHz	10045 kHz	11312 kHz	

Table IV - ICAO Regional Frequencies (USA)

2851 kHz	3434 kHz	5508 kHz	6559 kHz	10093 kHz
2878 kHz	3443 kHz	5514 kHz	6565 kHz	11288 kHz
3004 kHz	4672 kHz	5523 kHz	8822 kHz	11306 kHz
3019 kHz	5451 kHz	5571 kHz	8885 kHz	11312 kHz
3410 kHz	5463 kHz	6538 kHz	8912 kHz	17964 kHz
3428 kHz	5469 kHz	6550 kHz	10045 kHz	

Table V - KC2XKG/KC2XKJ Frequencies

2810 kHz	7301.5 kHz	9803.5 kHz	13660 kHz	17602.5 kHz
4992.5 kHz	7658.5 kHz	11075 kHz	14351.5 kHz	17172.5 kHz
5278.5 kHz	7780 kHz	11077.5 kHz	14687.5 kHz	18667.5 kHz
5842.5 kHz	9240 kHz	12140 kHz	14691.5 kHz	19132.5 kHz
5913.5 kHz	9498.5 kHz	12223.5 kHz	16377.5 kHz	20350 kHz
				23404.5 kHz

Table VI - Additional USCG Enforcement Frequencies

3130 kHz	5463 kHz	5785 kHz	6812 kHz	8500 kHz
4302 kHz	5469 kHz	6222 kHz	6914 kHz	8566 kHz
4376 kHz	5508 kHz	6266 kHz	7643 kHz	8611 kHz
5063 kHz	5514 kHz	6277 kHz	7916 kHz	13150.4 kHz
5320 kHz	5523 kHz	6465.5 kHz	8245 kHz	
5451 kHz	5715 kHz	6512.6 kHz	8768.5 kHz	



Here is one of the Customs Service's Lockheed P-3 patrol aircraft. The disc on top of the fuselage houses a radar antenna that covers 196,250 square miles in one sweep.

KC2XKG/KC2XKJ frequencies and those that have been monitored in use for anti-smuggler operations.

Is it merely coincidence that these frequencies are in use and that the Customs Service radio system was developed by

Rockwell, or that it has long been rumored that *Atlas* was transmitting from Cedar Rapids and Newport Beach? Do we then assume that the main pool of frequencies used are those shown in Table V, supplemented by those in Table III and IV? Until a better ex-

planation comes along, this may be a reasonable hypothesis with which to work. If readers have thoughts to add on this subject, we'd like to have them for a recap in a future issue.

As far as additional HF frequencies are concerned, when a Customs Service helo went down off Key West, USCG and USN rescue operations were observed on 7773.6 kHz. The USCG has a number of additional channels where anti-smuggler operations have been reported. These are shown in Table VI.

Some of the ID's on the Customs HF channels, along with possible locations, are given in Table VII.

Lastly, a roster of the more commonly heard ID's on the anti-smuggler networks of late, along with speculation as to the possible locations of several.

You can use all of this information to monitor and do your own research into these networks. Possibly some of the as-yet-unreported frequencies bear watching. If you hear anything, let us know!

The author wishes to thank the monitors whose observations helped to make this report possible, especially Dave Torres of New York City; John Bohn (KD3EI); Jack in California; Guillermo somewhere in South America; plus several others who requested total anonymity. **PC**



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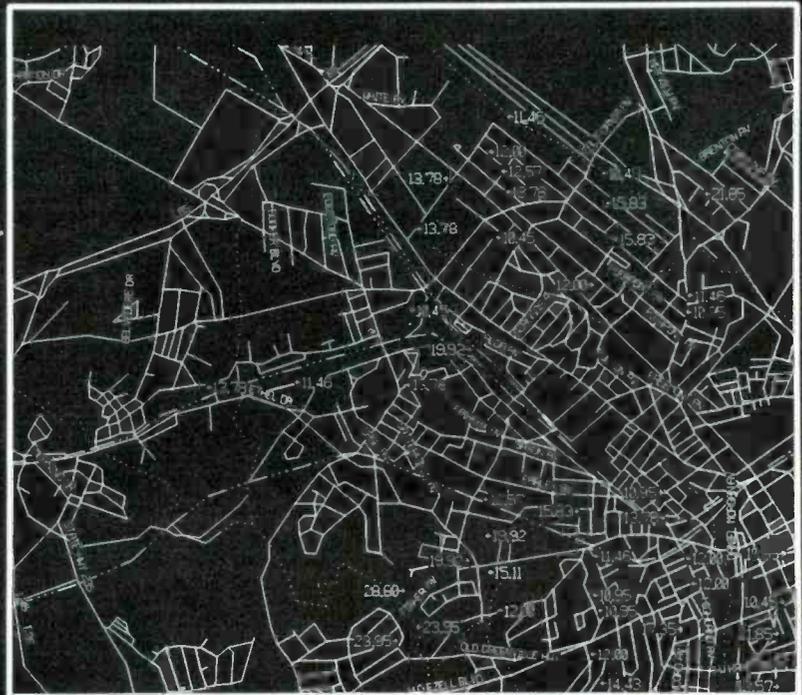
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State _____

Zip _____

Reducing Cable Leaks

Leaking Cable Systems Can Be An Air Safety Hazard



This map shows cable system signal leaks being spotted by one of Skytek's aircraft.

Airplanes may fly more safely thanks to Skytek Inc. and a unique high-tech assistant. Skytek is using MapInfo Desktop Mapping software to map dangerous cable TV leaks that may interfere with aircraft radios.

Cable TV stations and aircraft operate on the same frequency. If cable TV equipment "leaks," an airplane traveling over the area could pick up the cable TV signal and might not hear the air-traffic controller. This could be disastrous for airplanes, especially in bad weather or heavy-traffic. To minimize this problem, the Federal Communications Commission requires that all cable TV equipment operate within specific leakage levels. Cable companies failing to meet these standards may be fined or even lose their authority to operate.

Skytek helps cable companies comply with the federal regulations by pinpointing leaks on a computer map using PC-based MapInfo. The process begins when a client sends Skytek a map with its cable system outlined on it. A Skytek crew then takes to the air in one of the company's three Cessna airplanes and traces every foot of the areas

shown on the map, monitoring them with highly-sensitive equipment.

"We take our MapInfo street map of the city and impose a boundary map on it that shows the system," says Ed York, Skytek's general manager. "We fly over it at 1500 feet recording the cable TV signals. When we detect an unacceptable leakage, we record its latitude and longitude." These coordinates are entered into a database file, along with their leakage readings.

MapInfo's ability to take information from a database and automatically plot it on a city, state, U.S., or global map allows Skytek to use the measurements it has collected to quickly produce a street-map with the leakage areas clearly and accurately marked. With MapInfo, Skytek can also use different symbols that show the amount of leakage at different sites. The cable operator is sent the map, complete with street names and landmarks, which it can give to the technicians who then find and repair the problems. Cable customers also benefit from Skytek's help, because cable-equipment leaks often cause bad TV reception.

Skytek became a value-added reseller of MapInfo when it realized that it could save its clients money. York explains, "Our customers can utilize all of the data we collected during the flyover to keep an on-going maintenance program. They can also use it to update their system maps as new areas are constructed."

MapInfo merges databases with maps and works directly with dBASE files with no conversion necessary. MapInfo offers the ability to automatically create computer pin maps and shade user-defined regions based on the information pertaining to the region.

Maps, at varying levels of detail from city streets to the entire globe, are available from MapInfo Corp. MapInfo runs on IBM PCs and compatibles with 640K RAM, a hard disk drive, and graphics capability.

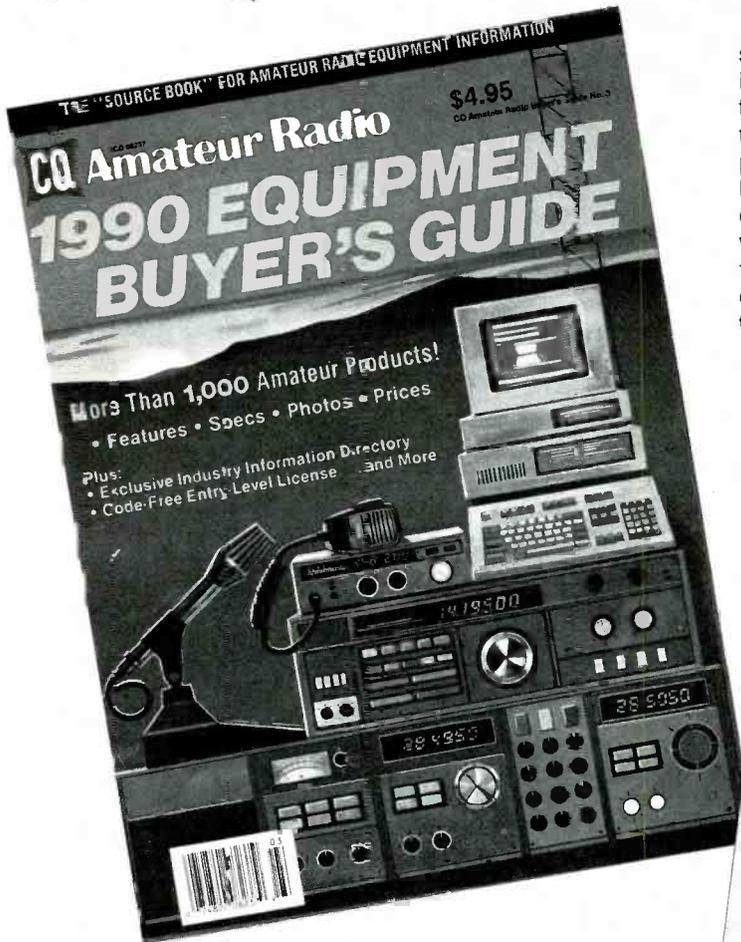
For additional information on MapInfo, write MapInfo Corp. at 200 Broadway, Troy, NY 12180.

For additional information on Skytek, write Skytek Inc., 13421 W. 151st, Suite 106, Olathe, KS 66062.

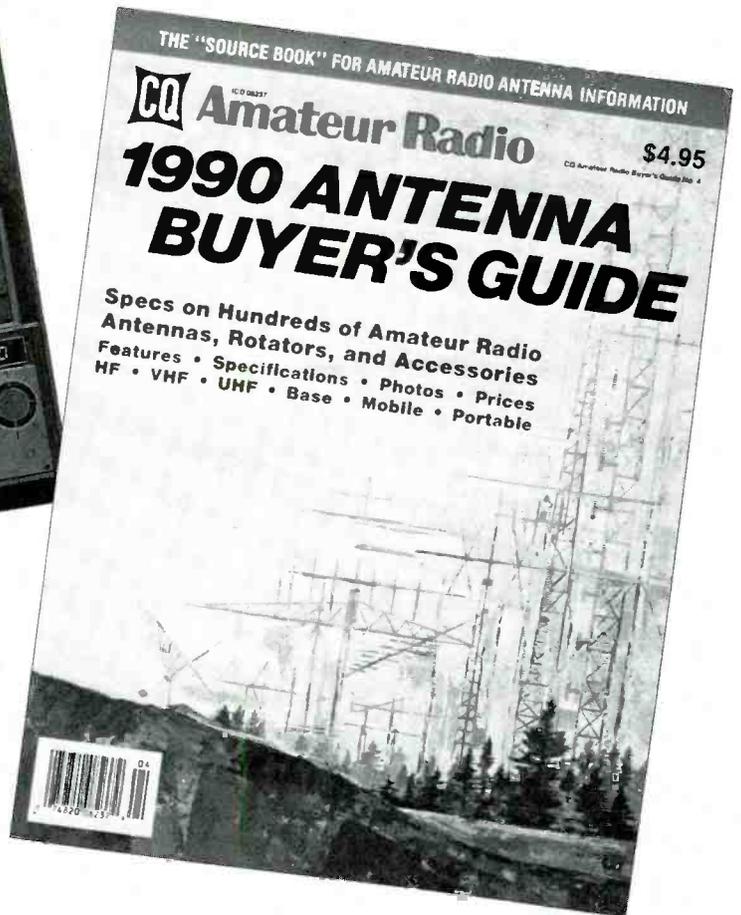
PC



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Remembrance Of Radio Past

A Look Back At Broadcasters And Wireless In Days Of Yore

BY ALICE BRANNIGAN

A few issues back, we rummaged through some of the more curious and offbeat aspects of American broadcasting station call signs. At that time, it was mentioned that the FCC has a policy of doling out broadcast call signs with a "K" prefix in the western states, and with a "W" prefix in the eastern states. The borderline is usually considered to be the Mississippi River.

Probably because I didn't mention it in the earlier discussion, some letters arrived pointing out that stations with call signs such as KDKA (Pittsburgh, PA) and KYW (Chicago, IL and later Philadelphia, PA) prove the error of my statement. Let's say that in the early days of broadcasting, the government generally issued call signs the way I mentioned, but a couple of the very early stations managed to get "misplaced" calls before the policy was firmed-up, or later chiseled in granite.

Although KDKA and KWY are traditionally cited as the two exceptions to the K/W geographic stipulations, they certainly were not the only stations with misplaced prefixes. There were many stations that didn't fit the format. Records of the 1920's show KDPM in Cleveland, KQV in Pittsburgh, PA, WFAA and WBAP in Texas. In all, there were several dozen such stations licensed in the mid-1920's, some are still operating.

Several readers wondered why I neglected to mention that the USA has also long

had the prefix "N" allocated for its use, as well as shared use of the "A" prefix. My discussions related only to broadcast stations, and neither of these prefixes have ever been used by civilian broadcasting stations in the US. Both prefixes have always been used only for military assignments, with the "N" prefix traditionally being used by the USN, USCG, and USMC; the "A" prefix by the Army and USAF. Assignments to specific stations have been made by the respective military services for many decades.

Gibbons Circuit Revisited

Last February we ran an old snapshot of someone holding a piece of apparatus. A handwritten inscription on the photo described the unit as a "Gibbons hookup." The hope was that one of our readers might step up to tell us what this "Gibbons" paraphernalia might be, because it wasn't at all familiar to us.

To the rescue came Patrick W. Tracy, KB8AJL, of Toledo, OH who builds and operates antique-style ham gear. He sent us a photocopy of page 29 of *The Literary Digest* for November 4, 1922. This page contains a recap of a construction project for a receiver that appeared in an earlier issue of the San Francisco publication entitled *Radio*. The project was an "all wave" single-tube set written about by David P. Gibbons. Photos of the set show it to look identical to the one

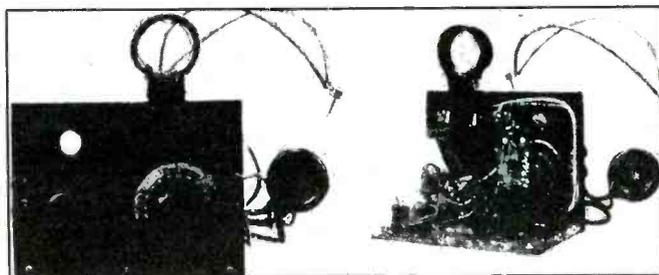
being proudly displayed by the gentleman in the 1920's photo we ran in February. Apparently he had built it himself and was proud of his accomplishment.

Mr. Tracy pointed out that Gibbons made no claims to being the original designer of the circuit in this receiver. With only a couple of very minor exceptions, it is basically the famous DeForest Ultra Audion circuit that dates back to at least late 1919.

Hometown Station

In an event that was probably little noticed by local residents, but which set off ripples that can still be observed. That's when Hugh J. Powell and his partner, a Mr. Platz, opened up KGGF, their 500-watt broadcasting station on 1010 kHz in Pitcher, OK. Either the citizens of Pitcher were indifferent to KGGF, or else they were so overjoyed, that Powell and Platz got the idea that a larger town would love KGGF twice as much. For whatever reason, by 1931, KGGF had moved to Coffeyville, KS. Offices were in the Coffeyville Journal Building at 8th and Elm Streets. The transmitter and studio were at South Coffeyville, OK. The antenna was a dipole type supported by two 200-ft. towers.

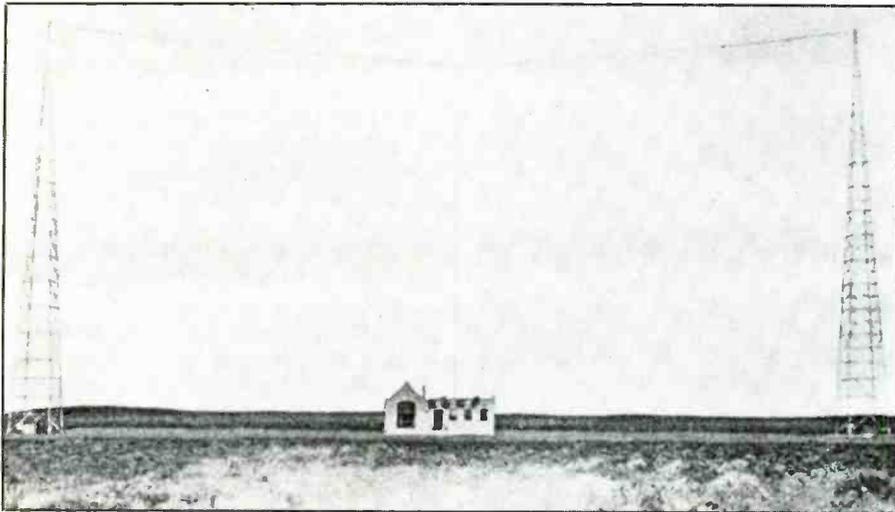
In the national frequency shuffle that took place about 1940, KGGF was shifted to 690 kHz, but upped its power to 1 kW days, 500 watts at night. Hugh Powell continued to



Two views of the "Gibbons" hookup that ran in a 1922 magazine. Looks like the same set Charles Christian's dad was holding in the old photo.



This is the 1921 photo we ran last February showing Mr. Christian holding what he described at the time as "the first Gibbons hookup."



The old KGGF digs at South Coffeyville, OK shows the two 200-ft. towers.

operate the station until October of 1947, when it was sold to the Midwest Broadcasting Company, which still owns KGGF. The station runs a news and talk format. It's still on 690 kHz, but now runs 10 kW/5 kW. We salute KGGF on its 60th year of continuous service.

Big City Voice

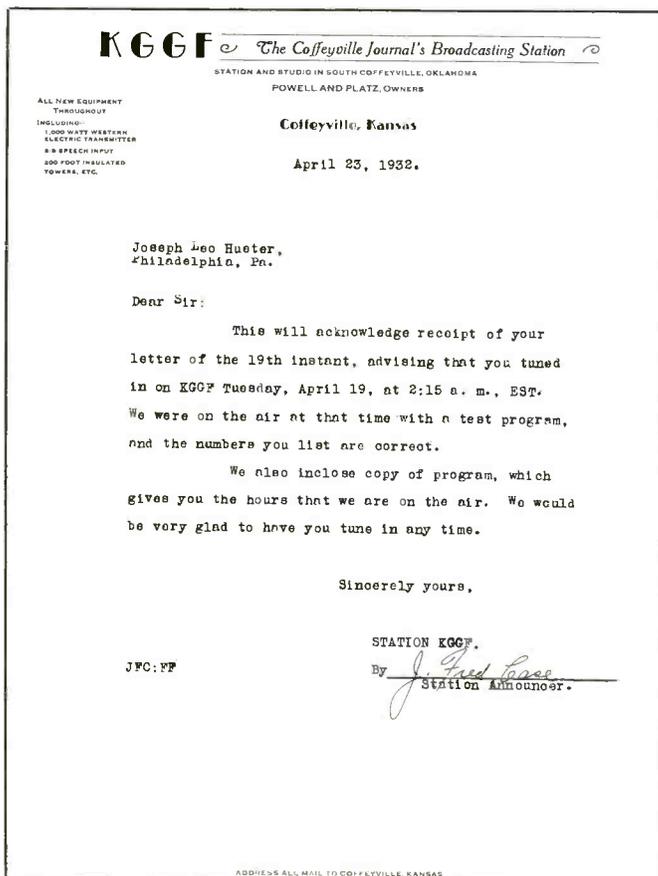
John Schmid, Line Lexington, PA recently visited Philadelphia's Atwater Kent Museum to see their fine radio exhibits. He sent us a couple of their early photos of station WIP. That caused us to head for the ar-

chives to dig up some information to present to you along with the pix.

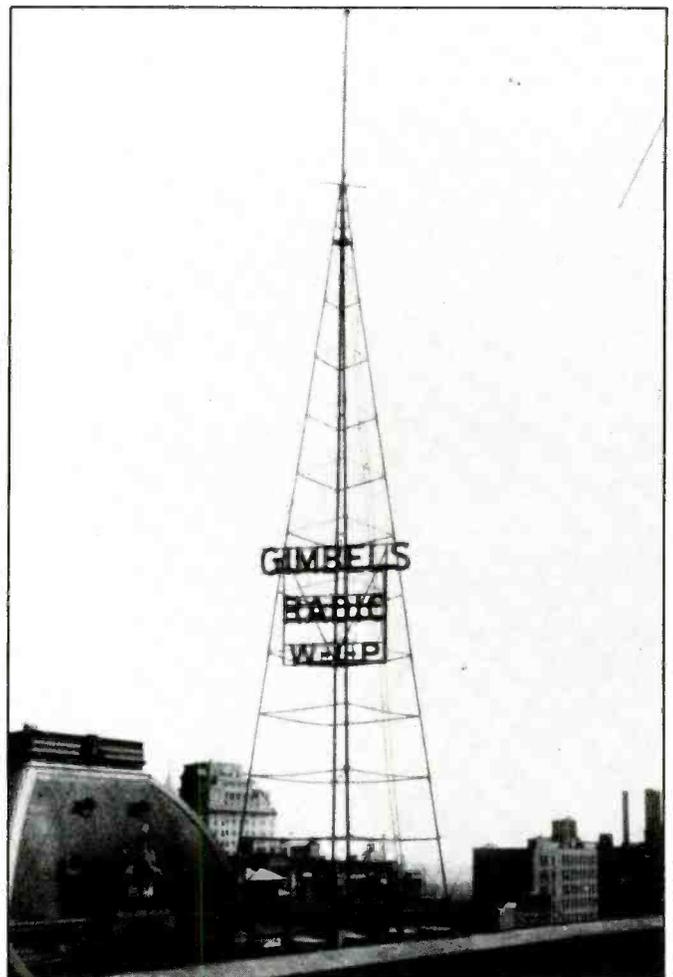
Philadelphia's WIP was the first broadcaster in that city, having started broadcasting on March 16th, 1922 on a frequency of 600 kHz. This was the station of Gimbel Brothers Department Store, Market and 9th Streets. Two antenna masts on the roof of the store supported the three-wire antenna.

By 1924, the station was on 590 kHz with 500 watts. The station's slogan matched its call letters: *Watch Its Progress!* Things kept changing in those early days, and when 1928 rolled around, it found WIP on 860 kHz. The government did one of its several nationwide frequency shuffles that year and, in November, WIP was told to move to 610 kHz. The hitch was that another local station was also told to shift to 610 kHz. That meant the WIP, Philadelphia's pioneer voice, would henceforth be forced to time-share its frequency.

The other local station on 610 kHz was 500 watt WFAN, which had been moved from there from its former spot on 1340 kHz. This station was located in the Hotel Lorraine and was operated by the Keystone Broadcasting Company (owned by the



A 1932 QSL from KGGF reveals that although the station was licensed to Coffeyville, KS the entire station (studios and transmitters) was really a native of Oklahoma! (Courtesy Joe Hueter, Philadelphia, PA).



One of the pair of original WIP towers atop the old Gimbel's Department Store in Philadelphia.



Full house in the the WIP control room, about 1924. Looks like everybody wanted to get in on the act!

Haverford College Radio Club). Within a short time, WIP had solved the problem by the expediency of buying WFAN and regaining full use of the frequency. For a while, in the early 1930's, the station used the dual identification of WIP and WFAN.

Eventually, the WFAN call letters were dropped.

By the mid-1930's, WIP had raised its power to 1 kW, then (in the 1940's) took it to 5 kW. By then, the transmitter was in Bellmawr, NJ. WIP remains on 610 kHz

with 5 kW today, running an all-sports format. Two and a half years ago the station was purchased by Spectacor Broadcasting.

An interesting WIP story began about 1938 when the station's *Pep Boys Dawn* patrol all-night music program began playing a recording of an inspirational song called the *Bluebird of Happiness*. Although the name of the artist was shown on the label, nobody had ever before heard of the singer. Moreover, the recording was an RCA Victor transcription furnished only to broadcast stations and not available in stores. For years, this was one of WIP's most requested recordings. With WWII drawing to a close in 1945, WIP's people contacted RCA Victor and suggested that it would be an appropriate time to release this record commercially. If WIP's listeners had been asking to hear it every night for eight years, then maybe everybody else would like its uplifting message and haunting melody.

It wasn't quite that easy. Record companies had long supplied broadcast stations with transcriptions that weren't commercially available. Very often the performances were by well known artists whose efforts were uncredited, or were listed under alternate names. In the case of *The Bluebird of Happiness*, the magnificent tenor voice belonged to Metropolitan Opera star Jan Peerce. In those days, major opera stars didn't think it wise to lend their names to

WIP-WFAN BROADCASTING COMPANY
OPERATING
WIP-WFAN
GENERAL OFFICES AND STUDIO
1722 N. 18TH ST.
PHILADELPHIA

Joseph Leo Hueter,
1722 N. 18th St.,
Phila., Pa.

Dear Sir:

This is to verify your reception
of Station WIP-WFAN on 4/26/32
at 10:15 p.m. when you heard JOHNNY BROWN OHCH.

Thanking you for your interest and
hoping to receive further comments on
our programs, we remain

Yours very truly,

MEC:ED

E. D. Kline
STATION WIP-WFAN

PHILADELPHIA'S PIONEER VOICE

Joe Hueter's 1932 QSL letter from WIP came after the station absorbed co-channel station WFAN in order to have full local use of 610 kHz.

WIP
WIP-FM

PENNSYLVANIA BROADCASTING COMPANY
35 SOUTH NINTH STREET, PHILADELPHIA 7
WA 1007 2-4888

April 30, 1948

Mr. Tommy Kneitel
175 W. 93rd Street
New York 25, New York

Dear Tom:

This is to acknowledge your reception report
of WIP from 1:15 pm EST to
on April 29. The program you
tuned in is our "Passing Parade".

Our transmitter operates twenty-four hours
a day, seven days a week on 610 KC; using
five thousand watts; and is located in
Bellmawr, New Jersey.

Thank you for your interest in our station.

Sincerely,

Murray Arnold
MURRAY ARNOLD
Program Director

MA/pja

PHILADELPHIA'S PIONEER VOICE . . . MUTUAL NETWORK

In 1948, Tom Kneitel received this QSL letter from WIP which pointed out that its transmitter was in Bellmawr, NJ.



We Gave Them THE BIRD ...and they Liked it!

About eight years ago... in the middle of the night... WIP's Pep Boys Down Patrol played a special selection, "BLUEBIRD OF HAPPINESS." The listeners liked it. Liked it so much they recently insisted that it be made available for playing at home.

RCA-VICTOR engaged the same Metropolitan Opera star Jan Peerce, who made the original under a nom de song, to make a record of the "BLUE-BIRD" and it's selling BIG!

More proof of the fact that they want what they hear on WIP!



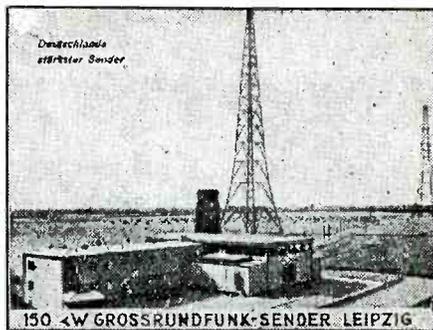
610 N. C.
MUTUAL'S 3rd MARKET AFFILIATE
5000 WATTS

Represented Nationally by GEO. P. HOLLINGBERRY CO.

WIP put this notice in a 1946 broadcast trade publication to publicize the important role the station played in creating a pop record hit of the times.

performances unrelated to operatic or concert selections, hence the use of the assumed name. Moreover, at a time when the public's taste in music was running towards *Dig You Later Hubba-Hubba-Hubba*, and *Mairzy Doats*, there was some concern as to the commercial viability of a serious inspirational song performed by an opera star. The public was into Bing Crosby, Betty Hutton, Ella Fitzgerald, The Andrews Sisters, Buddy Clark, Frank Sinatra, Dinah Shore, and Spike Jones. Would radio stations play a record by an opera star that most pop music fans had never heard of? Would kids feed nickels into juke boxes for this? Would record stores sell any copies?

After lots of persuasion on the part of WIP, backed by a letter-writing campaign from their listeners, all the parties finally agreed to take a chance on the commercial release, and with Jan Peerce's name on the label. RCA Victor had Peerce record the song again with an updated arrangement, and on recording equipment considerably more modern than had been available when the original transcription was cut. As soon as it went on sale, it skyrocketed to enormous



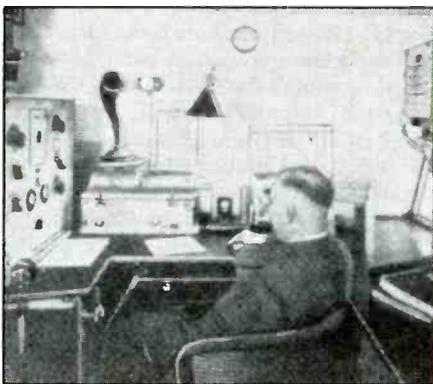
During WWII, many pre-war German QSL's were thrown away in anger by American and Canadian DX'ers. This mid-1930's QSL from Leipzig (785 kHz) may be one of the few that survived. The station claimed to run 150 kW, but that might have been a little exaggerated.

popularity on radio stations and juke boxes everywhere. Record stores were selling out of the disc as soon as shipments arrived. It was the pop music sleeper of the late 1940's, thanks to WIP—whose listeners had loved it for eight years. You could look it up!

If you get to Philadelphia, you'll like the Atwater Kent Museum because it's all old radios. It's located at 15 South 7th Street (between Market and Chestnut Streets). Museum hours are Tuesdays through Saturdays, 9:30 a.m. to 4:45 p.m., and admission is free. For more information call (215) 686-3630. Until the end of September, the museum is holding a special *Tune-in Philadelphia Radio* exhibit, exploring broadcasting in Philadelphia prior to 1950.

Small Story

As we have mentioned several times previously, flea powered broadcasters proliferated in broadcasting's early days. Most of these "one-lung" stations served small rural areas and were staffed only by a couple of people. Many had come into existence because the owner was a ham operator who also wanted to broadcast.



The radio shack aboard the German airship *Hindenburg* was well-equipped, but short on elbow room.

By the early 1930's, most one-lungers were history; those who hadn't been drowned out by a wall of interference from many other co-channel stations, had basically been forced off the air by the government which had lost its patience with these hold-overs from an earlier "haywire" era when individuals could obtain licenses for stations in bedrooms, garages, parlors, and the back rooms of their stores.

The last of the little one-bulb broadcasters was tiny KFPM, in Greenville, TX. This station started in 1924 by ham operator Dave Ablowich, Jr., (callsign: 5DW), in the store-room of his New Furniture Company, 2109 Park Street. Operating on 1240 kHz, KFPM proudly used the slogan "Biggest Little 10 Watts On The Air."

By 1928, KFPM had moved up to 15 watts and shifted to 1300 kHz, changing to 1310 kHz in November of 1928. There it stayed and maintained a rather vigorous broadcasting schedule for several years; long after other mighty-mites had called it quits for one reason or another. Moreover, it had become well known with DX'ers of the early 1930's, who regarded it as real plum.

In April of 1935, when 15-watt KPFM was the lowest-power licensed broadcaster in the US, the license was deleted at the voluntary request of the licensee. KPFM had been dark eight months when there was renewed interest in reviving the station on a somewhat grander scale.

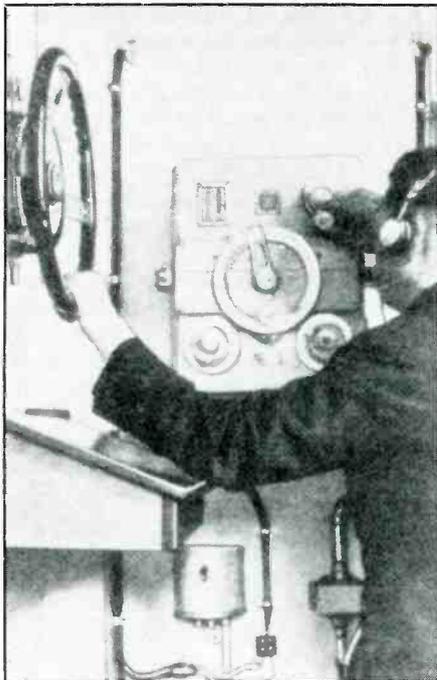
James R. Curtis, owner of 100-watt KFRO (1370 kHz) in Longview, TX offered to purchase KPFM and get it reinstated on 1310 kHz with 100 watts, using the callsign KVOG and the slogan "Voice Of Greenville."

The FCC turned down the proposal. Instead, the FCC granted a license for Greenville to the Hunt Broadcasting Company for KGVL, a 100-watt station to operate on 1200 kHz. That was in mid-1937, and dashed any hopes for bringing back KPFM in any form at all.

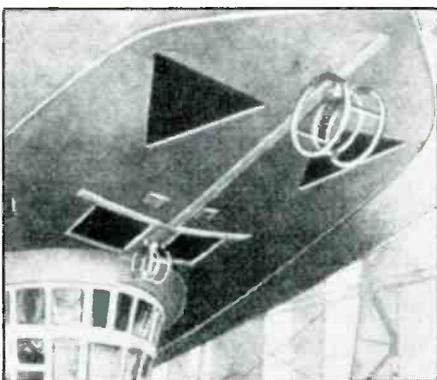
KGVL, under the direction of Fred Horton, operated from 2610 Washington Street into a 205 ft. vertical antenna. It didn't do it for very long though. After only two years of broadcasting, in the summer of 1939, KGVL's license was deleted. On March 26, 1946, a new (and different) KGVL was born in Greenville, this one a 250-watt station on 1400 kHz. This station is still in operation, now with 1 kW.

Speaking Of DX

Those who were adept enough to try for 15-watt KPFM could also have a try at a station at the other end of the power spectrum. That would be brute-force Leipzig, in Germany. In the mid-1930's, this station was on split frequency 785 kHz and pumping out Nazi propaganda from 0500 to 2300 UTC. It claimed to be pushing 150 kW, but sources reported that it probably not more



Operating the radio direction finder (RDF) aboard the Hindenburg was a two-handed job. One hand rotated the antenna, the other tuned in the frequency.



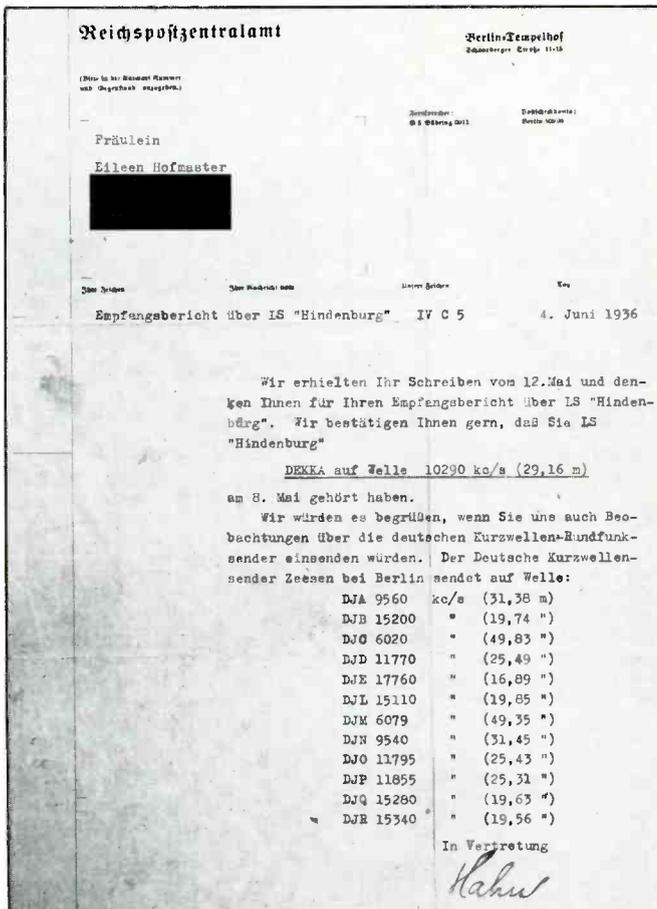
The Hindenburg's RDF loop antennas were forward of the cockpit.

than 120 kW. No matter, Leipzig was regularly picked up by listeners in North America.

The station's QSL was proudly displayed on many American and Canadian walls, that is, until Germany became our enemy in WWII. Chances are that the majority of those QSL's were thrown out in the anger of those times. Of the few that may remain, we were able to show you one that was sent along with a collection of cards by a DX'er now living in Phoenix, AZ who requests to remain anonymous. You've probably never seen one of these babies before!

More Hot Air?

While on the subject of Nazis and hot air, how about a rare peek at the radio shack aboard the German Zeppelin LZ-129? This behemoth was making its first trial flights over Lake Constance in Switzerland back in



This 1936 Hindenburg QSL was received by DX'er Eileen Hofmaster of OH. It previously appeared in the June '84 issue of POP'COMM.

1936 as it was being readied for its forthcoming inaugural trip over the South Atlantic to Rio de Janeiro, Argentina.

In 1936, the LZ-129 was the largest lighter-than-air craft ever constructed. At a length of 815 feet, it was 30 feet longer than the ill-fated airships *USS Akron* (ZRS-4) and *USS Macon* (ZRS-5) (their callsigns were NZRLB and NZRLC, respectively). Its 7-million cu. ft. gas capacity was nearly twice that of Germany's famous *Graf Zeppelin*. Powered by four 1,000 h.p. diesel engines, the LZ-129 had a top speed of 84 m.p.h., and a cruising range of 8,700 miles. The LZ-129 was designed for transoceanic mail and a luxury passenger service.

The callsign of the LZ-129 was DEKKA. The radio equipment aboard consisted of a 200-watt low frequency (150 to 500 kHz) transmitter. A 150-watt HF voice and CW transmitter; it was continuously tunable from 4 to 20 MHz. Receivers aboard could tune all frequencies between 15 kHz and 20 MHz. Clever design of the radio gear called for as few different tube types as possible to be utilized in the transmitters, thus simplifying replacement and conserving storage space for the spares.

Enormous worldwide publicity surrounding the LZ-129 had DX'ers sitting by their dials waiting to log DEKKA. On its test flight, the airship used only CW, so its audience

was limited. Using 12 MHz, it did establish two-way contact with RCA's coastal station WCC, Chatham, MA. This was at 1220 UTC on March 5th, 1936. WCC reported excellent signals from DEKKA.

By the time LZ-129 went into commercial service, it had been given a name, *Hindenburg*. You've probably heard of it. Two-way transmissions and entertainment broadcasts during its commercial career (144 ocean crossings in the 1936 season) were heard by many DX'ers, and some were lucky enough to get QSL letters. One season was all the LZ-129 had to give, it crashed and burned on May 6th, 1937 at Lakehurst, NJ on its first transoceanic flight of the 1937 season.

It was the last of Germany's passenger Zeppelins. The LZ-130 (which was the *Graf Zeppelin II*, to replace the older one) was tested but never put into commercial service. Work on super-Zeppelin LZ-131 was halted because of the outbreak of WWII. In March of 1939, the old *Graf Zeppelin* (LZ-129) and its intended replacement (LZ-130) were dismantled by the Germans.

We're out of space for now, but we'll be back in July with some fireworks from the archives. We appreciate all of the many letters and good words these pages receive. And thanks to all who kindly supply us with old photos, QSL's, postcards, and personal recollections. Thanks!

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

MFJ Amateur Radio/Shortwave Listening Accessories Catalog New Military Radios

Harris Long Range Radio Division introduced new models of HF radios for military applications.

The AN/GRC-231(V) is a series of 20 Watt, 125 Watt, and 400 Watt vehicular/base tactical HF radios providing a full range of voice and data communications and automatic link establishment (ALE) capability over the 1.6 to 30 MHz frequency range.

Also available is the AN/URC-129(V) Series 125 Watt and 400 Watt transportable HF radio systems. Packaged for easy, rapid deployment in a heavy-duty carrying case, the system includes a transceiver, power amplifier, power supply, high speed data modem, automatic link establishment frequency controller, and a GRID computer.



Both systems are based on Harris' RF-5000 Series HF Transceivers, a rugged HF radio designed for tactical and rapid deployment operations. Optional capabilities such as high speed data/FSK and automatic link establishment are packaged in modular, plug-in assemblies.

A complete line of military nomenclature accessories including power supplies, antenna, vehicular shock mounts, remote controls and audio accessories are available to meet any mission-specific requirement.

Inquiries should be referred to Marketing Communications Manager, Long Range Radio Division, Harris RF Communications, 1680 University Avenue, Rochester, New York 14610, or circle 102 on our Reader's Service.

MFJ Enterprises, Inc., announces the release of their latest MFJ Amateur Radio/SWL Accessories Catalog.

It's Free! Simply write or call for your copy.

This brand new 16 page catalog includes Antenna Tuners, Portable Transmitting Antenna, SWR/Wattmeters, Coax Switches, Dummy Loads, Clocks, Keyers, Memory Keyers, Antenna Bridge, RX Noise Bridge, Multiple DC Power Outlet, RFI Free Choke Kit, Artificial RF Ground, Handheld Acces-



sories (Speaker/Mics, Antennas, SWR/Wattmeters and more), SWL Accessories (Tuners, Indoor and Outdoor Active Antennas, Preamplifiers and more), Phone Patch, Books, Ham Software for IBM, Macintosh and Commodore compatible computers, Packet Radio units, Multi-mode Data Controller, "Picture Perfect" Video Digitizer and more.

For your copy call toll free at 800-647-1800; FAX: (601) 323-6551; Telex: 53 4590 MFJSTKV; or in Mississippi call (601) 323-5869; or write MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762, or circle 103 on our Reader's Service.

New Desktop, Handheld Scanners Offer User-Friendly Design with "Express Tuning" System

Two new scanners from Cobra Electronics offer the scanner market with a new approach to scanner design and operations.

Cobra's models offer an attractive, user-friendly design with simplified controls. It's a complete break from the traditional high-tech, complex hardware-oriented focus of scanners.



The scanners feature Cobra's exclusive new Express Tuning System, which replaces the traditional multi-button scanner keypad with a three-button design (up/down/fast controls) to simplify all tuning and programming functions. Reinforcing this new model's user-friendly appeal, the unit has a clean design with an off-white case. Also featured is an uncluttered control surface, a large rotary volume/on/off control knob, and a nine-digit LCD display for radio frequencies and operational status.

These new scanners will appeal to first-time users, the fastest-growing segment of the scanner market, as well as the more advanced enthusiasts who would like an inexpensive second model for handheld or desktop use. This is an example of technological innovation and product design to capture and special niche in the marketplace.

With ten programmable channels for police, fire, paramedic, military, government, amateur radio and weather broadcasts, the tabletop unit is Model SR-901 with a \$149.95 suggested retail price (SRP). Other premium features include one-touch memory programming, auto scan and manual tuning, channel lockout, automatic squelch and a telescopic antenna. The compact model has a space-saving footprint of only 7.25" square.

Model SR-901 includes the following coverage in three frequency bands:

Band 1: 29-29.7 MHz 10 Meter Amateur broadcasts, 29.7-50 MHz VHF Low Band, and 50-54 MHz 6 Meter Amateur Band;

Band 2: 136-144 MHz Military Land Mobile Band, 144-148 MHz 2 Meter Amateur Band, 162.4-162.55 Weather Band, and 148-174 MHz High Band;

Band 3: 400-406 MHz VHF, 406-420 MHz Federal Government Band, 420-450 MHz 70cm Amateur Band, 450-470 MHz UHF Band, and 470-512 MHz UHF "T" Band.

A new handheld companion unit, Model SR-11 (\$189.95 SRP), also features Cobra's new Express Tuning System, a ten-channel memory and the same frequency coverage as the desktop unit. This pocket-sized scanner uses four conventional AA alkaline or rechargeable batteries and incorporates a simplified control-surface design for easy operation.

Cobra maintains a toll-free consumer hotline—1-800-COBRA 22—to provide dealer locations and product information about its scanners, radar detector, CB radios, cordless and corded telephones, answering systems and FAX/copier systems. If you call, be sure to tell them that you read about these units in *Popular Communications!* Or, you can circle 101 on our Reader's Service.

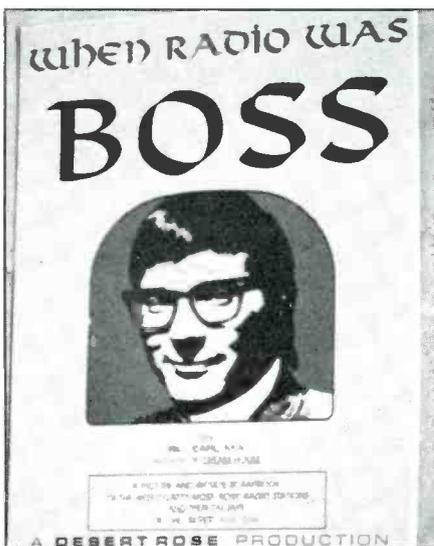
BOOKS YOU'LL LIKE

BY R. L. SLATTERY

AM Broadcasting's Silver Era

POP'COMM reader Peggy Thompson of LaCresenta, CA, felt a book was such a blast that she mailed her copy to us and suggested we give it a review. The book is *When Radio Was Boss*, by Bill Earl. We took an immediate liking to this book because it was obviously done as a labor of love in order to pay tribute to an amazing and unforgettable period in broadcasting.

When Radio Was Boss is best described as a scrapbook-style compilation of deejay ("jock") photos, promos, and ads from some leading West Coast Top-40 AM stations from the late 1950's through the early 1970's. The 104-page book has hundreds of black and white illustrations, many large enough (and intended) to be removed and put up on a wall or bulletin board.



Top 40 AM radio in the 1960's was the high point of a certain style of broadcasting that is well remembered by all who had the pleasure of being exposed to the talented jocks who knew how to make it sound so—well, boss. These weren't merely people who read commercials and introduced records, these were freewheeling and outrageous characters who were as (or more) entertaining than the discs they spun.

The boss stations covered in Bill Earl's book range from the San Francisco Bay Area down to Baja Mexico, and inland to Phoenix. This includes stations KHJ, KFWB, KRLA, KWOW, KBLA, KGBS, KPPC, KCBQ, KGB, KACY, KYA, KFRC, KEWB, KMEN, KRUX, and Mexican XEPRS. These were selected by the author from his own personal experience as an avid listener, collector, and researcher.

For each station, there is a brief general description of what it was during the boss

era (plus a listing of its most memorable air personalities). This is followed by pages of photos of the jocks, plus promos, ads, etc. You'll see legends like Don McKinnon, Tom Donahue, Dr. Don Rose, Casey Kasem, Wolfman Jack, Bob Eubanks, and many others.

When Radio Was Boss captures the feel of that wonderful era of broadcasting. Of course, boss radio wasn't limited to the West Coast. In New York there was WABC, WINS, WMCA, Cousin Brucie, Murray the K, and Alan Freed. Every metro area had its Top 40 AM stations and the personalities that went with them. Some feel, however, that the style originated on the West Coast and fanned out from there across the continent. If that's true, than *When Radio Was Boss* most suitably commemorates the stations that did it first.

If you have a feeling for this very special brand of AM radio, Bill Earl's book will stir up vivid memories of those screaming rock jocks and their echo chambers. You can order *When Radio Was Boss* for \$9.95, plus \$1.40 postage (California residents add 65¢ tax) from Bill Earl and Associates, 633 North Taylor Avenue, Suite 18, Montebello, CA 90640.

Inside Information

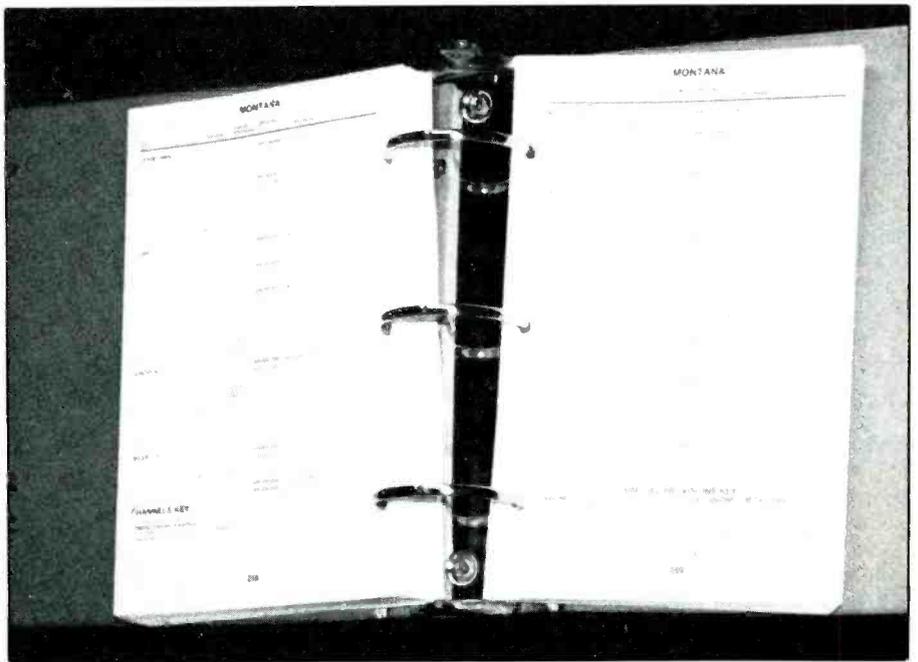
Radio Common Carriers (RCC's) are communications companies that have, most surprisingly, managed to thusfar go about their business without attracting much attention to their activities from within the monitoring hobby. Yet, RCC's exist across

the nation, providing voice and tone radio paging, also car telephone service. A revision in the channels available for RCC paging operations took place in January of 1988, resulting in 110 channels in the VHF low, VHF high, UHF, and 900 MHz bands being authorized. RCC mobile phone service now takes place on 44 channel pairs in the VHF high and UHF bands.

RCC's are usually independent companies that provide their services separate and apart from stations in the Common Carrier Radio Service which provide similar services, but are mostly telco operations. Yet, with RCC the paging messages that go out to subscribers are virtually identical to those handled by telco paging services. And the car phone calls sound much like cellular calls (except that they don't cut off in mid-sentence when monitored on a scanner). Cellular has gotten lots of media coverage, RCC car phone operations very little. RCC voice and non-voice radiopaging has also received little attention in regard to specific station locations, frequencies, and other vital data.

It's not that the information doesn't exist, it's that it's never been made conveniently available to many people who would find such information of high interest. That information, in abundance, is now on tap for your use.

This is available in a massive directory compiled by the RCC industry itself. It's the 486-page *State Listing of RCC's and Two-Way Mobile Telephone Companies* which has been specially excerpted from a larger publication. This state listing data shows all



American radiopaging and RCC car phone companies, along with the channels used by each, licensee names, and phone numbers. Radiopaging services are shown with information about their signalling formats. Mobile phone companies are shown with the service they offer (direct dial, limited hours, operator available, etc.). Listings are by state, then by cities within each state.

The publication is prepared in a 5½ by 8½ looseleaf format, and supplied in a high quality custom binder. This is a wealth of information that should be of interest to all scanner owners, RCC subscribers, law enforcement agencies, and persons who wish to explore the possibilities of using the services of RCC's.

The *RCC State Listing* is available at \$19.95, plus \$2 postage/handling from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State please include \$1.50 sales tax.

Guide to TV Guide

POP'COMM reader Jeff Kadet, W3CRH, publishes a nifty directory and catalog called the *TV Guide Specialists 1990 12th Edition Catalog*. This is an illustrated 56-page publication listing each and every individual issue of *TV Guide* that has come out ever since the publication went national in April of 1953.

Each issue is shown with its issue number and date, a description of the front cover, and highlights of its contents. This covers almost 1,900 issues! Photos of some of the covers are shown. In addition, there are listings for pre-national issues going back to 1948, also Canadian issues, and other TV program publications prepared by newspapers.

This is a fine reference guide to these publications, as many people now collect them with considerable gusto. There's all kinds of

interesting stories and authors to be located in the pages of old copies of *TV Guide*. Every time I see a stack of them at a yard sale, tag sale, or flea market I always sort through and usually find a treasure or two. Last year, one of my discoveries was *TV Guide* for December 29th, 1962. On page 24 of that issue I discovered an article written by Tom Kneitel!

Jeff Kadet's book, however, is more than an index. It's actually a catalog from which you can purchase all of the publications listed. If you've got copies to sell, you can also use this book to keep track of the current retail values of the copies you are offering. If you're a collector, you'll know what your collection is worth. Yes, in addition to publishing this book, Jeff Kadet specializes in buying and selling old *TV Guides*. He's the world's largest dealer.

The 12th Edition of Jeff's book is \$5 from *TV Guide Specialists*, Box 20, Macomb, IL 61455

Wireless Antenna History

Walter Schulz, K3OQF, has written a book entitled *Wireless Antenna History: A Vertical Design Primer*. In 113 pages, plus appendix, the author reaches back to touch upon the works of Maxwell, Hertz, Popov, Marconi, and Tesla. The transition from spark gap transmitters to Alexanderson alternator to vacuum tubes is briefly chronicled. A number of photos of electronic apparatus from those days are provided to illustrate the text.

The second part of Schulz' book offers solutions to the feedpoint impedance problem of Hertz and Marconi type antennas, and shows how to use capacitive and inductive

Walter Schulz
K 30 QF

WIRELESS ANTENNA HISTORY:

A Vertical Design Primer

Wilhelm Herbst Verlag

reactances to reduce antenna physical size. It also shows how L and T networks are designed by using the universal reactance chart. The book has all sorts of handy formulas relating to these matters, but we'd peg the information at being a couple of notches above the understanding of beginners.

We recommend this book for all who are interested in the early technological developments in radio and the evolution of vertical antenna design. This 141 page book cost \$16.95, plus \$2 postage/handling from Gilfer Shortwave, 52 Park Ave., Park Ridge, NJ 07656. **PC**

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A New Page

Radio Paging Reaches Out to Touch You in Many New & Innovative Ways.

BY ROSS CARPENTER, KCA6ZR

Used to be that owning a radio pager meant that you had a little box in your pocket or on your belt. No matter where you were in your hometown, the little box would go *beep* to let you know that your home, shop, or office wanted you to call in by telephone. Even though basic, the ability to tap someone in the field on the shoulder and advise them to touch home base was a boon to doctors, service technicians, attorneys, salesmen, deliverymen, installers, and many others. Indeed, there are still many of these basic paging services operating.

You've Come a Long Way, Baby!

Well, maybe some subscribers don't need much more than a simple beeping box to keep them happy. But radio paging has certainly evolved into much more than it was decades ago, with great services, options, and gadgets available being presented to the public. Equipment manufacturers as well as paging service suppliers are doing everything they can to make radio paging so ap-

pealing that *everybody* will want to have one handy, no matter what their requirements might be. It seems to be a plan that's working, for the industry is growing at a rate that might best be termed exponential.

Panasonic, for example, recently introduced its Vanguard 160 Synthesizer Display Pager offering programmable frequency and cap codes. While synthesization isn't a new technology in electronics, it's new to a pager as small as the Vanguard 160, which weighs 3 oz., and is less than 3" high by 2" wide by 1" deep. The unit stores up to eight numeric and eight tone messages with a memory capacity of 160 characters. A non-duplicating memory feature prevents the same message from being stored twice. It has a top-mounted 20 character-per-message 12 digit LCD display, and a single switch to recall, review, or delete messages. It also lets the user know how much time has elapsed between page received and page read.

The Vanguard 160 has many field programmable functions including auto reset inhibit, repeat call indication, non-alert call,

alert auto reset timer, urgent call, alert tone frequency, repeat call inhibit, pager timer, and many others. It will operate for more than two months (40 hours per week, 2 calls per day) on a single "AA" battery.

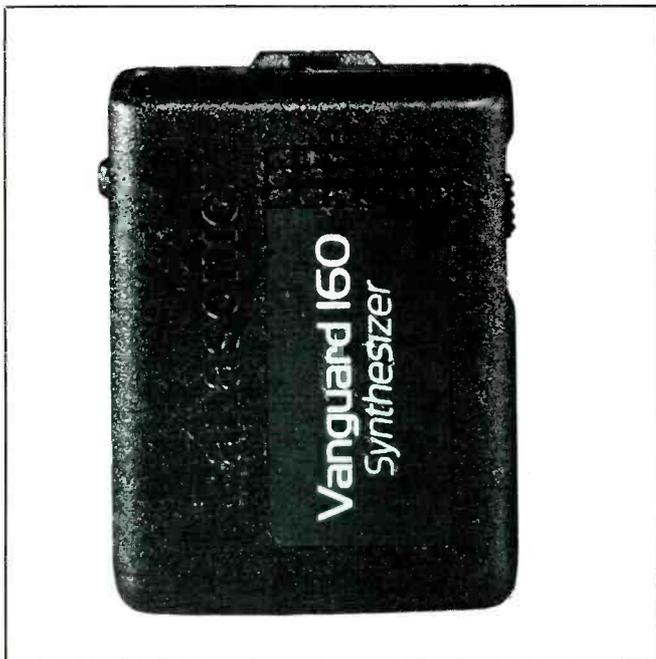
Panasonic's new Panadata 4000 pager features 4,000 character, 44 message capacity. Designed to deliver complete messages, the Panadata 4000 will store up to 40 alphanumeric messages and 4 tone only calls. This means that the user can receive a rather detailed message. The LCD display carries up to 36 characters at a time. Three cap codes with a total of 12 addresses allows plenty of memory for messages and on-line data services. One 3-position switch and two pushbuttons control the entire operation. It will operate for three months on an "AA" battery.

Cue Paging's Model MBS-88 pager offers advanced messaging capabilities in a compact easy-to-use unit that is intended to be used within the Cue Paging Corporation's National Voice Messaging System.

Cue Paging Corporation was the first company to offer nationwide paging, and

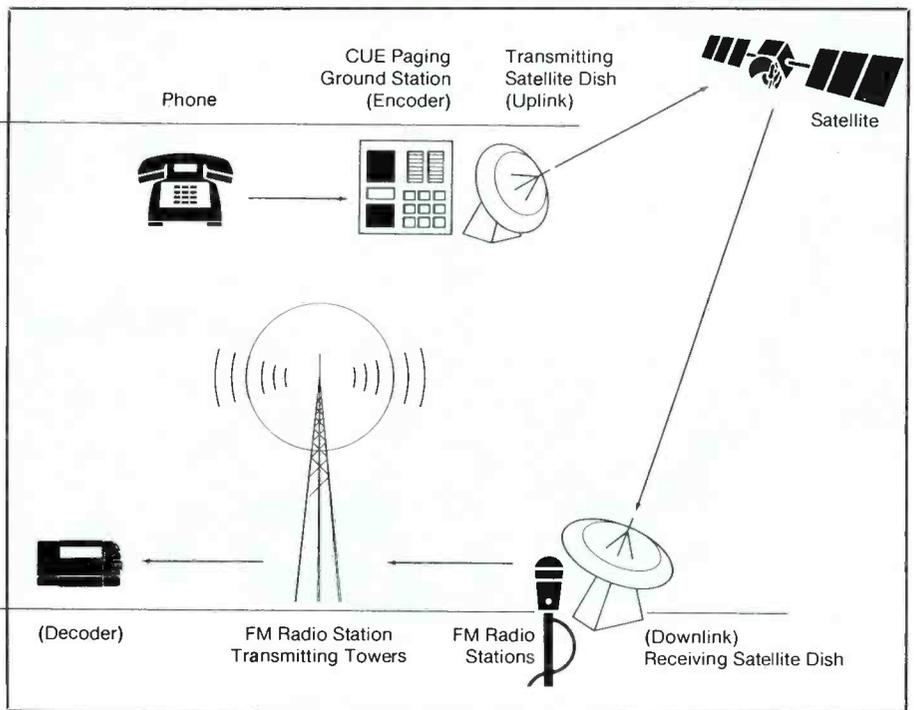
Panasonic recently introduced the Vanguard 160 Synthesizer Display Pager. VHF and UHF models are now available, and a 900 MHz version will be ready by the end of the year.

Panadata 4000 is a new Panasonic pager that can store 4,000 alphanumeric characters in its memory.





The Cue Paging Corporation's MBS-88 pager responds to the call nationwide. Actually, it's a pager that picks up...



Paging Corporation's system works, employing satellite technology and FM broadcast subcarriers (SCA).

POPULAR COMMUNICATIONS

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37	38	39	40	41	42	43	44	45	46	47	48
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109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180

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ours and may be retrieved) number.

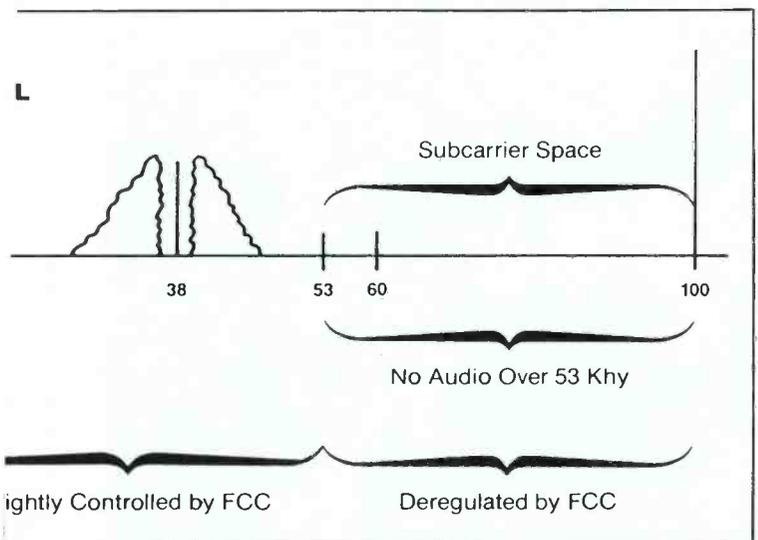
2 Messaging (voice mail) is all additional charge. Call-leave detailed messages in

When there's a voice mail ing a subscriber, a special sent to the subscriber's pag- subscriber can then call a spe- number, provide the prop- and hear the message(s).

veloper of the type of sophisti-

cated equipment required to meet the needs of many companies providing expanded paging services is Spectrum Communications and Electronics Corp. The company produces a complete line of radio paging, voice messaging, voice storage, and other related products. Much of their equipment utilizes the 68000 chip, on of the most powerful CPU's commercially available, also the 68020 microprocessor, a 32 bit computer.

Still, no matter how sophisticated the de-



ture that ensures that subscribers have access to their messages. Whether a subscriber is "out of range," doesn't have the pager with them (or has it turned off), Numeric Echo takes the message. The messages are

FM broadcast station subcarriers piggyback on the signal, although they can't be heard by the regular audience. They are used for background music, stock prices, time signals, medical lectures, dispatching, paging, weather reports, sports results, and many other subscriber services. In most instances, the FMcaster leases out his SCA channels for use by others.



Radio Shack produces the Realistic PG-80 private paging system. It operates on CB frequencies. With a rooftop antenna, it can reach out for several miles and get as many as eight pagers to make a very basic "beep." It's an inexpensive unit that has many applications.

sign work becomes, sometimes paging companies are frustrated by problems that have plagued communicators for many years. Like the time subscribers of Radio Call, of Melville, NY complained that their pagers wouldn't pick up any calls in the vi-

cinity of Main Street, Huntington. Radio Call had 36 paging transmitters in operation within its service area, but none could get a good signal into this one area.

Investigations showed that the culprit was underground iron ore deposits. The ore

killed off the reception. The only solution was to install yet another transmitter, right on Main Street in Huntington. It was the only way to make sure the paging signals made it into town, and could penetrate the dead spot.

Try Your Own

Many companies requiring on-site paging in factories, warehouses, malls, hospitals, schools, hotels, office sports, and residential complexes have found that it may be convenient and cost-effective to operate their own private radio paging system. It's quite easy to do, and there's a good selection of equipment available.

An inexpensive way to go is via the Radio Shack Realistic PG-80, which gives you a transmitter and a receiver that gives a basic beep; the whole setup for \$99.95 (extra receivers for \$29.95 each). The 7-watt transmitter run into an outside CB antenna should provide several miles of coverage and will accommodate up to eight receivers (which can be paged selectively). No FCC license is needed.

Fanon Courier offers the Courier Pro Page tone and voice paging system that can reach up to six different individual receivers. The basic system consists of the transmitter and two receivers, plus a magnetic mount indoor antenna and 12 VDC power supply. The MSRP is \$495, with additional receivers at \$99.95 each.

Motorola Inc. has their On-Site Communications System which is a local-area tone

Fanon Courier's Pro Page is a private paging system that uses voice and tone paging.

The Motorola On-Site Communications System is a short-range private paging system that can also be used for close-in two-way communications.



and voice paging outfit combined with short-range two-way capabilities. This UHF system consists of the RPB50 base unit, which is a 2-watt transceiver and paging encoder equipped with Digital Private Line (DPL) and Private Line (PL) coded squelch. Up to 90 individuals in ten groups may be individually signaled. The base unit includes an alarm interface that allows the system to monitor the external environment and then send out a predetermined page code when a change is detected, such as temperature, a flooding condition, equipment malfunction, darkness or rain condition.

The PR3000 is a paging receiver that provides visual and audio alerting. Its page codes are programmable via any IBM or clone PC.

For two-way applications, the On-Site P50 + portable is a paging receiver that can also transmit back to the base unit. Transmissions can be voice communications, with the ability to patch into the landline telephone network through the base unit. The P50 + can also be used to originate paging calls to be transmitted to other portables via the base station.

As of 1987, paging services had become a \$1.6-Billion industry with more than 6.5-Million units in use, six times greater than the number of people using cellular phones. Compare that with 75,000 pagers sold in 1979, and the projection that 11.2-Million will be users in 1992.

Most pagers are used by business people in industries such as: delivery and technician's services, media, airline and transportation, the military, health care, emergency services, law enforcement, real estate, and construction. Even the underworld uses them. By next year, one in thirteen people will be carrying some sort of paging receiver.

Will you be one of them?

PC

Addresses of Companies Mentioned in This Feature

Panasonic Communications & Systems
2 Panasonic Way
Secaucus, NJ 07095

Cue Paging Corporation
2737 Campus Drive
Irvine, CA 92715

Realistic
c/o Radio Shack
700 One Tandy Center
Fort Worth, TX 76102

Fanon Courier
14811 Myford Road
Tustin, CA 92680

Motorola Inc.
1301 E. Algonquin Rd.
Schaumburg, IL 60196

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CIRCLE 45 ON READER SERVICE CARD

Irritatin' Stations

Readers Tell Us Their Least Liked Shortwave Broadcasters

BY GERRY L. DEXTER

Every now and then some shortwave club holds a beauty contest in which members vote for their favorite shortwave stations. The list of the top ten or so is then published in the club's bulletin. *Wunnerful, wunnerful!*

Some months ago a *POP'COMM* reader suggested an article on the exact opposite of that idea—the ten worst! And this—with a few changes in approach—is it!

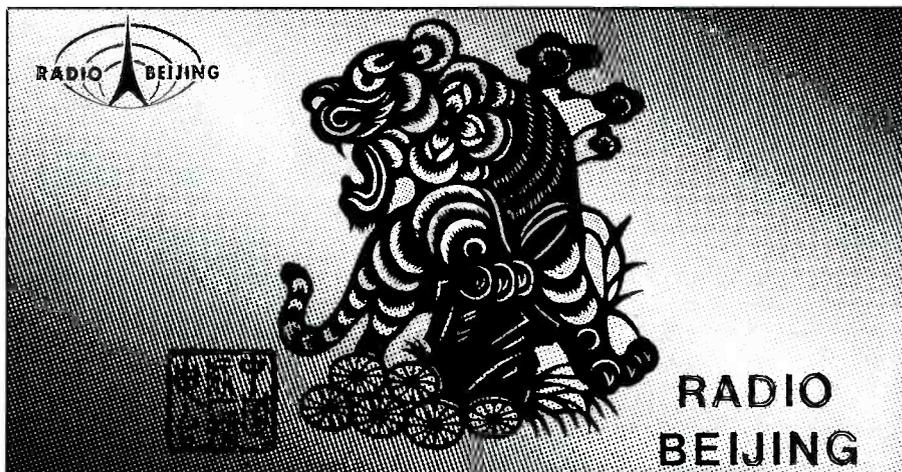
We sent a letter to a number of regular reporters to the "Listening Post" column as well as to various others known to the author to be knowledgeable SWL's and DX'ers with many years' experience. We asked each to list what he or she felt were the worst shortwave broadcasters and to say why they held that opinion.

We listed three areas in which the stations might be judged: (a) programming—the content and quality of their programs and program production; (b) technical quality—such things as audio and signal quality along with frequency choices and the like, (c) audience relations—how the station treats its audience, how it replies to listener mail, its QSL policy and such.

We received about three dozen replies and this article outlines the results. Let's make it "perfectly clear" right at the outset that this survey cannot, in any way, be considered scientific. We offer here a general consensus of which shortwave stations getting low grades from some listeners and why. Interestingly, many of the stations and the complaints made about them pretty well fit in with what one hears and reads when most listeners make negative comments about particular stations.

There were a number of surprises, including only one mild complaint against Radio Moscow. Also, complaints, however minor, about some of the biggest names in shortwave broadcasting from the west as well. Some complaints—many, in fact, were isolated instances and we've included some of them not only because they were interesting but because they reinforced some common themes.

The bad rap some stations get is better given to the governments that control them. Government-run broadcasters are often no more than propaganda machines which simply pump out the line of the current leadership. Given freedom to do what they wish in the way of programming, it's very likely such broadcasters as Radio RSA and Radio



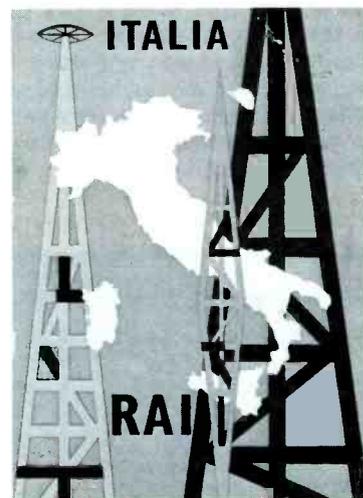
Radio Beijing gets bad marks for its coverage of the democracy movement and the Chinese government's reaction.

Beijing would quickly move off the list of nasties and on to the list of favorites. We, perhaps, should ask "If I were an announcer at Radio Beijing would I have the guts to sit in front of the microphone and tell it like it is?"

Stations also get criticized by listeners for things which those stations would very likely correct, if only they had the financial resources. A fat bank account can buy a stronger signal through new, higher power transmitters and/or relay bases. Money can buy more and improved programming, even add English where it doesn't now exist. More staff can be added in the mailroom. Here, again, making the station the target of our ire, while a very natural reaction, is missing the target. For a government broadcaster, a lack of money is the fault of politicians, not of broadcasters. It is like cursing the mailman for not bringing you a QSL. He represents the symbol of a problem but the fault is not his.

There are, of course, many instances in which a finger pointed at the station's door is aimed at precisely the right target. Shortwave broadcasters are no different from those operating on medium wave, FM or TV—there are always areas which can stand improvement.

By the same token it's also true that you can't please all of the people all of the time, whether you are building automobiles, running a restaurant or operating a shortwave

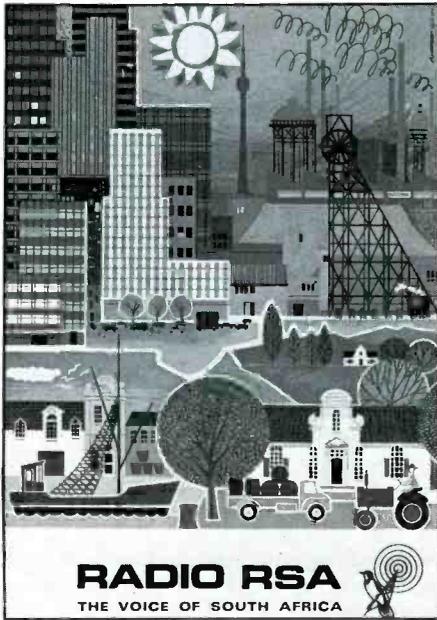


RAI's English newscast for North America puts folks to sleep.

station. There will always be a malcontent who'll find *something* to complain about, no matter how good the product or service!

It wasn't possible to rank the stations from worst to least worst, so we've grouped them into some general categories, but there are no worsts and least worsts even within those categories.

Incidentally, the majority of the people responding either did not want to be quoted



Listener's don't like Radio RSA's treatment of South Africa's apartheid policies.



Radio Tirana wins the booby prize for dull, propaganda-filled programming.

directly, or didn't even want to be listed as a contributor at the end of the article. Thus, we've not used any of the names of listeners. As one noted, "I may want a QSL from one of these stations some day!"

The Absolute Pits

Seven broadcasters fell into this grouping, thanks to the number of times they were mentioned and the strong reactions they seem to bring from listeners.

Radio Pyongyang, North Korea - got strongly negative comments about the heavy propaganda in its programming. "Far too political . . ." ". . . programming stinks . . ." "Old line communist rhetoric . . ." One even gave them low marks for their ability to use propaganda, saying "They are the worst at using the shortwaves as a tool for their own ends."

Radio Tirana, Albania - The inclusion of this station will surprise no one. "Excellent technical quality but remains locked in some of the dullest programming heard on the airwaves." "Great cure for insomnia . . . what is not dull is incomprehensible!" ". . . more copper production for the happy workers."



Radio Pyongyang is a sort of Asian version of Radio Tirana.

A couple of replies also mentioned a poor QSL policy.

Radio Havana Cuba - "If I hear the word 'revolution' . . . from these folks one more time I'll scream . . ." "the female-male ping-pong comments get out of hand . . . they should play more lively Cuban music and send some of these Cuban cigars with their QSL's!" "Radio Moscow producers probably laugh at the pure 1950's type propaganda of RHC." "Do they need all those frequencies just to reach the USA?"

WYFR - The religious program content took second place to poor technical quality as an irritation factor from this station. "Too many frequencies taking up far too much of the international broadcast bands" was a common theme. "VOA and Radio Moscow aren't this bad," said one. Signal splatter across many kHz of spectrum space raises the blood pressure of many. Others complained about the "relentless" and high pressure fund raising efforts through the mail.

RAI, Italy - Comments here were almost exclusively centered on the English language newscast for North America and the zombie-like YL announcer who reads it.



VIGESIMO NOVENO ANIVERSARIO DE RADIO HABANA CUBA

29

Listeners want more Cuban music and less propaganda from Radio Havana.

"One night I thought she was going to fall asleep." "Presented in a very dull manner." "Give her No-Doz!" The brief music segment following the news was also criticized as a waste of time. This problem with the newscast has been going on forever. Surely RAI must be aware of it, yet things don't improve.

Radio RSA, South Africa - No surprise here as respondents took the station to task for its broadcasts pitching and "explaining" apartheid. "Still defending apartheid in an arrogant manner," said one. "Blind to what the rest of the world knows and sees," said another. Apartheid doesn't seem to have a way of being presented that doesn't offend listeners in North America.

Radio Beijing - Here, again, the criticism was almost entirely centered on the station's non-stop reporting of the official government party line. "Irresponsible reporting on the student riots . . . many days they were either off the air or did not men-

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1948-1988

Radio Canada's QSL policy and constant schedule shifts irritate listeners.

tion any news at all." Said one: "I loved this station before the recent student rebellion." Another complained of frequent schedule changes that make the printed schedule out of date by the time it's received in the mail.

Below Par - There's Still Hope!

WRNO - One called the music "the worst," another wants more classic rock and no Top-40. Another complained about carrying New Orleans Saints football: "fans in the USA aren't that crazy about the Saints - why do they think the rest of the world would be?" One writer just wondered, "What's the point of WRNO? Most of the time they don't even acknowledge the fact that they are on shortwave."

Radio Baghdad, Iraq - Poor technical quality, including overmodulated audio, "transmissions frequently cut off in mid-sentence" and "horrible" audience relations and a schedule which can vary from "minutes to hours" were complaints about this station.

Radio Cairo, Egypt - Respondents called attention to the station's poor signal quality. In brief, "lousy audio."

Voice of Free China - "Much ado about nothing" said one. Others complained of poor technical quality and signal splatter on the WYFR relay, a problem which is outside of VOFC's ability to fix, one imagines.

Voice of Vietnam - Pretty much the same comments as for Radio Pyongyang, though somewhat fewer in number. Complaints about dull and poorly done programs.

All India Radio - Received negative votes because of the generally poor reception in the US and Canada, also the lack of a North American service. We should point out, however, that reception of AIR was generally much improved over the last few months. The station "seems tied up in red tape... 'we can do this, we cannot do that'". One respondent did rank them very high in programming content and their choice of frequencies which enables us "to hear them as well as we do." We should also note that AIR is in the midst of a multi-year program

of expanding and upgrading its facilities so perhaps we can look forward to better things in the future.

Radio Denmark - "Ten years ago it would be number one or two on the favorites list... been downhill since English to North America was dropped." The lack of English programming was cited by others, too, along with complaints about the recently adopted no QSL policy. Indeed, Radio Denmark is one of the saddest broadcasting situations in shortwave, especially for those who remember how good it used to be. A case of very inadequate government funding.

HCJB - One of the surprise mentions. Generally, even those who don't like to listen to religious stations agree that HCJB does a good job. A few disagreed. "I refuse to listen to... the 40's approach to evangelism."

Voice of America - Another surprise? Or not? "I know we have more to offer the world than this!" One said he "got the third degree from the USIA (United States Information Agency) one time when I sent a letter for a QSL... like why are you, an American, interested so much in the VOA?"

Radio Canada International - One writer says "they seem to have forgotten their Pacific coast listeners... signals here are as weak as a five week old kitten," but at the same time gave RCI top marks for their coverage of the Canadian sports scene. Strong complaints were lodged about RCI's unusual and awkward QSL policy and their many schedule changes which "makes it very difficult to keep up with them, even for an experienced DX'er used to tracking down stations, let alone the casual listener who wants to know his favorite station will be on at a certain time, day and frequency in a language he can understand."

Oh, by the way... some of the Eastern European stations were mentioned but most of these comments were based on programming prior to the upheavals in those countries. These included Radio Prague, Radio Berlin International and Radio Sofia. The latter also took hits on its contrived con-

tests, slow replies and poor frequency choices.

Runners Up

Many other stations were mentioned and we'll include some of them here.

Vatican Radio - "... programs incredibly dry, boring and uninformative." "Ordinary music is of no value."

BBC - "refuses to indicate transmitter site on QSL's. Do they think that their sites are some big secret?" "Waveguide has to be the most pathetic excuse for a DX-related program there is."

Deutsche Welle - "Excellent news, presented in a boring, monotone fashion. Superb production and technical quality but not enough cultural programming."

Radio Jamahiriya, Libya - "too biased against any government not involved with Quadafi."

Voice of the Islamic Republic of Iran - "always weak, with low audio." "English to North American is badly timed for good reception here."

Radio Yugoslavia - "... awful audience relations. Having high technical expertise and fairly interesting programming, it's a shame that someone doesn't wake up and realize that those listeners who write in are indeed interested, instead of sitting back and ignoring the mail."

Radio Finland International - Their "no QSL policy is silly."

Voice of Nigeria - "... signal is strong but barely audible ... long delays and dead spots in programming ... did not QSL."

Kol Israel - "I've written ten letters for a QSL in ten years and ... zip!" What's the problem there?

Radio Afghanistan - "Usually a bad signal on the west coast. Commentary by the DJ's is usually too political and not of interest to most listeners ... constant talk about rebels and rocket attacks."

Broadcasting Service of the Kingdom of Saudi Arabia - "... poor audience relations, extreme difficulty in QSL'ing, lack of adequate coverage for international broadcasting even though they are reported as having high-power transmitters available. They need to renew their contracts with the German technicians who worked with them in the late 1960's." "Needs to move English from 9705 and 9720 to 15 or 17 MHz."

RAE, Argentina - "... poor frequency choice (9690) between Radio Moscow and WYFR."

Radio Portugal - "I like what I hear, but only when I can hear it. Signal often channeled with other stations."

Radiobras, Brazil - "... needs consistent English format."

Radio Netherlands - "About half the letters I write get no response."

KVOH - "High Adventure spends too much money mailing flyers and making phone calls asking for more money."

Radio Korea, South Korea - "... using

the interference-ridden 15575 channel ... they act as though they don't care they suffer from interference ... year after year it goes on."

4VEH, Haiti - "poor signal quality, erratic schedule, rarely stay on frequency and do they ever QSL should you get to hear them?"

Zaire Radio, Zaire - "... erratic operation, failing to reach out to a vast number of potential listeners ..."

Radio San'a, Yemen - "needlessly poor relations with its audience ... they fail to capture a potential international audience

unless one is fluent in Arabic ... a tragic waste on their part."

So there, as some *Pop'Comm* readers see it, are the worst shortwave broadcasters, along with the kind of bads and a number of others about which listeners have a varied collection of gripes.

Our thanks to all who responded.

Maybe we'll run this once each year, inviting all of our readers to toss in their opinions. Got an opinion? Send it to me at POP'COMM. Please type or at least make certain I can easily make out your handwriting!

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Have your favorite communications (Police, Fire, etc) moved to the 800MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma. For those of you who are still in a futile search for 800 MHz coverage on your hand held scanning radio, GRE America, Inc. has a product for you. Introducing the newly developed **Super Converter™ II** which has all of the features that you have come to enjoy in our

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Has your emergency group moved up to a facsimile machine yet? If not, you can buy a good FAX for under \$800, and FAX is invaluable for emergency responding squads:

- Photo transmission and reception of missing persons
- Fingerprints
- Search maps and charts
- Weather facsimile images
- Detailed documents
- Accurate list of survivors

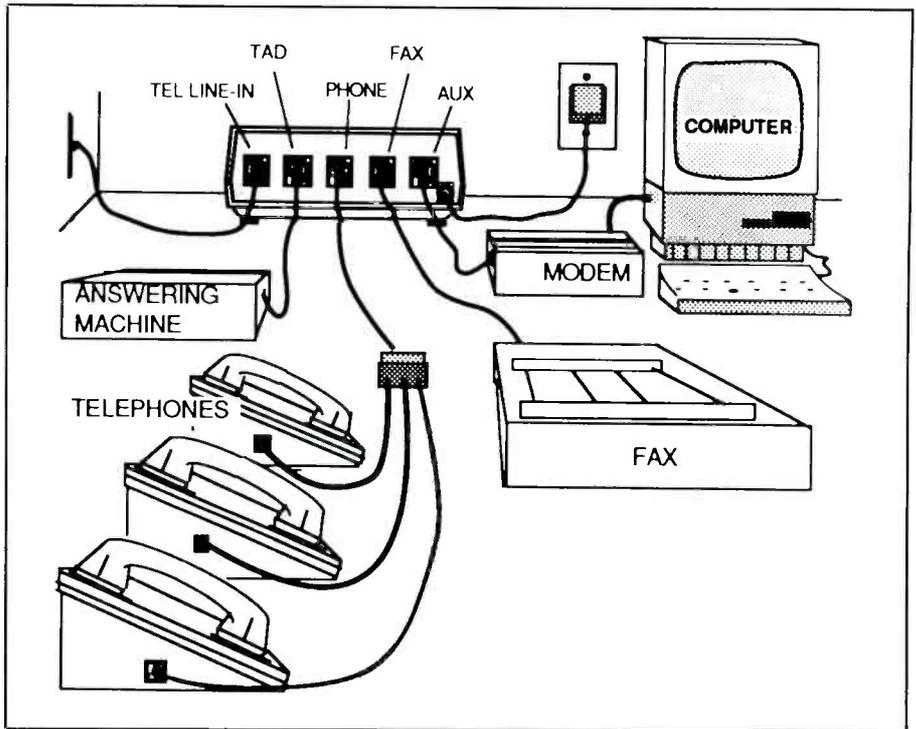
Everybody's got FAX. They even have portable FAX machines that tie into cellular telephones. So, there's no excuse for your operation not have a FAX machine, either.

But don't order a separate telephone line for your FAX—why buy a line that's only going to be used 10 percent of the time. Get this white magic box called "automatic switching and processing unit," and it will stand guard on your single telephone line, and automatically switch incoming FAX calls over to your facsimile machine.

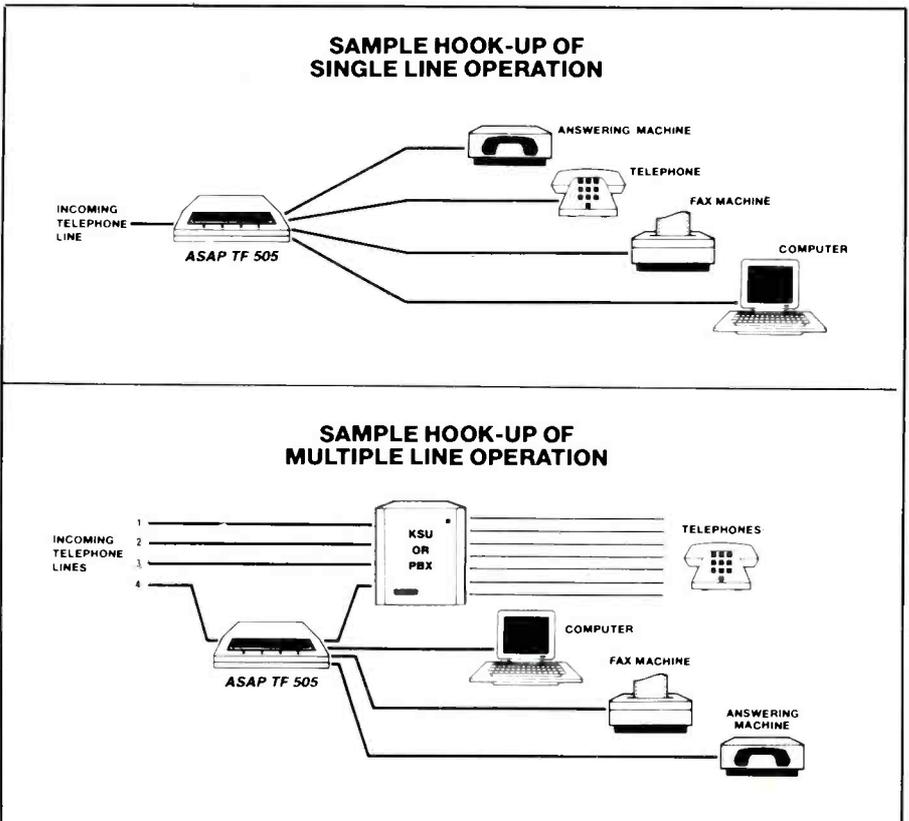
At night, incoming calls may also be switched over to an answering machine with "emergency ring-through" capabilities. Plug your answering machine into this switching unit, and after 1 or 2 rings, your answering machine picks up and leaves your pre-recorded message to the caller. However, at the beginning of the pre-recorded message, you inform the caller that if this is an emergency, press "99" on their telephone keypad, and your hot phone will instantly ring.

And it does—this automatic switching box immediately detects the "99" dial pad tones, and instantly switches out your answering machine and commences to ring your hot phone. The hot phone continues to ring until it's ultimately answered by your on-duty emergency personnel.

Hooking up this switching set is a simple plug-in affair. It runs on 12 volts, and a little 12-volt transformer is packaged with the unit. Plug in the transformer to 110 volts



Telephone equipment connected to the TF-505 for a single-line/multiple-phone system.



Two examples on how to hook-up line operation.



The ASAP TF-505.

AC, plug the other end into the switching box, and the set is powered up. Your telephone line coming from the wall socket plugs into modular jack "line in". Your telephone answering machine plugs into "tad," your FAX into the "FAX" port, and your "99" hot phone goes into the "auxiliary" jack. You can also plug in a regular telephone into the "phone" jack on the back of the unit.

When an incoming call goes down your single phone line, this little white box an-

swers and listens for a FAX CNG beep signal. At your option, you could also use it for a reverse modem carrier signal from a computer. While listening for the FAX signal, the box sends out a phantom ring signal to keep the party on the line. After a couple of seconds, the white box makes a decision—is this an incoming FAX call, or should I send it through to the telephone answering device?

Your telephone answering device picks up and plays the message while your new

call switcher stands by for any "99" key-stroke. If the calling party dials "99" (or any number you want), it switches over to the auxiliary port where you have your red hot line plugged in. If the caller wants to manually send a FAX picture, they would hit "11," and it would transfer back over the FAX machine.

Of course, everything is programmable within the white box—number of rings, desired 2-digit number to press for a certain option, the works!

These telephone answering and switching devices must comply to FCC rules Part 15, Subpart J, plus they must carry FCC telephone registration numbers and a ringer equivalent number. All this is detailed on the box.

I have personally tried 5 different switching devices, and the best one so far for under \$175 is from Command Communications, 10800 E. Bethany Drive, Suite 185, Aurora, Colorado 80014; 303/750-6434. This is the company that makes the device, so they'll only send you out literature. Ask them for the nearest sales agent in order to see one of these switching devices in operation.

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Using UTC World Time

When you are listening to the European stations pounding through during the 7-11 PM EST prime times hours here in the USA, it is already tomorrow in Europe. When it is 7 PM EST in Eastern USA it is midnight in England where a new day is about to begin. As you go east across Europe and into the Soviet Union you move toward the dawn of this new day. When it is 11 PM EST in New York, it is 4 AM in London and the sun has risen in Moscow.

In 1884, a universal solar time system was conceived and referenced to the 0 degree meridian that passes through Greenwich, England. This represents the center of the first of twenty-four 15 degree time zones that surround the earth, matching the 360 degree (15 x 24) spin that the earth makes around the sun. It represents one 24 hour day. In one year there are 365 days needed for the earth to make a complete orbit of the sun.

For many years, a world wide universal time concept was designated Greenwich Mean Time. The Greenwich zero degree meridian is one-half of a great circle that extends around the earth and crosses both poles. The zero degree time meridian is a half circle that extends from the North Pole to the South Pole. A second 180 degree half circle extends from the South Pole to the North Pole. This second half circle starts at the South Pole and returns on the opposite side of the earth back to the North Pole to complete the circle. This latter 180 degree meridian approximates the position of the International Date Line. There is more on the International Date Line later.

The arc of the Greenwich zone and all zones is 15 degrees. Since the Greenwich meridian is zero degrees, the 15 degree arc extends 7.5 degrees on each side of 0 degrees. This is the Greenwich Time Zones. From this starting point there are 24 such 15 degree time zones that surround the earth. The total number of degrees is 360 degrees (24 x 15) corresponding to one day or one revolution of the earth. This rotation requires 24 hours.

The clock time of the j-0 Greenwich zone, Figs. 1 and 2, in its hours of facing and looking away from the sun was for many years known as Greenwich Mean Time (GMT). More recently it is known as Universal Time Coordinated, (UTC). For most applications, including radio broadcasting, GMT and UTC are one and the same. In broadcasting, UTC has come into common usage. All the international broadcasting handbooks, publications and newsletters

-180°	j-12.5	← IDL
-165°	j-11	
-150°	j-10	Hawaii
-135°	j-9	Alaska
-120°	j-8	PST
-105°	j-7	MST
-90°	j-6	CST
-75°	j-5	EST
-60°	j-4	Nova Scotia
-45°	j-3	
-30°	j-2	
-15°	j-1	
0°	j0	Greenwich
+15°	j+1	European time
+30°	j+2	
+45°	j+3	
+60°	j+4	
+75°	j+5	
+90°	j+6	
+105°	j+7	
+120°	j+8	Australia
+135°	j+9	Australia
+150°	j+10	Australia
+165°	j+11	
+180°	j+12.5	← IDL

Fig. 1. UTC 15° - wide international time zones encircle the earth.

use UTC. This is the universal time standard and from it you can add or subtract the proper number of hours to obtain your local time. In the USA you must subtract 5 (EST), 6 (CST), 7 (MST) or 8 (PST) hours from the UTC time to obtain your local time.

The time zones of Hawaii, Alaska, Nova

Scotia, Europe and Australia are also shown in Fig. 1. The 180 degree time has a positive and negative side, each representing half of the 180° time zone. When traveling from east to west across the International Date Line (180 degree meridian) you add one day. If you move from west to east across the meridian you subtract one day.

Fig. 2 is a helpful clock-like illustration that permits you to determine your local time for any time given in UTC. It applies for any of the USA time zones and the extensions of these zones into Canada, Mexico, the Caribbean and South America.

An obvious start is one we mentioned before. What time is it in the USA time zone when UTC time is 0000? UTC 0000 is at the top of the illustration. Drop down vertically and you will see the EST, CST, MST and PST times of 7 PM, 6 PM, 5 PM and 4 PM respectively. Go to the bottom of the circle to 1200 UTC (noon) which shows the EST, CST, MST and PST times of 7 AM, 6 AM, 5 AM and 4 AM, respectively across the USA.

If you are located in the Eastern Time Zone and you wish to tune into a program scheduled for 1700 UTC, find 1700 UTC on the circle, look one space toward the center of the circle and you will find the EST time to be 11 AM. Sweden comes on the air with their English program at 0230 UTC. What time is that in Chicago? Chicago is in the Central Time Zone. Find 0200 on the circle. Proper time to tune in would be 8:30 PM CST.

Fig. 3 is a somewhat different UTC circle that shows the time zones set off in 15 degree segments. Also shown are several time zones set off according to local time and/or geographical location. Again start off with 0000 UTC time on the zero degree meridian. It indicates London one spot in the zone j-0. Our USA time zones are shown down the left side of the circle at 75, 90, 105, and 120 degrees. Again they are shown -5, -6, -7, and -8 hours behind London time.

A big help in adding geography to time understanding is to purchase a very fine book titled, "World News Atlas 1990" now available for \$7.95 in book stores and some magazine stands. It is an NBC publication that is very instructive and has excellent maps you can use to find the various meridians. As a shortwave listener or ham, you will refer to it often. It is ideal for any beginner in world band listening or ham operations. It helps to straighten out the geography you forgot from school, or didn't get there. You will find the meridians for the

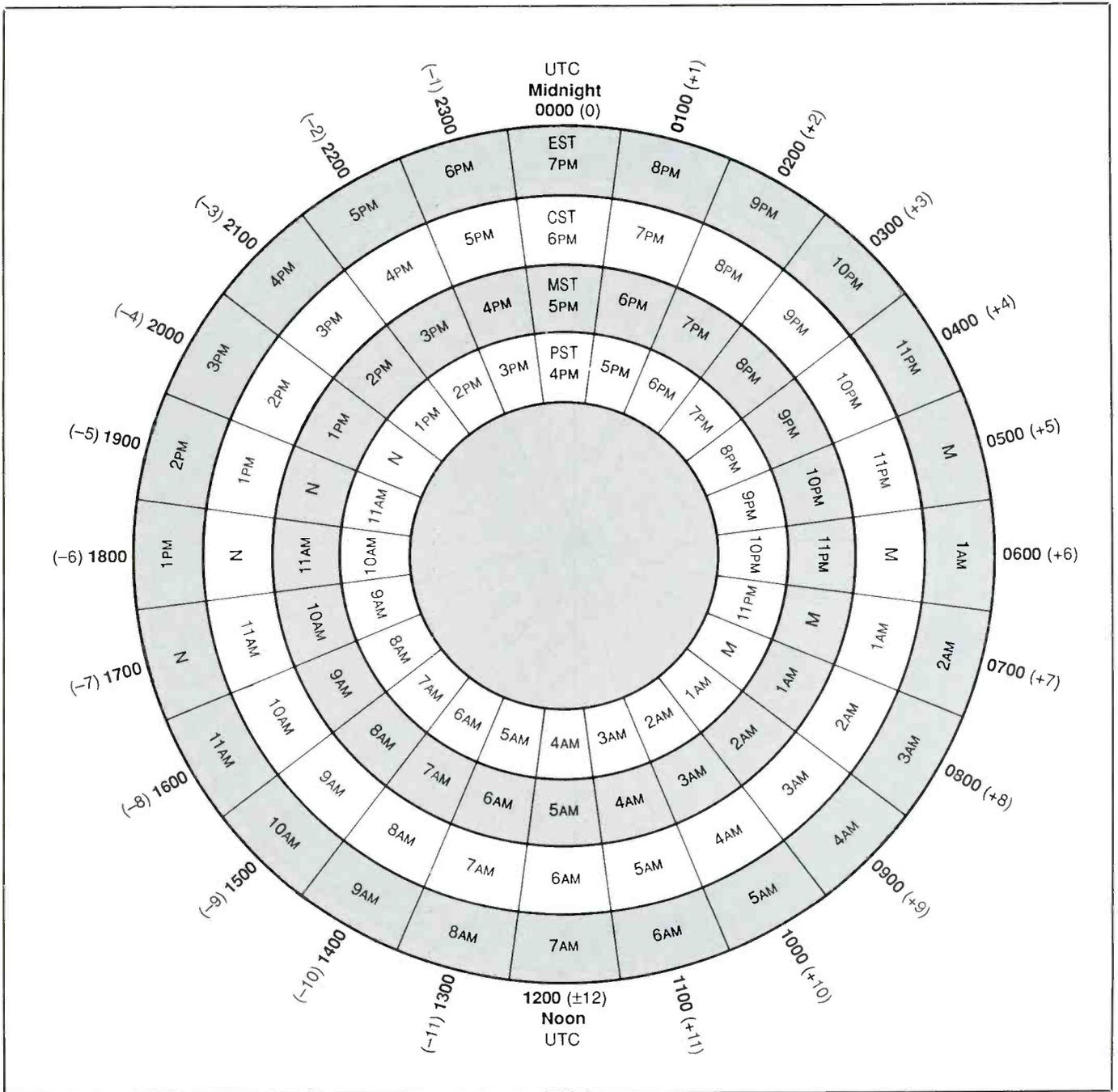


Fig. 2. UTC to USA time zone conversion circle.

USA on the maps given on pages 50 and 53 of this book.

Next drop down to 1200 UTC and its 180 degree meridian, Fig. 3. Note that Auckland, New Zealand is in this zone. Refer to the map on page 75. When it is midnight in London it is noon in Auckland.

Actually, New Zealand is a part of two zones. However, New Zealand decided on the time of only one zone (1200 UTC) to establish the same local time for the entire island country. Time zone areas are not compulsory if they result in local inconveniences and confusion. Europe has a similar prob-

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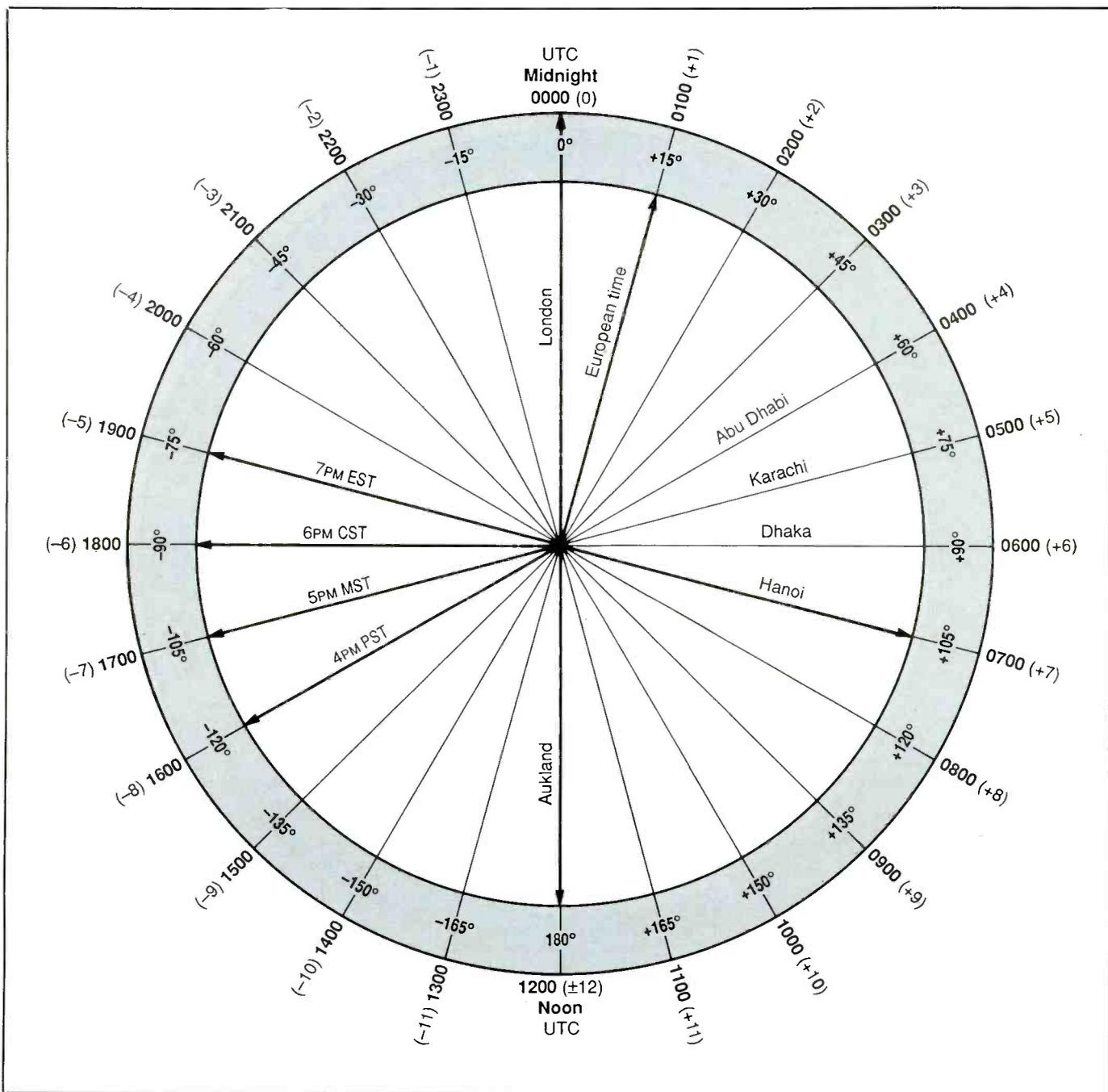


Fig. 3. UTC circle showing zones set-off in degrees and time in these zones around the Globe.

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AIN'T HEARD
NOTHING...
YET!**

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lem with all countries deciding upon UTC (+ 1) time. Spain is UTC (+ 1) time despite the fact that the entire country is in the UTC (0) Greenwich zone. Refer to a map. The European Time Zone is shown in Fig. 3. Iceland uses UTC (0) time although it is completely in the UTC (- 1) zone.

Unusual are the 12-hour opposite zones of the four USA time zones shown in Fig. 3. Four cities in these opposite zones are given. I am certain you know the location of Hanoi, but where do you find Dahka, Karachi and Abu Dhabi? An interesting earth, is it not!

PC

CIRCLE 43 ON READER SERVICE CARD

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Network Notes. Time was when all listeners had to know about radio networks were Mutual, CBS, plus the Red and Blue Networks of NBC. Later, ABC was formed from one of the two NBC networks. But that was in the years before TV, when radio networks were the way the families received their weekly supply of sitcoms, variety shows, mysteries, police shows, and drama. As TV took over those duties, starting in earnest in 1950, the structure of radio broadcasting and networks began to change.

Today, there are a myriad of regional and national radio networks furnishing specialty programming, often by satellite distribution. Some of the specialties include talk, financial, religious, agricultural, ethnic, news, sports, educational, and various kinds of music (country, rock, ethnic, easy listening, jazz, classical, etc.).

The old familiar network names are still there (although some have been sold or resold), but there are other names to also know. There is AP Network News, the National Black Network, the Sheridan Broadcasting Network, Westwood One, USA Radio Network, CNN Radio Network, Cadena Radio Centro, Family Stations, Inc., Moody Broadcasting Network, Progressive Music Network, Satellite Music Network, Sun Radio Network, TNNR, UPI Radio Network, Wall Street Journal Radio Network, WFMT Fine Arts Network, American Public Radio, National Public Radio, Eastern Public Radio, Unistar, and others. Unistar was created last summer when the Transtar and United Stations networks merged into one chain of 450 news affiliates.

There are even networks-within-networks. One network may simultaneously send out several totally different "feeds" to separate groupings of affiliates. One family of affiliates may take a network's news programming, while other affiliates might only take some of their musical feeds.

Newcomer. Donald Wiemken, of Sterling, IL passes along news of new station WLLT-FM, Dixon, IL that began operating recently. The station operates on 107.7 MHz, using 3 kW ERP from a tower more than 400 ft. tall located on Mound Hill Road, near Polo, IL. WLLT-FM features local news plus adult oriented pop music. The new station is owned by Tom Burns, who also does some of the news coverage along with chief announcer, Andy Jackson.

Programming Department. A note from John S. Carson, Jr., Norman, OK clues us in an unusual approach to programming. WKRL-FM, on 97.9 Mhz, in Clearwater, FL FL decided that their new format (effective last January 1st) would consist of nothing but Led Zeppelin recordings, around the clock.

Requesting To Change AM Callsigns

Existing	Seeking	
KDOK	KYZS	Tyler, TX
KEAP	KEYQ	Fresno, CA
KRTH	KKHJ	Los Angeles, CA
WBAB	WGBB	Freeport, NY
WMDN	WQIC	Meridian, MS

Seeking To Change FM Callsigns

Existing	Seeking	
KBOM	KPZA	Los Alamos, NM
KVQC	KCUB	Stephenville, TX
KXPT	KXBS	Santa Paula, CA
WBSJ	WJKX	Ellisville, MS
WMGP	WHCM	Parkersburg, WV
WQIC-FM	WZMP	Marion, MS
WZBZ	WSHG	Ridgeland, SC

AM Callsign Changes Granted

New	Was	
KCCV	KNCI	Overland Park, KS
KCWV	KNIX	Tempe, AZ
KEYQ	KEAP	Fresno, CA
KEYX	KHTZ	Visalia, CA
KGDP	KSMI	Orcutt, CA
KIDZ	KCCV	Independence, MO
KIQQ	KIOT	Barstow, CA
KISS	KRIA	Terrell Hills, TX
KKWM	KLDD	Dallas, TX
KMUS	KLUE	Muskogee, OK
KMYX	KTKR	Taft, CA
KNGN	KICX	McCook, NE
KNHN	KFKF	Kansas City, MO
KPMX	KAMJ	Phoenix, AZ
KTMR	KVOJ	Edna, TX
KWAS	KSSC	Joplin, MO
WATX	WWRT	Algood, TN
WBIG	WLIT	Conway, SC
WBYG	WBNN	Union City, IN
WCSE	WZKG	Charleston, SC
WCYK	WJLT	Crozet, VA
WEHN	WRKT	Northeast, PA
WHIL	WSMR	Raefton, NC
WIBR	WKJN	Baton Rouge, LA
WINW	WRQK	Canton, OH
WJOE	WJBU	Port St. Joe, FL
WLLR	WMRZ	Moline, IL
WRHZ	WRHD	Riverhead, NY
WSTT	WLOR	Thomasville, GA
WXPQ	WCZE	Babson Park, FL
WXTO	WXXO	Winter Garden, FL
WYJZ	WAMO	Pittsburgh, PA

It kicked off the format with a full 24 hours of the 1971 Zeppelin ditty "Stairway to Heaven," and we figure that must have been about 350 spins of that platter. Any listeners or staff members who managed to survive that were obviously qualified to stay tuned for a special treat, like when the station began playing other Zeppelin selections. We like Led Zeppelin as well as the next guy, and even our black dog digs their sounds,

FM Callsign Changes Granted

New	Was	
KBCK	KCGL	Centerville, UT
KCGL	KFGL	Diamondville, WY
KFBY-FM	KNNS	Grand Rapids, MN
KGBX-FM	KYOO-FM	Bolivar, MO
KHJM	KHSA	Taft, OK
KIAK-FM	KQRZ	Fairbanks, AK
KIQQ-FM	KIQQ	Lenwood, CA
KISS-FM	KISS	San Antonio, TX
KKHT	KWTO-FM	Springfield, MO
KKMT-FM	KKHJ	Ennis, MT
KKOW-FM	KRKN	Pittsburg, KS
KKWM-FM	KZEW	Dallas, TX
KMYX-FM	KTLM	Taft, CA
KMZE	KWJY	Woodward, OK
KNIS	KNIB	Carson City, NV
KOCD	KSSC-FM	Columbus, MS
KRTY	KYAY	Los Gatos, CA
KRWR	KNIS	Carson City, NV
KSKE	KVMT	Vail, CO
KUFO	KKCY	Portland, OR
KXXK	KSAF	Knob Noster, MO
WAIS-FM	WSNV	Nelsonville, OH
WATX	WWRT	Algood, TN
WCYK-FM	WJLT-FM	Crozet, VA
WEGW	WZMM	Wheeling, WV
WEOS	WEOS-FM	Geneva, NY
WEZE-FM	WNRJ	Pittsburgh, PA
WGAP-FM	WYNQ	Maryville, TN
WGCM-FM	WTKI-FM	Gulfport, MS
WGRR	WBLZ	Hamilton, OH
WJMO-FM	WRQC	Cleveland Hts., OH
WJST	WWZR	Port St. Joe, FL
WKQL	WAIV-FM	Jacksonville, FL
WKWK-FM	WEEL-FM	Wheeling, WV
WLLR-FM	WLLR	East Moline, IL
WLZW	WNYZ	Utica, NY
WMNV	WRQL	Rupert, VT
WMTU	WJWT	Jackson, TN
WNHW	WPIR	Nags Head, NC
WPDS	WEOA	Beverly Hills, FL
WQLH	WDUZ-FM	Green Bay, WI
WRCQ	WRCQ-FM	Dunn, NC
WRKK	WYRS	Jersey Shore, PA
WRKT	WRKT-FM	Northeast, PA
WSNU	WWZU	Lock Haven, PA
WSTT-FM	WLOR-FM	Thomasville, GA
WWWK	WELV-FM	Ellenville, NY
WXRX	WYBR-FM	Rockford, IL
WXTB	WKRL	Clearwater, FL
WXXL	WHLY	Leesburg, FL

but a steady diet of the stuff would have us doing a misty mountain hop within a day or two.

Trivia Tidbit. WBLM, of Portland, ME is an album-rock station on 102.9 MHz. When the station recently boosted its ERP to 100 kW, it became the most powerful East Coast station north of Virginia. Thanks to

(Continued on page 42)

POP'COMM's World Band Tuning Tips

June, 1990

This Pop'Comm feature is designed to help you log more shortwave stations. Each month this handy, pull-out guide will show you when and where to tune to hear a wide variety of local and international broadcasters on shortwave.

Note that languages used will not always be English and that many broadcasts are not beamed to North America. Further, stations often make changes in the times and frequencies of their broadcasts. Changes in propagation conditions and your own receiving location will also have a bearing on what you are able to hear.

All times are in Coordinated Universal Time UTC.

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2390	R. Huayacocotla, Mexico	1200	SS	6105	Tus Panteras, Mexico	0100	SS
3215	SABC, So. Africa	0300	Afrikaans	6110	R. Mediterranean, Malta	2230	
3220	HCJB, Ecuador	0115	Quechua	6115	R. Union, Peru	1000	SS
3240	TWR, Swaziland	0300	sign on	6120	R. Japan	1150	via Canada
3280	LV del Napo, Ecuador	0200	SS	6135	Swiss R. Int'l	0400	
3300	TGNA, Guatemala	0115	EE	6155	R. Austria Int'l	0540	
3316	SLBS, Sierra Leone	0600	EE	6155	R. Bucharest, Romania	0200	
3340	R. Altura, Peru	0230	SS	6150	R. Impacto, Costa Rica	0300	SS
3360	LV de Nahuala, Guatemala	1130	SS	6175	TIFC, Costa Rica	1100	SS
4600	La Perla del Acre, Bol.	0030	SS	6180	LV de Guatemala	1100	SS
4680	R. Nacional Espejo, Ecuador	0100	SS	6185	R. Educacion, Mexico	0700	SS
4740	R. Afghanistan	0130	Pashto/Dari, via USSR	6250	R. Nacional, Eq. Guinea	0500	sign on
4755	Sani Radio, Honduras	0230	SS	6300	R. Patria Libre	0100	SS, anti-Colombia
4760	Yunan PBS, China	1215	CC	6550	V of Lebanon	0530	AA
4765	Mayak Radio, USSR	0500	RR via Cuba	6560	R. Pyongyang, N. Korea	1235	JJ
4770	R. Nigerla, Kaduna	0500	sign on	6570	Myanmar Defence Forces	1100	Burmese
4785	Baku Radio, USSR	0230	RR		Myanmar (Burma)		
4800	R. Lesotho	0300	sign on	7115v	Lao National Radio	1200	Laotian
4815	RTV Burkina, Burkina Faso	0600	FF	7115	R. Sofia, Bulgana	0400	
4820	LV Evangelica, Honduras	0300		7125	Vatican Radio	2230	
4830	R. Botswana	0350	sign on	7125	AWR, Italy	0630	
4830	R. Tachira, Venezuela	0200	SS	7135	R. France Int'l	0330	via Gabon
4832	R. Reloj, Costa Rica	0200	SS	7170	RFO, New Caledonia	0745	FF
4835	R. Tezulutlan, Guatemala	0100	vernacular	7190	DYBS, PDR Yemen	0300	AA
4845	Rdf Mauritaine, Mauritania	0600	FF	7199	R. Africa, Eq. Guinea	2100	
4850	CRTV Cameroon	0500	FF	7214	RTV Ivoirienne, Cote D'Ivoire	2200	FF
4851	R. Luz y Vida, Ecuador	0150	SS	7255	V of Nigeria	0458	sign on
4865	LV del Cinaruco, Colombia	0200	SS	7270	R. Polonia, Poland	0000	
4870	RTV du Benin	0500	FF	7290	R. Baghdad	2240	sign off
4880	R. Five, So Africa	0300	Afrikaans	7325	BBC	0300	
4885	RC do Para, Brazil	0300	PP	7340	La Voz del CID	0230	SS to Cuba
4890	NBC, Papua New Guinea	1130	EE/Pidgin	7345	R. Prague, Czechoslovakia	0300	
4890	R. Centinela del Sur, Ecuador	0215	SS	7355	KNLS, Alaska	1500	
4895	LV del Rio Arauca, Colombia	0230	SS	7365	RFPJ, Costa Rica	0230	upper sideband
4900	RTV Guineene, Guinea	0000	FF, sign off	7400	R. Vilnius, Lithuania	2315	
4904.5	Rdf. National, Chad	2200	FF, sign off	7400	R. Minsk, Byelorussia	2330	RR
4910	LV de Mosquitia, Honduras	0030	Mosquito	7400	R. Kiev, Ukraine	0300	
4910	R. Zambia	0400	sign on	7400	R. Yerevan, Armenia	0330	Armenian/EE
4915	GBC, Ghana	0600		7410	Kol Israel	0400	Hebrew
4920	R. Quito, Ecuador	0145	SS	7412	All India Radio	2300	
4930	4VEH, Haiti	2330	Creole/FF	7430	Voice of Greece	0100	GG/EE
4945	Caracol Neiva, Colombia	0400	SS	9022	VOIRI, Iran	0100	SS
4970	R. Rumbos, Venezuela	0300	SS	9395	V of Greece	0130	EE
4980	Ecos del Torbes, Venezuela	0300	SS	9445	V of Turkey	0400	
5020	SIBS, Solomon Is.	1100	EE/Pidgin	9465	WMLK, Pennsylvania	1700	
5030	R. Catolica, Ecuador	0030	SS	9475	R. Cairo, Egypt	0200	
5035	R. Centrafricaine, C.AF, Rep	0430	sign on, FF	9485	TWR, Monaco	0830	
5044	R. Impacto, Costa Rica	0230	(alt. to 5030)	9500	V of Libyan People	2200	AA, clandestine
5047	RTT Togo	0600	FF	9500	R. Tirana, Albania	0630	part EE
5055	RFO Guyane, Fr. Guiana	0530	FF	9505	R. Japan	1400	
5075	Caracol Bogota, Colombia	0100	SS	9530	KHBI, Saipan	1500	ex KYOI
5950	Voice of Free China, Taiwan	0700	via WYFR	9535	TWR Bonaire	0430	
5975	BBC	0430	via Antigua	9535	R. Algiers, Algeria	2100	FF
5990	R. Bucharest, Romania	0200		9540	R. Tashkent, Uzbek	1215	EE
5999	LV de Nicaragua	0000-0600	SS/EE	9540	R. Omdurman, Sudan	1400	AA
6005	CFCX, Canada	0945		9540	R. Polonia, Poland	1620	
6005	RIAS, West Berlin	0700	GG	9540	R. Nacional, Venezuela	1100	SS
6010	R. Los Andes, Venezuela	0300	SS	9545	SIBS, Solomon Is.	0730	EE/pidgin
6025	R. Amanacer, Dom. Rep.	2300	SS	9545	V of Germany	0530	via Antigua
6060	R. Australia	1300		9560	R. Jordan	1900	
6065	R. Super, Colombia	1100	SS	9565	All India Radio	1330	
6070	CFRX, Canada	1200		9570	R. Bucharest, Romania	0200	EE
6080	RBI, E. Germany	0200	sign on	9575	RAI, Italy	0100	
6090	R. Luxembourg	0000					

Freq.	Station/Country	UTC Notes	Freq.	Station/Country	UTC Notes
9580	R. Australia	1130	11950	R. RSA, So. Africa	1900 PP
9585	R. Budapest, Hungary	2100	11955	R. Nacional, Angola	1600 PP
9590	R. Netherlands	0400 VIA Bonaire	11980	KHBI, Saipan	1800
9600	BBC	0430 via Ascension	12015	R. Ulan Bator, Mongolia	1200
9605	Vatican Radio	0050 EE	12019	V of Vietnam	1600
9615	R. Veritas, Philippines	1500 EE	12085	R. Damascus, Syria	2000 FF
9620	R. Yugoslavia	2200 sign on	12095	BBC	1830
9625	CBC No. Quebec Svc, Canada	1200 FF	12105	V of Greece	1830 Greek
9630	Spanish National Radio	0000	13610	R. Kuwait	1900
9635	R. Afghanistan	1315 local languages	13635	Swiss R. Int'l	1545
9645	R. Finland Int'l	0000	13650	R. Baghdad	1900 sign off
9645	Vatican Radio	0615	13655	R. Jordan	0500
9665	R. Beijing, China	1230	13660	RFPI, Costa Rica	0000
9670	V of Germany	0500 via Antigua	13670	R. Canada Int'l	1830
9675	R. Cancao Nova, Brazil	2300 PP	13675	BRT, Belgium	1830 sign on
9685	R. Moscow	1930	13690	R. Berlin Int'l, E. Germany	2300 EE/GG
9690	R. Beijing, China	0300 via Spain	13715	R. Prague, Czechoslovakia	1730
9705	R. Portugal	0215	13730	R. Austria Int'l	0100
9715	R. Tashkent, Uzbek	1300	15010	V of Vietnam	1500 VV
9720	SLBC, Sri Lanka	1330	15084	VOIRI, Iran	1730 Farsi
9720	BSKSA, Saudi Arabia	1915 AA	15115	R. Pyongyang, N. Korea	0030
9725	Swiss R. Int'l	0200	15120	R. RSA, So. Africa	0155 sign on
9725	AWR, Costa Rica	1300	15140	R. Nacional, Chile	2130 SS
9730	R. Berlin Int'l, E. Germany	2230	15145	R. Berlin Int'l, E. Germany	1900
9735	R. Nacional Paraguay	0100 SS	15160	R. Australia	2100
9735	R. Oman	2200 AA, sign off	15160	LV de America Latina, Mexico	2030 SS
9745	HCJB, Ecuador	0600	15160	R. Budapest, Hungary	2300
9750	R. Korea, S. Korea	1400 EE	15165	R. Yugoslavia	1315
9750	R. Minería, Chile	1000-1130 SS	15170	R. Tahiti	0430 Tahitian
9760	R. Tirana, Albania	0315	15180	R. Yerevan, Armenia	0350 Armenian/EE
9765	R. Vilnius, Lithuania	2300	15185	WINB, Pennsylvania	2100
9780	R. Moscow	1145	15195	R. Bangladesh	1230-1300
9785	KNLS, Alaska	0500 RR	15235	R. Jamahiriyah	2200 AA
9815	KNLS, Alaska	1600	15250	R. Portugal	2000
9835	R. Budapest, Hungary	0100 EE	15250	V of America	0100 via Sri Lanka
9850	R. Cairo, Egypt	1800 AA	15267	V of Turkey	0800 Turkish
9860	IRRS, Italy	0800 Sundays only	15305	R. Norway	0200 Norwegian
9870	R. Austria Int'l	0200 GG	15315	R. Canada Int'l	1530
9885	Swiss R. Int'l	0400	15325	R. Yugoslavia	1300
9900	R. Cairo, Egypt	2200	15335	RTV Marocaine, Morocco	1745 AA
9950	R. Clarin, Dom Rep.	2200 SS	15375	Spanis National Radio	1900
9950	R. Damascus, Syria	2015	15400	R. Finland Int'l	1400
9950	All India Radio	1500	15420	BBC	0430 via Seychelles
9965	R. Caiman	0200 SS to Cuba	15420	WRNO, Louisiana	1600
9977	R. Pyongyang, N. Korea	1100	15435	UAE Radio, Dubai	1600
10010	V of Vietnam	1130 CC	15455	R. Veritas, Philippines	1500
10059	V of Vietnam	0900-1600	15476	R. Nac. Archangel, Antarctica	2300 SS
11550	RTT Tunisia	0630 AA	15505	R. Kuwait	1500 AA
11595	R. Makedonias, Greece	1700 Greek	15535	R. Moscow	1530
11620	All India Radio	1900	15540	RTBF, Belgium	1900 FF, sign off
11635	R. Omdurman, Sudan	0330 AA	15560	KUSW, Utah	2000
11645	V of Greece	2345	15570	R. Netherlands	1730 via Madagascar
11650	KTWR, Guam	1550 Trans World Radio	15575	R. Korea, So. Korea	1400
11655	R. Moscow	0300 RR	15605	R. Pakistan	1600
11665	R. Cairo, Egypt	2100 AA	17440	ISBS, Iceland	2000 Icelandic
11690	R. Beijing, China	0400 via Fr. Guiana	17555	WSHB, So. Carolina	1545 //13760
11710	RAE, Argentina	0100	17605	R. Netherlands	1245 Indonesian
11715	R. Beijing, China	2100 via Mali	17620	R. France Int'l	1600
11730	R. Canada Int'l	2300 sign on	17630	Africa No. One, Gabon	0800 FF
11734	RT Zanzibar	1800 Swahili	17705	R. New Zealand Int'l	0330 sign on
11735	R. Oriental, Uruguay	0200 SS	17710	R. Damascus	2145
11735	R. Yugoslavia	0100	17715	R. Australia	0700
11745	V of Free China, Taiwan	1400 JJ	17730	R. New Zealand Int'l	0630 sign on
11745	Radiobras, Brazil	0200	17745	R. Algiers, Algeria	1600 FF
11755	R. Finland Int'l	2200	17760	V of Turkey	0030 Turkish
11780	R. Nacional Amazonas, Brazil	0100 PP	17775	KVOH, California	0100
11781	R. Belgrano, Argentina	1200-0200 SS	17795	R. Australia	0445
11785	R. Berlin Int'l, E. Germany	0245	17800	V of Germany	0300 Pushto, via Sri Lanka
11800	RAI, Italy	0300 SS	17830	WHRI, Indiana	1945
11800	R. Australia	1400 JJ	17810	R. Japan	0300
11800	R. Japan	2330 via Gabon	17880	R. Sweden	1530
11815	V of the UAE	1800 AA	21525	Qatar Bc Service	1300 AA
11820	R. Havana Cuba	0200	21535	R. RSA	1530
11835	R. Japan	2315	21550	R. Finland Int'l	1200 FF
11835	R. El Espectador, Uruguay	0000 SS	21565	RFPI, Costa Rica	2230
11840	R. Moscow	1600 via Cuba	21590	R. RSA	1650 sign on
11880	Spanish National Radio	0100	21605	UAE Radio, Dubai	1630
11890	R. Netherlands	1055 via Bonaire	21700	R. Japan	1600 JJ via Gabon
11910	TWR Swaziland	0345 PP	21710	R. Norway Int'l	1400 Norwegian
11915	R. Gaucha	2100 PP	21740	R. Australia	0000
11920	V of America	1645 via Philippines	21745	R. Liberty, W. Germany	1630
11930	R. Marti	1400 SS to Cuba	21780	WCSN, Maine	1530
11938	V of Cambodia	1200	25645	RTBF, Belgium	1300 FF
11940	R. Bucharest, Romania	1615	25750	BEC	1345
11940	R. Canada Int'l's	0100	25850	R. Denmark	1600 Danish



(from page 39)

Art Kleiner, Levittown, NY for letting us know.

Show Cause. Station KUCB-FM, of Des Moines, IA was asked by the FCC to show cause why its license shouldn't be revoked. The FCC said that if they don't eventually decide to revoke the license, then the station might (instead) be issue a Notice of Apparent Liability for a forfeiture of up to \$20,000 for willful and repeated rule violations. The complaint relates to the FCC's claim that KUCB-FM was issued a license to operate in June of 1988 and was supposed to have been engaged in broadcasting since that time. However, the FCC says that the station never went on the air and was eventually evicted from its facilities for non-payment of rent.

In March of '89, FCC personnel inspected the transmitter and studio facilities and found them deserted. Another visit a month later still found the facilities deserted, and all power lines to the studio and the transmitter site had been disconnected.

The FCC wants to find out if the licensee violated any FCC regulations, and they also want to determine if the licensee is qualified to keep the license.

Long Day's Journey Into Night. You may have noticed that your favorite AM daytime runs more hours of programming this time of the year than during the winter



CFOS of Owen Sound, Ontario, began broadcasting in 1939. This bumper sticker was furnished by W. Mewes, Oakville, Ontario.



A bumper sticker from WOUR, Utica, NY sent to us by Gary K. Hamlin of that city.

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New FM CallSigns Issued

KAMV	Victoria, TX
KBZD	Johnson City, TX
KEAU	Hilo, HI
KEND	Roswell, NM
KESN	Buras Triumph, LA
KIHG	Mamou, LA
KIHW	Trumann, AR
KIPP	Mesquite, TX
KIPU	Lihue, HI
KJDN	Madera, CA
KKOO	Caledonia, MN
KLHA	Wichita Falls, TX
KNCC	Elko, NV
KOHD	Guadelupe, CA
KPUP-FM	Gonzales, CA
KQBA	Katy, TX
KSNP	Burlington, KS
KTNE-FM	Alliance, NE
KTSH	Tishomingo, OK
KTSY	Caldwell, ID
KVNZ	Marianna, AR
KYNF	Sioux City, NE
KYSG	Larned, KS
WCHN-FM	Clarksville, GA
WEGE	Crossville, TN
WFNR-FM	Christiansburg, VA
WFSQ	Tallahassee, FL
WGMG	Crawford, GA
WJAA	Austin, IL
WJAB	Huntsville, AL
WJAI	Enfield, CT
WJRX	Eastridge, TN
WJTR	Jackson, TN
WKGH	Allegan, MI
WKIY	Accomac, VA
WKLL	Frankfort, NY
WNFQ	Newberry, FL
WPJB	Narragansett Pier, RI
WSAY-FM	Rocky Mount, NC
WUMA	Old Forge, NY
WUMC	Old Town, ME
WUMD	Vanclave, KY
WUMG	Chattahoochee, FL
WUMH	Fairfield, ME
WUMI	State College, MS
WXAV	Chicago, IL

FM Callsign Change Requests Withdrawn

Existing	Sought	
KCIL	KIXA	Houma, LA
KFRG	KOKE	San Bernardino, CA
WOTB	WLKW	Middletown, RI
WZMX	WKQL	Russellville, AL

months. During the warmer months, daytimers might be operating as early as 5:30 a.m., and remaining on the air until as late as 9 p.m., but next January, the same station might be on a schedule that runs from 7:15 a.m. to 5:15 p.m. The abbreviated winter schedule isn't by choice, it's dictated by FCC regulations intended to protect the coverage of distant high-power clear-channel broadcasters. During the winter months, when the hours of darkness (and medium-wave DX) are longer, daytimers operating on designated clear-channel frequencies simply have to refrain from operating except during daylight hours when their signals

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Applications Filed For New FM Stations

AL	Atmore	105.9 MHz
AR	Gosnell	93.9 MHz
AR	Wilson	103.7 MHz
AZ	Seligman	103.3 MHz
CA	Ludlow	105.7 MHz
FL	Fernandina Beach	105.3 MHz
GA	Chauncey	101.3 MHz
IN	Tell City	96.9 MHz
KY	Paintsville	94.7 MHz
ME	Fort Kent	88.5 MHz
MN	Ely	92.1 MHz
MS	Kosciusko	103.3 MHz
NH	Concord	91.1 MHz
NY	Nyack	89.9 MHz
NY	Shirley	88.3 MHz
OH	Astabula	98.3 MHz
OK	Alva	104.7 MHz
OR	Sisters	104.1 MHz
TX	McAllen	88.1 MHz

Permits Issued For New FM Stations

GA	Reidville	104.1 MHz
KS	Rozel	98.7 MHz
MS	Greenville	104.7 MHz
NE	Alliance	92.3 MHz
OH	McConnellsville	100.9 MHz
OH	Uhrichsville	99.9 MHz
OR	Newport	90.5 MHz

Permits Issued For New AM Stations

NC	Winston-Salem	880 kHz
TX	Hudson	1100 kHz
VA	Moneta	880 kHz

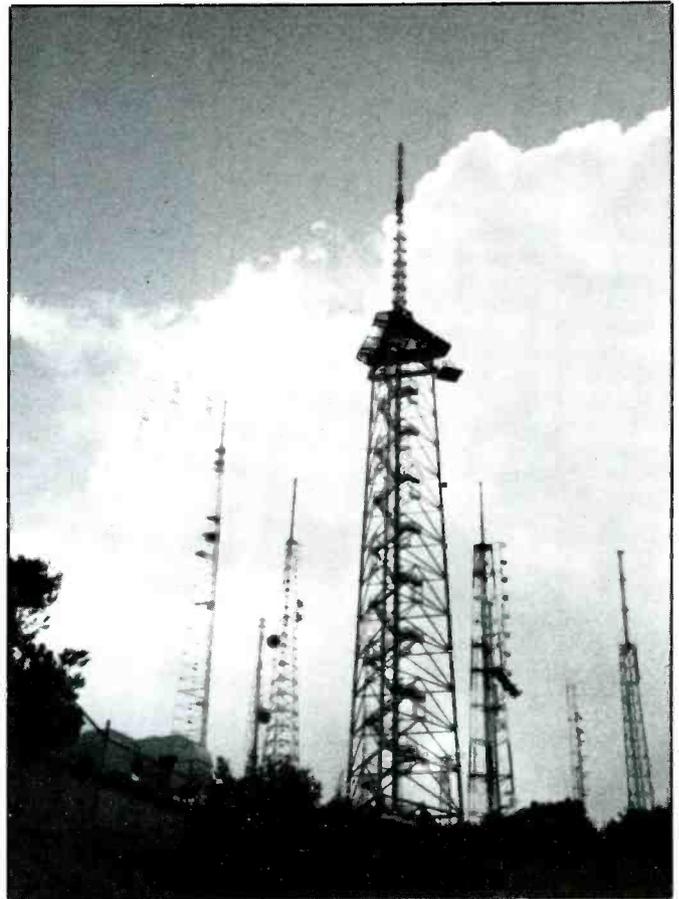
won't reflect off the ionosphere.

None of this makes operators of these daytime stations particularly happy. One reason is that it cuts them out of the running for a goodly portion of the morning and afternoon drive time audiences. From a commercial standpoint, this represents a substantial loss in revenue.

Audiences squawk, too. These are the same stations that present lots of local news and hometown information. When people

get up in the morning, or are driving home, they want to know what's going on locally. They are little interested in driving to work in Illinois and hearing a station in Philadelphia, or hearing Cincinnati while they're living in Virginia, Los Angeles from Iowa, Cleveland from Long Island, or any of the dozens of other similar stations whose distant coverage capabilities were wonderful to behold in the 1930's and 1940's, and which still delight DX'ers.

Bob Polhamus, Azusa, CA sent in a great photo he took of all of the FM and TV towers atop Mt. Wilson, near Los Angeles, CA.



Applications Filed For AM Facility Changes

KELG	Elgin, TX	1440 kHz Move to Manor, TX, increase to 800 w. days
KTCD	Eureka, CA	1200 kHz Move to Cottonwood, CA, add 2.5 kW nites
WESO	Southbridge, MA	970 kHz Increase to 500 w.
WPZA	Ann Arbor, MI	1050 kHz Increase to 10 kW days

Authority Granted For AM Facility Changes

KCLP	Claude, TX	1180 kHz Move to Amarillo Twp., TX, drop to 2.4 kW nites
WGNY	Newburgh, NY	1200 kHz Increase to 2.5 kW nites

Applications Filed For FM Facility Changes

KKLU	Colusa, CA	96.5 MHz Move to 103.1 MHz
WDFL	Cross City, FL	106.3 MHz Move to 106.9 MHz

Authority Granted For FM Facility Changes

KEZP	Canadian, TX	103.1 MHz Move to 94.9 MHz
KJLY	Blue Earth, MN	100.9 MHz Move to 104.5 MHz
WSCN	Cloquet, MN	100.9 MHz Move to 100.5 MHz

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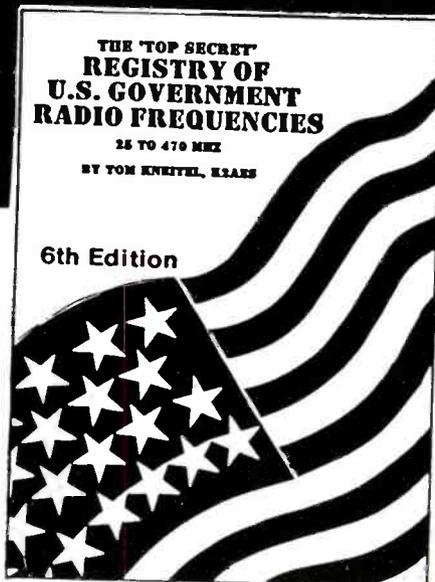
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Most folks, these days, simply resent the distant stations' presence on the frequencies of their local broadcasters. They consider them intruders and would much prefer to hear relevant local programming, news, and commercials than information, weather, traffic reports, local info, and commercials for some city hundreds of miles away. They don't understand why they get full service now, but won't at summer's end.

The new extended portion of the AM band (1605 to 1700 kHz) holds some hope for daytimers to perhaps escape the outdated rules that are causing financial hardships for those that don't have FM operations to supplement their incomes. The new band, if it is made available to them, can accommodate approximately 400 of these stations. Those that would move there would still have to build up an audience in this new band, where for which there is still relatively little receiving equipment available.

The National Association of Broadcasters (NAB) suggests that stations moving to the new channels be permitted to operate full time, but still be allowed five years of simulcasting with limited daytime hours on their old frequency. Such a scheme could, however, backfire and serve only to hold audiences tuned to the old channels rather than forcing them to tune to the new ones.

This column seeks your station photos, bumper stickers, questions, suggestions, and news clippings related to AM/FM broadcasting.

PC

SATELLITE VIEW

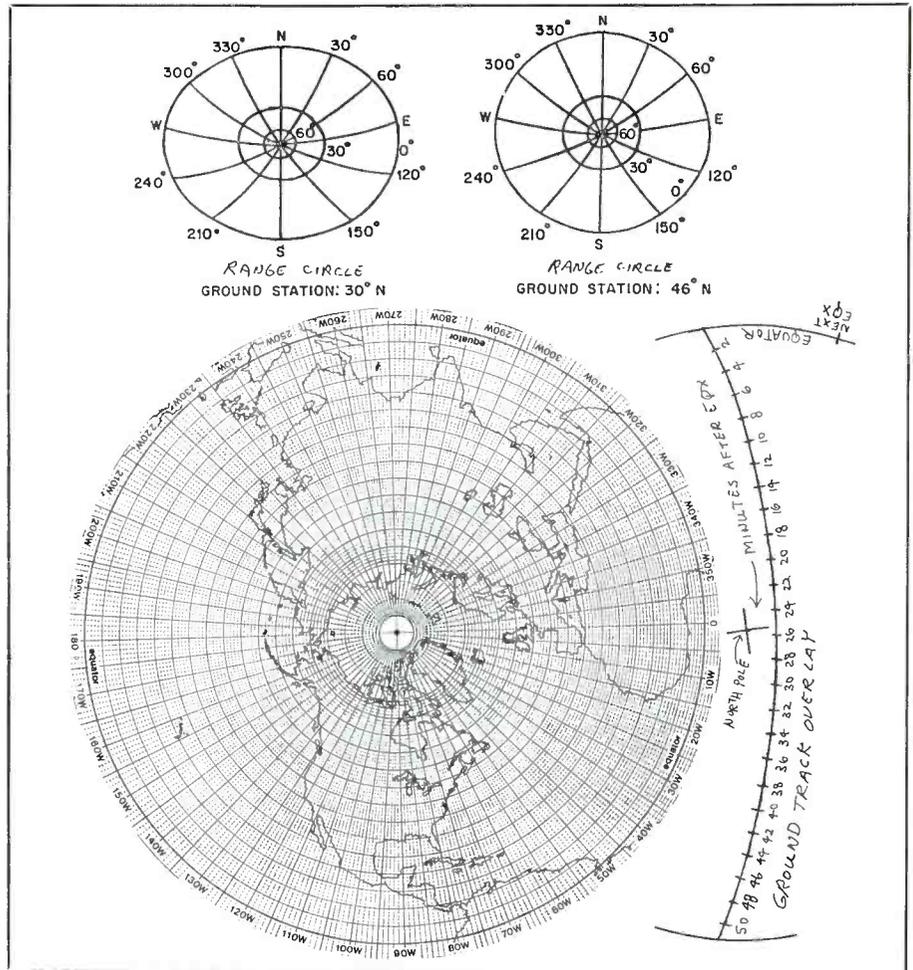
BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

The first International fleet of digital communication satellites were launched January 20th at 0335 hrs UTC. Six Amateur Radio satellites, known as Microsats, were carried aloft on an Ariane launch vehicle from the European Space Agencies (ESA) launch site in French Guiana. The Microsats are being launched as a secondary payload. The main payload on this launch vehicle is Spot 2, a French Photo-Intelligence satellite. All six spacecraft were designed and built by AMSAT, The Amateur Radio Satellite Corp. AMSAT is the official space agency of the International Amateur Radio community. AMSAT-NA of North America, AMSAT-UK of the United Kingdom, BRAMSAT of Brazil and AMSAT of Argentina joined forces with Weber State College in Ogden, Utah to complete the Microsat project. Two of the spacecraft in this fleet, UoSat D & E were constructed in England with the help of the University of Surry.

The Microsats are a natural extension of the very popular computer bulletin board services. In Amateur Radio circles, radio transceivers take the place of the telephone lines used by most computer bulletin boards, but it works much the same way. This communications mode is known as Packet on the Amateur Radio bands and is quite popular. The Microsats are also known as Pacsats because they use this Packet protocol or format. Packet is based on the AX.25 computer protocol which complies with standards set by the International Telecommunications Union (ITU) for international data communications. The name Packet comes from the fact that the information is transmitted in short bursts or Packets.

Pacsats or Microsats are in a Polar Orbit. This means that the spacecraft passes near the North and South Poles during each orbit. Unlike other satellite systems, these do not require that both ground stations be able to see the spacecraft at the same time, in order to communicate. For example, if I wanted to talk to someone in France from a location on the east coast of the US, both of us would normally have to have a line-of-sight path directly to the satellite. This would require a high orbit like that of Oscar 13. This is what is known as 'live' or 'real-time' communications. With Pacsat I would be able to talk to and or hear messages from stations anywhere in the world while the satellite was within range of my station. For example, if I wanted to send a message to F6IAL in France, I would upload the message while the satellite was overhead. The message will be stored in the spacecraft's memory until F6IAL retrieves the message when the satellite is within range of his sta-



Satellite tracker (courtesy AMSAT Educational News).

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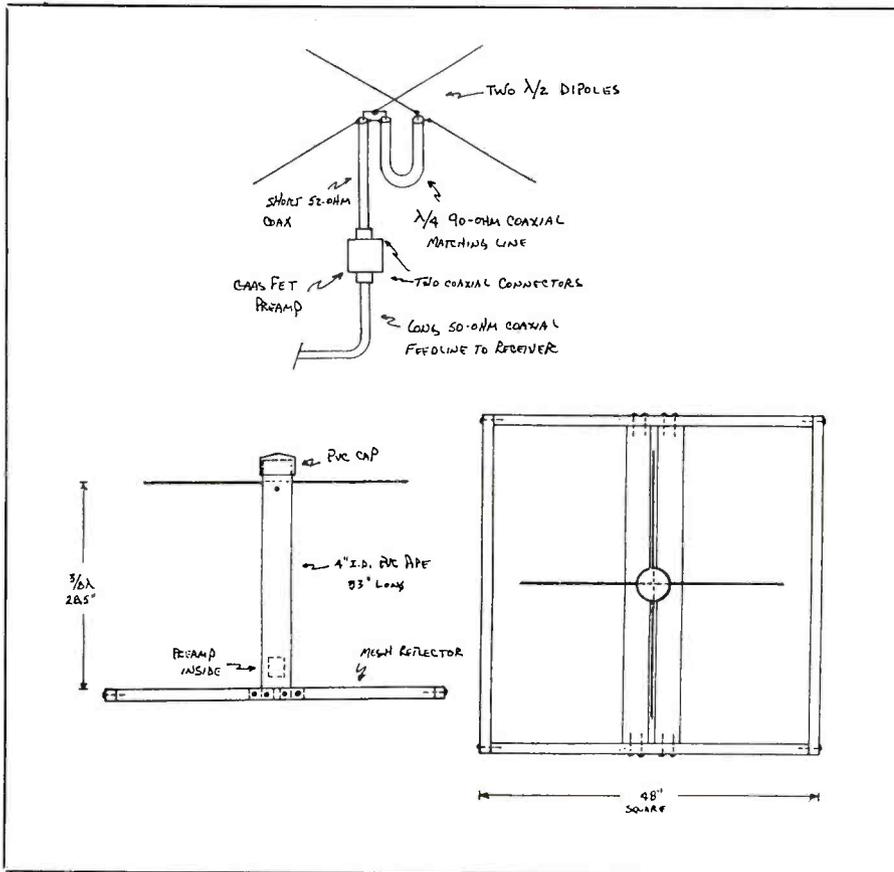
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Dove Newsletter
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Hamtronics
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Hilton, NY 14468



WORPK Turnstile Array (courtesy AMSAT-NA).

tion. This method is described as a store-and-forward Packet radio mailbox.

Three of the six satellites in the fleet will be available to Amateur Radio operators for store and forward communications. The other three spacecraft have different missions. Two are experimental UoSat D and Webersat. A third, DOVE, is an educational satellite. Of course all six spacecraft have downlinks which are fair targets for the SWL. Let's take a close-up look at the Pacsats first. PACSAT—AMSAT-NA sponsored this spacecraft which is also known as

Oscar 16. It is a 9" cube which weighs in at under 25 lbs. This little package, however, contains the most sophisticated Amateur Radio payload ever placed in orbit. The spacecraft is of modular construction, consisting of five trays, stacked to form a cube. Each tray carries a separate component: transmitter, receiver or power supply, etc. The exterior of the satellite is covered with solar cells. The computer is based on the NEC V40 chip which is a 80186 compatible processor with 8 megabytes of memory.

Pacsat has a single downlink channel of

437.050 MHz and a beacon on 437.025 MHz. There are four uplinks in the two meter (145 MHz) band. The satellite also carries a S-band experimental beacon. Jan King, (W3GEY) AMSAT's Vice President of Engineering states "the characteristics of S-band transmissions are different enough from the more commonly used lower VHF and UHF frequencies that Radio Amateurs will have a challenge attempting to move into this part of the radio spectrum". AMSAT of course is on the leading edge of new technology and is always pushing the amateur community to move into new and untried territory.

LUSAT—Argentina's Pacsat is identical to AMSAT-NA's Pacsat. It also carries a S-band beacon. In addition, LUSAT, also carries a cw beacon which transmits on 437.125 MHz. According to Carlos Huertas (LU4ENQ) President of AMSAT Argentina "we wanted the Morse code beacon on the satellite so that anyone with a receiver that would tune the satellite could also receive the telemetry without the need of more equipment. Our cw beacon will afford Argentina an opportunity to attract the largest audience possible for the Lusat. We invite all radio amateurs, what ever their affiliation, to use and enjoy Lusat". The single downlink is on 437.150 MHz. As with the other Microsats uplinks are on 2 meters.

DOVE—The Microsat sponsored by BRAMSAT (Amsat Brazil) has a very special mission symbolized by its name. While Dove is an acronym for Digital Orbiting Voice Encoder, like it's namesake bird, the flight of Dove is intended to promote peace and goodwill through communication. The communications that Dove will support will not only be between Radio Amateurs, but also between school aged children of the world.

Conceived by Dr. Junior de Castro, PY2BJO of Sao Paulo, Brazil. The primary payload aboard Dove will provide an easily heard voice signal. It is Dr. de Castro's intention that school children throughout the world will gain an insight into not only Amateur Radio, but other disciplines, such as science and social studies by utilizing Dove. AMSAT's education department has written a series of lessons for the class room on such subjects as orbital mechanics, tracking satellites and communications. This material is designed for grade school students.

Unlike the other Microsats, Dove will transmit on the two meter band (145.825 MHz). This decision was made in light of the fact that two meter receiving equipment is more readily available both here and in other countries. No specialized equipment is needed to tune Dove. A simple scanner or FM receiver that will tune 145.825 MHz is all that is required. The satellite has a powerful (by satellite standards) 4 watts of R.F. output. Dove also carries the S-band experimental beacon. Dove (Oscar 17) inspired by Dr. Junior de Castro will bring better understanding of radio and satellite technology

Packet Satellites

Dove	145.825 MHz	1200 bps AFSK AX.25	
LuSAT	437.150 MHz 437.125 MHz	1200 bps PSK AX.25 12 WPM cw	145.840 MHz uplink 145.860 MHz 145.889 MHz 145.900 MHz
WeberSat	437.100 MHz	1200 bps PSK AX.25	
PacSat	437.050 MHz	1200 bps PSK AX.25	145.900 MHz uplink 145.920 MHz 145.940 MHz 145.960 MHz
UoSat D	435.070 MHz	9600 bps AFSK AX.25	
UoSat E	435.120 MHz	9600 bps AFSK AX.25	

and distant cultures to school children throughout the world.

WEBERSAT—Weber State College in Ogden, Utah played a large part in the Microsat project. In 1984, Weber State College founded the Center for Aerospace Technology (CAST). CAST students designed and built an experimental radar calibration spacecraft for the FAA. The satellite, named NUSAT, was successfully launched from the shuttle in 1985. It remained in orbit for 18 months.

The Microsats were built as a cooperative effort between AMSAT and CAST. According to Robert Twiggs, executive director of CAST, "the components in WEBERSAT are much more sophisticated than NUSAT. Three of the four Microsats were manufactured at Weber State with the electronics completed by AMSAT people. The WEBERSAT spacecraft was completed on campus by students. Webersat will receive, store and transmit radio messages from ham operators and from the college ground station located on the Ogden campus. It will conduct experiments on earth's atmosphere and magnetic fields. In addition, a video camera will take pictures of earth from space which the on-board computer will relay to the ground stations. The college spent about \$200,000 in raw materials for this 20 pound, bread box size satellite. If the cost of the volunteer labor was added it would cost approximately \$1.5 million."

UoSAT D & E—The University of Surrey England in conjunction with AMSAT-UK first began experimenting with small data communication satellites in 1981, this is when UoSAT 9 was launched. UoSAT 11 followed soon after. There are two Pacsat's from the UK in this fleet. Though they are almost twice the size of the other four Microsats they are still quite small. One of the spacecraft will be experimental, the other will be open for use by radio amateurs. AMSAT Italy has already begun building its own packet satellite. Japan launched its first pacsat in 1986 and is ready to launch a second. Data satellites of this type are very popular and relatively inexpensive. They should become a permanent part of our Amateur satellite fleet.

If you are already equipped to receive H.F. Packet all you need to receive the Microsats is a 435 MHz receiver or transceiver and a PSK (Phase Shift Keying) demodulator or interface in front of your TNC (Terminal Node Controller). If you can receive and decode the signals from Japan's JAS-1 (FO-12) you are ready to operate the new Microsats.

The Microsats are in a low altitude (500 mile) Polar Orbit. This means the spacecraft will be in range of your ground station for about 12 minutes during each pass that is within range of your station. You will want to track the satellites by computer or manually. Tracking programs are available from several sources. I have enclosed a manual tracking device provided by AMSAT Education News. You will need a sheet of clear

plastic to make your overlays. Simply trace, on the clear plastic, the ground range circle and place it on the map centered over your approximate location. Next, trace the ground track overlay and place the 'X' over the North pole on the map. You are now ready to track the satellites. Now you need a reference point or a set of numbers to indicate the location of the satellites. This tracking data can be obtained from NASA (see address below), or from listening to the AMSAT weekly satellite nets. This same orbital data will be required for your computer programs as well. It will tell you at what time and what location the next satellite will cross the equator. When your ground track overlay is placed at that location on the equator with the 'X' over the North Pole, you will see the path the spacecraft will take. If that crosses into the circle that you placed directly over your location, you should be able to hear the satellite.

Remember your station can be as simple or as complex as you like. To hear DOVE

you only need a scanner which covers 145 MHz. If on the other hand you want to intercept data transmissions, you will need a receiver, Packet terminal (a TNC or PK-232 type modem), a PSK demodulator, a computer and program. For best results you will of course want an outside antenna. Figure-1 shows a single element twist antenna which can be built from simple materials. It is an omni-directional, which should be installed with the wire elements setting horizontally. The antenna was designed by Ralph Wallio, WØRPK and is called a Turnstile-over-reflector array.

If you are new to satellite communications I would recommend the Satellite Experimenters Handbook. It is written by Dr. Martin Davidoff and is published by the ARRL (American Radio Relay League). It will introduce you to all phases of satellite communications, equipment and techniques.

Your questions, comments and suggestions are always welcome . . . See you next month.

PC

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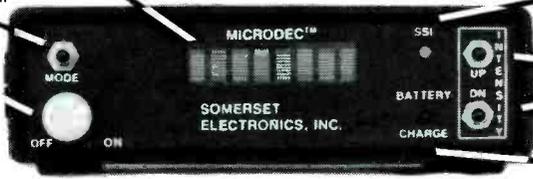
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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Congratulations to Radio New Zealand, (now Radio New Zealand International) on the opening of their new Pacific service and the commissioning of their new 100 kW transmitter near Rangitaiki in the central part of New Zealand's North Island. The inaugural program of this new service was superbly done! In addition to being entertaining and informative—it also managed to transmit something of the feel and romance of shortwave radio—something which seems to be a lost art at many big international broadcasters as they try to sound just like the station down the street. Radio New Zealand will concentrate on coverage of the Pacific area and should be an excellent source for the news and culture of the Pacific area.

Radio Canada International and Radio Korea should have begun their exchange of transmitter time by now. Radio Canada's broadcasts via Radio Korea's facilities were initially scheduled for 1300-1325 in Chinese on 6150, 1330-1400 in Japanese on 6095 and 9700 and 1430-1455 in Chinese on 9700. Radio Korea via Canada is scheduled at 1000-1030 in Spanish on 11715, 1030-1100 in English on 11715, 1100-1130 in English on 6145 and 1100-1130 in Korean on 9650. By the way, you can look for RCI to make increased use of the 13 MHz band.

Radio Denmark's shortwave transmitter should have closed down by now, which means that Radio Denmark's programs—still in Danish only—are now only available via the facilities of Radio Norway.

Radio Portugal has put a new 300 kW transmitter on the air and is using it primarily to improve reception in Africa.

HCJB may have a couple of single side-band broadcast transmitters in use by now, mainly to beam programs to Europe.

HCJB recently announced the availability of an award certificate for SWL's. The award is designed to call attention to every corner of the world by the year 2000. To qualify for the award you have to have a QSL from at least one station of this group in Europe, Africa, the Americas, Asia and the Pacific and of those five QSL's there must be at least one each from FEBC, TWR and HCJB. The stations which qualify are: FEBC in the Philippines, KFBS in Saipan, KGEI in California and FEBC-Seychelles (all Far East Broadcasting Company); Trans World Radio in Monaco, Bonaire, Guam (KTWR), Swaziland and Sri Lanka (currently silent), ELWA in Liberia and HCJB. Send a list of your five QSL's with photocopies of the QSL's showing reception data being confirmed to: DX Party Line, HCJB, Box 691, Quito, Ecuador.

Radio Belgrano in Argentina has returned to shortwave after an absence of several years. There haven't been many reports of it being heard in North America so far. Check 11781 (variable) from 1200 sign on to 2000 sign off. Programs are all in Spanish and the power is just 1 kW. Reception reports are requested to: Uruguay 1237, 1016 Buenos Aires, Argentina.

KNLS will hold to its current 10 hour per day schedule until September, says Tim Coucke an engineer at the station. The reason is that they're installing automation equipment and need daytime access to the transmitter. By September they hope to have a "rather unique digital audio automation" system in place. KNLS is carrying some special weekend programming now, too.

We may have paid for the spectacular reception conditions last winter. A news story reports that British astrophysicist, Sr. Fred Hoyle has a new theory that high sunspot counts may create more serious influenza outbreaks! Hoyle says there is statistical evidence of a relationship between the sunspot cycle and flu outbreaks, according to an item in the *New York Times*. Just think. The same conditions that give you that "feverish, ache-all-over I-can't-go-on" feeling also sent you that S-9 signal from India!

Mail Call—John Miller in Georgia wonders about QSL'ing Albania. Radio Tirana generally QSL's, John, though they can be spotty at times. Apparently it helps to provide details on a full half hour's transmission, rather than covering just a few minutes.

Don Halloran of Norton, Massachusetts just returned to listening after 12 years away. He's using a Sony 2010. We'll look forward to your log reports, Don, and thanks for your kind words.

Leon Thomas in Warner Robins, Georgia mentions that shortwave listening doesn't have to cost a lot of money. Leon uses a receiver from the late 1930's, along with a signal generator and counter to help determine what frequency he's tuned to.

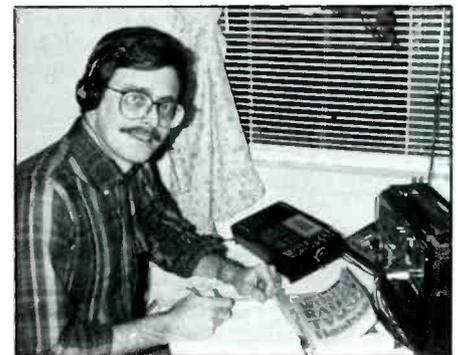
Andy Johns has moved to Ft. Worth from Tyler, Texas, although he still maintain a listening post in Tyler because reception is better there. Andy says Zambia is coming in well on 11880 around 0430 on Saturdays.

Gerald W. Medinger of Oostburg, Wisconsin sends a photo of his shack, being manned by "Trigger". Gerald is working on his novice license but plans to stay with the listening side even after he gets on the air.

Keep those loggings coming in! Please double space them (at the least) and include your last name and state abbreviation after each. Remember we also welcome shack photos, extra QSL's you don't need re-



Radio New Zealand's Maligi Evile and Henare Te Ua, with station manager Ian Johnstone.



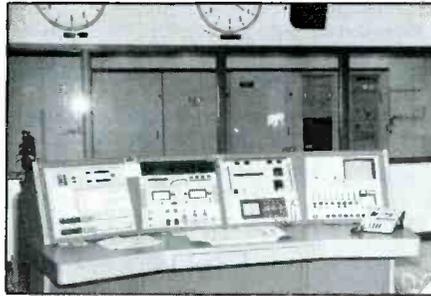
Here's Listening Post reporter William Walbesser at his Revena, New York monitoring station.



This building houses Swiss Radio International. (Thanks Andy Johns, TX)



Claudio Soares Pires is a well-known Brazilian DXer who is also a ham operator (PT7KV) Claudio lives in Fortaleza, Ceara state.



This is the transmitter control console at WCSN—Herald Broadcasting, Maine.



Here's "Tiggy" in the shack of Gerald Medinger, Oostburg, WI.

turned, station photos, schedules, station literature, news clippings about shortwave and, of course, your letters. Let's hear from you often!

Here are the logs. All times are UTC and language is English except as indicated.

Alaska: KNLS at 1600 with ID, music on 9815. (Johnson, IL)

Albania: Radio Tirana, 9430 at 2206 in Albanian, mx, ID by woman, later by man. (Mierzwinski, PA) 0348 on 9750. (Shirley, NJ) 9760 at 0234 with news and ID. (Perry, TX)

Algeria: RTVA Algiers, 9535 at 2146-2206 in FF. Big band music, then news at 2200. (Tuchscherer, WI)

Antigua: Deutsche Welle relay, 9670 at 0315, to 0348 close. (Johnson, IL)

Argentina: RAE, 11710 at 0157 ending EE program. (Johnson, IL)

Armenian SSR: Radio Yerevan, 7400//9765 at 0355 with news for Armenians living in the US. (Miller, GA) 0352 on 15180. (Johnson, IL)

Ascension Island: BBC Relay, 6005 at 0450 with news, commentary. (Perry, TX)

Australia: Radio Australia, 15320 at 0507 with news, music, mention of new sked available. (Johnson, IL)

Austria: Radio Austria International, 9875 at 0145. Into GG at 0200. (Beatty, OH) 13730 at 0030 in FF. (Gagnon, QUE) 21490 at 1621 in GG, into FF at 1630. (Zamora, ND)

Austrian Army Training Network, 3378 in GG at 1120-1140, very weak, ID 1130. (Mierzwinski, PA)

Belgium: BRT, 9925 at 2204-2230, also 0030-0100. (Perry, TX) 21810 at 1330. (Johnson, IL) 1637. (Zamora, ND)

Botswana: Radio Botswana, 4830 at 0350 with banyard ID and sign on in unidentified language. (Perry, TX) 0355. (Reynolds, MO)

Brazil: Radio Bandeirantes, Sao Paulo, 11925 at 0035 in PP with music, ID. (Shirley, NJ)
Radio Amazonia, Brazilia, 11780 in PP at 1010. (Wright, MA)

Burkina Faso: Radio Burkina, tentative, on 7230 at 0810 with African music, drums, children singing in unidentified language. (Johnson, IL)

Bulgaria: Radio Sofia, 7115 between 0400-0500. (Walbesser, NY; Perry, TX; Johnson, IL; Shirley, NJ)

Canada: Radio Canada International, 5960 at 0045. (Reynolds, MO) 2300 on 9755. (Davis, NS) 0030-0130. (Perry, TX) 15260 at 1800. (Gagnon, QUE)

CFRX, Toronto, 6070, 1546 with talk show, call-ins. (Mierzwinski, PA) 2336. (Walbesser, NY)

CHNX, Halifax, 6130 at 1700 with news. (Halloran, MA)

CFXC, Montreal, 6005 at 1540. (Mierzwinski, PA) 1835 (Halloran, MA)

CHU time station, 7335 at 0512 in EE and FF. (Perry, TX)

Chad: RNT, N'Djamena, 4904.5 at 0429 sign on in FF with anthem, ID, local music. (Tuchscherer, WI)

China: Radio Beijing, 9665 at 1210. (Foss, AK) 11685 (via Fr. Guiana, ed) 0406. (Shirley, NJ) 11715 (via Mali, ed) at 0300. (Nunez, GA)

CPBS-2 at 1300 with news in CC on 9400. (Johnson, IL)

Costa Rica: Radio Reloj, 4832 at 0510 in SS with music, ID. (Halloran, MA)

Adventist World Radio, 9725 at 2300 with "Voice of Prophecy" (Katzele, MN) 2300-2315. (Perry, TX—Presume you meant this freq, ed)

Radio For Peace International, 13660//21565 at 0120. Program against US Latin American policies. (Perry, TX)

Radio Impacto, 5044 at 0212 in SS. (Perry, TX) 0600 with news in SS, ID. (Halloran, MA) 5045 at 0753. (Strawn, TX)

Colombia: La Voz del Llano, 6117 in SS at 0905, music end frequent IDs. (Strawn, TX)

La Voz del Cinaruco, 4865 at 0935 in SS with music. (Strawn, TX) 0429. (Perry, TX)

Caracol Neiva, 6150 at 0928 with ID in SS. (Wright, MA)

Caracol Bogota, 5075 in SS at 0335 with news, ID. (Halloran, MA) (Note: This is the former Radio Sutatenza)

Cuba: Radio Havana Cuba, 5965 at 0430. 9710//11820 at 0311. (Walbesser, NY) 9590 at 0220 in EE. (Johnson, IL) 11760 at 0452. (Reynolds, MO) 11820 at 0000. (Gagnon, QUE)

Radio Rebelde, 5025 at 0000 in SS with music, ID. (Halloran, MA)

Cyprus: BBC relay on 21470 at 1410, ID 1430 and 1500. (Zamora, ND)

Czechoslovakia: Radio Prague, 5930 at 0337. (Reynolds, MO) 6055 in SS at 2355, possible Czech at 0028. (Shirley, NJ) 7345 at 0100 in EE. (Gagnon, QUE) 0442 in SS. (Strawn, TX) 11990 at 0100. (Perry, TX) 0100 on 5930//7345//9540//11680//11990//13715. (Walbesser, NY)

Denmark: Radio Denmark, 25850 at 1315 in DD to 1325, brief music, ID in DD and then EE (at 1327) "Radio Denmark. Copenhagen" and off. (Mierzwinski, PA)

East Germany: 5965 at 0607 in European Service. (Walbesser, NY) 9730 at 2230. (Perry, TX) 11785 at 0415. (Shirley, NJ) 21465 at 1416. Off 1428. (Zamora, ND)

Ecuador: Radio Quito, 4920 at 0430 in SS to ID and sign off at 0500. (Strawn, TX)

Radio Centro, Ambato, 3289.9 at 1015 with news in SS, several IDs and time check. (Tuchscherer, WI)

Radio Federacion, Sucua, 3360 at 1125 with ID in SS. (Johnson, IL)

HD210A time station, 7600 at 0423 SS time checks. (Perry, TX)

HCJB on 6230 at 0530. (Johnson, IL) 15155 at 0330, 17790 at 1922. (Walbesser, NY)

Egypt: Radio Cairo, 9475 at 0206 with news, ID. (Perry, TX) 12050 in AA at 2320. (Beatty, OH)

England: BBC, 9915 at 2140. (Walbesser, NY) 25750 at 1415. (Davis, NS)

Ethiopia: Voice of Ethiopia, 9660 at 1830-1849, mostly African news, local music. more news. (Tuchscherer, WI)

Finland: Radio Finland International, 9645 at 0000 sign on. (Vaage, CA)

France: Radio France International, 17620 in PP at 2200. (Beatty, OH) 17850 at 1652 with news headlines, then continued in FF at 1654. (Zamora, ND) (Headlines were in EE? editor)

French Guiana: RFO Guyane, 5055 at 0800 in FF. (Johnson, IL)

Gabon: Radio Japan via Africa Number One, 21700 at 1535. (Reynolds, MO)

Africa No. One on 17630 at 0815 in FF. (Johnson, IL) 17860 at 1500 with news in FF. (Walbesser, NY)

Greece: Voice of Greece, 9395 at 0130 with 10 minutes of EE news. (Gagnon, QUE) 0343 with news in EE. Refers to Istanbul, Turkey as "Constantinople" (the old name, editor) (Shirley, NJ) 7420//9395//9420 with Greek music at 0327. (Johnson, IL) 17550 at 1456 in EE, then into Greek ID as "Eleniki Radiophonia Tileorassi." (Wright, MA)

VOA Relay at 1815 on 17800. (Johnson, IL)

Guam: KTWR (Trans World Radio), 9785 at 1327 with IS, ID in JJ and off. (Johnson, IL) 11650 at 1502 with "Pacific DX Magazine". (Reynolds, MO) 1500-1540. (Katzele, MN)

Guatemala: Radio Buenas Nuevas, 4800 at 0150 with music and SS ID. (Johnson, IL) 0127 with news, ID. (Perry, TX)

Radio K'ek'chi, 4845 at 0140 in SS with music, ID. (Perry, TX)

Radio Chortis, Jocotan, 3380 with SS, music. (Perry, TX)

Radio Tezulutlan, Coban, 3370 at 1140 in SS, ID 1145. 4835 at 1216//3370. (Mierzwinski, PA)

Radio Maya de Barillas, Huehuetanango, 1151 in SS with music, "Radio Maya" ID and program details at 1200. (Mierzwinski, PA)

La Voz de Nahuala, Nahuala, 3360 at 1202 in SS. "Programa . . . Nahuala . . ." (Mierzwinski, PA)

Radio Cultural 3300 with music, talk. (Wright, MA)

Abbreviation Used in Listening Post

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

0307 "Back to the Bible", 0330 address as Box 601, Guatemala City. (Zamora, MD)

Hawaii: WWVH time station, 10000 at 0401, YL with time announcement. (Reynolds, MO)

Honduras: La Voz Evangelica Mosquita, 4910 at 0240 with religious program in EE, into SS 0250. (Johnson, IL)

Hong Kong: BBC Relay, 7180 at 0918. (Foss, AK) 1300, also 21715 at 0310. (Johnson, IL) 11715 at 2004. (Tuchscherer, WI)

Hungary: Radio Budapest, 9835 at 0130. Perry, TX; Nunez, GA) Also 11910 at 0130. (Johnson, IL)

India: All India Radio, 11620 at 1900 with news, commentary and local music. (Davis, NS) 15335 at 1330. (Perry, TX)

Indonesia: RRI Ujung Pandang, 4753 at 0941 in Indonesian. (Strawn, TX)

Iran: VOIRI, 9022 at 1935 in EE. (Holloran, MA) 2245 in ? (Perry, TX) 0411 in Farsi. (Strawn, TX)

Iraq: Radio Baghdad, 7290 at 2252 with ID and schedule. (Walbesser, NY)

Israel: Voice of Israel/Kol Israel, 9435 at 0208. (Shirley, NJ) 0007 to 0030 close. (Zamora, ND) 9435 //11605 at 0200. (Johnson, IL) 9435//9930/11605 at 0100. (Strawn, TX) 9930 at 2235, 0000, 0115. (Perry, TX) 15640 at 2025. (Walbesser, NY) 21760 at 0836. (Foss, AK)

Rashuth Hashidur home service, 9385 at 2150 in Hebrew. (Mierzwinski, PA)

Italy: RAI, 7275 with bird call IS at 0530, RR program at 0535. (Johnson, IL) 9575 at 010. (Reynolds, MO)

Japan: Radio Japan, 5960 via Canada at 0300. (Zamora, ND) 11835 at 2323. (Walbesser, NY) 17825 at 0309. (Shirley, NJ) 21610 at 0305. (Johnson, IL)

Kuwait: Radio Kuwait, 11990 at 1515 in AA. (Zamora, ND) 13610//17850//17895 in AA at 0500. (Johnson, IL) 13700 at 1830 with music and "Point of View." (Davis, NS) 15505 in AA at 1215. (Northrup, CT)

Libya: Libyan Jamahiriya Broadcasting, 15453 (15435? editor) at 1845 with AA music. (Johnson, IL) 15235 at 0310, 15415 at 0325. (Northrup, CT)

Lithuanian SSR: Radio Vilnius, 9710 at 2300 with

news, anti-Soviet remarks. (no name)

Madagascar: Radio Netherlands relay, 15560 at 1850. (Johnson, IL)

Mali: Radio Beijing relay on 9690 at 0306. (Walbesser, NY)

Malta: Radio Mediterranean, 6110 at 2245 with news, weather, music. (Holloran, MA) 2308. (Perry, TX)

Mauritania: ORTM on 4845 at 0635 with AA music. (Johnson, IL)

Mexico: Radio Educacion, 6185 at 0000-0200 in SS with news, music. (Perry, TX)

Monaco: Trans World Radio, 9795 at 0829 with IS, ID, into FF. (Johnson, IL)

Morocco: RTV Marocaine, 11920 in AA. (Shirley, NJ) 15335 at 2042 in AA with music, woman announcer. (Strawn, TX)

Netherlands: Radio Netherlands at 1850. (Nunez, GA)

Netherlands Antilles: Radio Netherlands Bonaire relay, 6020 at 1030 to Caribbean; 11890 to Pacific. (Zamora, ND) 9590 at 0340. (Shirley, NJ) 9630 at 0817 to Australia. (Johnson, IL) 17605 at 1430. (Reynolds, MO)

Trans World Radio, Bonaire, 9535 at 0302. (Perry, TX) 9535/11930 at 0325. (Walbesser, NY) 11815 at 1150. (Shirley, NJ) 11930 at 0356. 0427 sign off. (Johnson, IL) 15345 at 1235. (Northrup, CT)

New Zealand: Radio New Zealand, 17680 with opening of new service, from 0358 with congratulatory messages from Niue, Cook Islands, Vanuatu and others. (Tuchscherer, WI) 15485//17705 at 0445. (Strawn, TX) 1705 at 0454. (Perry, TX)

Nigeria: Voice of Nigeria, 7255, 0500 sign on, EE and hi-life music, "Morning Flight" program. Perry, TX, Strawn, TX; Walbesser, NY; Johnson, IL)

Norway: Radio Norway International 15305 at 1700-1900 in NN except Tuesdays when changes to 15310 at 1800-1900. Also 15305 at 1000 and 9605 at 2300. (Vaage, CA)

North Korea: Radio Pyongyang, 9977 at 0915 in SS, 1140 in EE. (Johnson, IL) 1365 at 0115. (no name) 15115v at 0000, ID, anthem, news. (Wright, MA)

Northern Marianas: KHBI, Saipan on 9530 at 1402. (Reynolds, MO) (It's no longer KYOI, editor)

Pakistan: Radio Pakistan, 17580 at 1620 with news. (Wright, MA)

Peru: Radio Tayabamba, 3290 at 0930 in SS, ID, music, ID 1000. (Mierzwinski, PA)

Poland: Radio Polonia, 7270 at 2230 under heavy QRM. (Johnson, IL)

Portugal: Radio Portugal on 9600//9705 at 0242. (Walbesser, NY) 0238 on 9705. (Shirley, NJ)

Philippines: Radio Veritas Asia, 15445 at 1555 with ID, then woman in talk. (Wright, MA)

Romania: Radio Bucharest, 9570 at 0400. (Walbesser, NY) 11940 at 0400. (Miller, GA) 2100. (Davis, TN) 15335 at 0645 in Pacific service. Also 17850 at 1310. (Johnson, IL) 15335 to 0714 sign off. (Strawn, TX)

Singapore: BBC Relay at 0805 on 15360. (Johnson, IL)

South Africa: Radio RSA, 9580 at 0224. 11760 at 0240. (Shirley, NJ) 9610 at 0200. (Vaage, CA) 17760 at 1756 with EE ID, then Dutch service. 21535 at 1822 with news feature. (Walbesser, NY) 21535 and 21590 at 1401. (Reynolds, MO)

Radio Orange, 3215 at 0327 with pops, Afrikaans/EE, commercials for Lexington Cigarettes. (Wright, MA) Radio Five, 4880 at 0310-0420. Music, contests. (Perry, TX)

South Korea: Radio Korea, 7550 at 0810. (Johnson, IL) 9750 at 1400 "Seoul Calling." (Holloran, MA) 15180 at 0000-0100. (Katzele, MN)

Spain: Spanish National Radio, 9360 at 0417 in SS. (Strawn, TX) 9630 at 0259, ID and South American news. (Shirley, NJ) 15280 at 2000 in F. (Gagnon, QUE)

Sri Lanka: Deutsche Welle Trincomalee relay at 0300 on 17800 with IS, ID in Pushto and EE site ID. (Johnson, IL)

Sweden: Radio Sweden, 9695 at 0258 sign off. (Shirley, NJ) and 1170 at 0230. Also 17880//21610 at 1530. (Johnson, IL) 11705 at 0328 with multi-lingual ID. (Strawn, TX) 21610 at 1535. (Reynolds, MO)

Switzerland: Swiss Radio International, 3985 at 0645 in GG. (Johnson, IL) 6165 at 0750. (Walbesser, NY) 9560 at 0830. (Strawn, TX) 12035 at 1930 with news in FF. (Gagnon, QUE)

Red Cross Broadcasting Service, 0309 on 6135. (Davis, NS)

Syria: Radio Damascus, 11625 at 1733-1800 close,

part RR, part AA. (Tuchscherer, WI) 12085 at 2145 in believed EE. (Perry, TX) 2210 (Shirley, NJ)

Tahiti: Radio Tahiti in FF at 0418. (Perry, TX) 0527. (Johnson, IL) 0632 in Tahitian. (Strawn, TX)

Taiwan: Voice of Free China, via WYFR, 5950 at 0348. (Zamora, ND) 0700. (Walbesser, NY)

Turkey: Voice of Turkey, 9445 at 0405; 0419. (Shirley, NJ; Strawn, TX)

Tunisia: RTT Tunis, 7475 at 0437 in AA. (Strawn, TX) 12055 at 2159 in AA with music. (Perry, TX)

Ukraine: Radio Kiev, 7400 at 0300. (Miller, GA) 7400//9765//15180k//17665 at 0300. (Johnson, IL) 9765 at 0045. (Perry, TX)

United Arab Emirates: UAE Radio, Dubai, 11940 at 0333 with news, local weather. (Wright, MA) 15435//21605 at 1600. (Johnson, IL)

Voice of the UAE, Abu Dhabi, 11965//13605 at 1745, AA music. (Johnson, IL) 13605 at 2300. (Shirley, NJ)

United States: WRNO on 15420 at 1730. (Nunez, GA)

WHRI on 11790 at 1559. (Reynolds, MO)

Radio Marti, SS at 2314 on 9525. (Walbesser, NY)

KUSW on 9815 at 0352. (Reynolds, MO)

WWCR 7520 at 0320 and 15690 at 1850. (Johnson, IL)

WCSN 9850 to Africa at 0145, 9890 at 0232, 21640 at 1600. (Johnson, IL) 13760 at 1533. (Zamora, ND) (Note: some of these may be WSHB, So. Carolina, which relays Christian Science Monitor/Herald Broadcasting, Editor)

USSR: Radio Moscow, 7100 at 0334. (Johnson, IL)

7150 at 2225, 730//9765 at 0630. (Walbesser, NY) 9685 at 1915; 1930. (Nunez, GA; Davis, NS) 15150 at 0809. (Foss, AK) 15305 at 1300. (Reynolds, MO) 17810 at 1655 to 1700 close. (Zamora, ND)

Petropavlovsk Kamchatka Radio on 4485 at 1100 in RR with classical music. (Johnson, IL)

Magadan Radio, 5940 at 0856 in RR. (Foss, AK)

Uzbek: Radio Tashkent, 5945//9540//11785//15470 at 1330 with news. (Johnson, IL) 11785 at 1225. (Shirley, NJ)

Vatican: Vatican Radio, 6185//6250 at 0615, 11725 at 0325. (Walbesser, NY) 6248 at 0645 in Latin. (Mierzwinski, PA) 9605 at 0050. (Reynolds, MO) 11945 at 1503-1510 close and 15120 at 1555-1600 close. (Zamora, ND)

Venezuela: Radio Rumbos, 9660 at 2300 in SS. (Perry, TX)

Ecos del Torbes, 4980 at 0430 in SS with music, ID. (Holloran, MA) 1100 with ID in SS. (Johnson, IL)

Radio Mara, Maracaibo, 3275 at 0325 with ID "Radio Mara musical..." (Mierzwinski, PA)

Radio Valera, 4840 at 0940 in SS. (Strawn, TX)

Vietnam: Voice of Vietnam, 9840 at 1405 and 1420 in possible Japanese. (Perry, TX)

West Germany: Deutsche Welle, 6145 at 0100. (Perry, TX) 13780 at 0814 in GG. (Foss, AK)

Yugoslavia: Radio Yugoslavia, 9660 at 2240. ID 2245 and off. (Shirley, NJ) 2228. (Perry, TX) 15325 at 1300. (Wright, MA)

Zanzibar: Radio Tanzania-Zanzibar, 11734.4 at 1808-1833 close, in Swahili with news. (Tuchscherer, WI)

Thanks, and a sweeping bow to the following reporters:

John Tuchscherer, Neenah, WI; Joe Wright, Jamaica Plain, MA; Tim Johnson, Galesburg, IL; Mike Perry, Corpus Christi, TX; Robert Shirley, Jersey City, NJ; Tom Katzele, St. Croix Falls, WI; Marty Foss, Anchorage, AK; Michael Nunez, Athens, GA; Bjorn F. Vaage, Granada Hills, CA; Terry Davis, Sydney, NS; Larry R. Zamora, Grand Forks, ND; Cliff J. Reynolds; Hazelwood, MO; William F. Walbesser, Revana, NY; Frank Mierzwinski, Mt. Penn, PA; Jay Johnson, Naperville, IL; Bill Strawn, Graham, TX; Don Holloran, Norton, MA; Nicholas Gagnon, Montreal, QUE; James Beatty, OH; John Miller, Thomasville, GA; Mark Northrup, Danbury, CT.

'Til next month—good listening!

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The anti-Castro *La Voz de Fundacion* program, sponsored by the Cuban American National Foundation has added a second outlet. It can now be heard over shortwave station WHRI, Indiana, at 0100-0200 on 7315 (though that frequency may have changed by the time you read this.) The program went on the air last November, initially over Radio Clarin in the Dominican Republic. The program is now on both stations at 0100 and there's apparently a morning release over WHRI as well. Look for Radio Clarin's 9950 frequency to be changed to 9850 to accommodate a Cuban complaint.

In April, 1989, Panamanian authorities arrested one Kurt Frederick Muse for broadcasting anti-Panamanian government material on behalf of and in the pay of the U.S. government. (see *Clandestine Communique* for November, 1989). Here's a footnote to the story: George Zeller in Ohio monitored a TASS RTTY report (on 14903) that said the incarcerated Muse was the first person to be liberated by US paratroops during the invasion! The TASS story also said that Costa Rican broadcaster Radio Impacto (which many have always thought wasn't what it claimed to be) dropped its anti-Cuban content and switched to all Panamanian coverage a full two weeks before the invasion!

Radio Magallanes, the anti-Chile broadcast carried over the Latin American service of Radio Moscow was ended in mid-December. Radio Moscow said the arrival of democracy in Cuba and the end of press censorship there made the program unnecessary. A similar Radio Moscow program, *Eschcha Chile*, was scheduled to cease in March after Pinochet is no longer president. Radio Magallanes was the name of a legitimate Chilean broadcaster which had been closed by the government some years ago.

Radio Miscut (or Miscutani) has returned. It is being noted with good signals on 5560 in both the Spanish and Miscut languages. Most loggings have been between 2300-0000 close. It's not yet clear whether this is being run by the same group which ran the earlier Radio Miscut.

Could it be that one of these days we'll be hearing an anti-Albanian clandestine broadcast? A *Toronto Globe and Mail* story, forwarded by Harold Sellers in Ontario, reports that the pretender to the Albanian throne, King Leka and his government-in-exile plan to begin radio broadcasts to Albania to prepare for an uprising against the communist regime there. The King said the broadcasts would help "coordinate" a slow

but steady movement to bring democracy to Albania. The King, son of the late King Zog who was overthrown by Germany and Italy in 1939, was exiled when he was only 2 days old. The exiled government is based in Paris but the French government "prefers" that the King live elsewhere so he resides in South Africa. Apparently, the broadcasts are to be on shortwave, but we've seen no specifics as to when this might be, or what form the broadcast would take. We'd appreciate any information any readers may run across on this very interesting development!

An anti-Iraqi government program—the *Voice of Ira* (Saut ul-Iraq) is airing over Radio Damascus, Syria at 1800-1900 on 9950. As this is written Radio Clarin blocks this channel, however.

The anti-Colombian *Radio Patria Libre* has moved down the dial and is now heard around 0100-6300 or 6315. We recently noted an early morning broadcast as well, ending at 1137 UTC.

The anti-El Salvador station, *Radio Venceremos*, is currently operating according to this schedule: 0000-0115, 0200-0315, 1200-1315 (except Sunday) 1400-1515 (Sundays), 1800-1915 (except Sundays) and 2000-2115 (Sundays). Frequencies are 3350, 6350 and 6835, all variable.

The Voice of Malayan Democracy has closed down. This station, run by the Communist Party of Malaysia, was active for many years but a peace treaty signed with the government has silenced the station.

POP'COMM author "Havana Moon", who "wrote the book" on numbers broadcasts, has come up with locations for certain clandestine broadcasters, as reported in the *Umbra et Lux* newsletter.

The 7490 transmitter of *Radio Caiman* has been traced to a point within a seven mile radius of Guatemala City. *Radio Quince de Septiembre's* 6214v transmitter has been traced to a point near Jicaro Galan, Honduras and the 3550v Radio Venceremos transmitter has been fixed near Sacramento, Nicaragua. The direction finding was done by an "agency of the U.S. government."

Gary Schlager in Texas hears *Radio SPLA* (Sudan People's Liberation Army) in English and an unidentified language at 1300 on 9550 and 11710. Gary wonders about an address for SPLA. Unfortunately we've yet to make any progress on that one, though we continue to try.

During the height of the unrest in Azerbaijan, Azeri militants are said to have had a station on the air. *Radio Freedom* was re-

TUNE TO VOK

VOK (Voice of the Khmer, known in Khmer as Samleing Khmer) is the radio station that represents all Khmers in their struggle for freedom.

VOK transmits worldwide on 6325 kHz, and in northern and western regions of Cambodia on 1200 kHz and 1250 kHz.

VOK shortwave broadcasts 11.5 hours a day at the following times (Cambodian clock):

0530-1000

1100-1400 (1500 on Sundays)

1600-21

VOK - The Radio Station for all Khmer people everywhere.

NCR the magazine of the Cambodian "Non-Communist Resistance" carries an ad for the Voice of the Khmer clandestine radio in each issue. It's occasionally heard in North America between 1100-1400.

ported to be operating on the same frequencies as the government radio station, according to a *Globe and Mail* story forwarded by Harold Sellers. "Clandestine" was probably a more correct term for a station such as this. We expect it was (or is) strictly local in coverage.

Radio Ship Sets Sail For China

A radio ship supported by Chinese dissidents set sail for China, where it will broadcast news programs in Chinese from the safety of international waters.

Officials in La Rochelle said the ship is a 1,200-ton, 260-foot former British oceanographic vessel.

The ship is named the *Goddess of Democracy*, after the statue erected in Beijing's Tiananmen Square when the democracy movement was at its height.

The vessel was dedicated in March by French singer-actor Yves Montand and Chinese dissident leader Wu'er Kaixi.

It is sponsored by 18 news organizations in several countries, including the magazine *Hotuel* in France and in collaboration with the Federation for Democracy in China. The ship, operated by French sailors, contains two radio studios and a television studio.

The vessel is expected to run programs of music and news from international waters near China.

Remember, we always welcome your informational input to this column. That includes reception notes, newspaper clippings, material you may receive from clandestine stations or their backers, copies of QSLs, address information and so on. We can keep your identity confidential if you prefer. Thanks for your help!

Until next month—good hunting!

PC

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The mailbag is overflowing. Here's some questions, comments and frequencies this month from scanner fans:

Joseph Richel of Jackson, New Jersey, says that a police department in his area, Lakewood, N.J., on 453.325 MHz, started scrambling some of its communications. He says that it sounds like open squelch when they use it and it seems switchable off and on to their hearts' desire. He wonders what is going on in this town. Well, it's been something discussed here in Scanning VHF/UHF on and off throughout the years. Welcome again to what Motorola calls Digital Voice Protection. Also known by other tradenames, DVP technically converts the human voice into a digital binary code. As opposed to the old form of scrambling (voice inversion) where the highs are made low and the lows are made high, resulting in a Donald Duck-sounding audio, DVP is unintelligible and recognizable only in that it sounds like open squelch when a unit transmits and a beep is heard at the end of the transmission.

There are so many DVP codes available, that if you searched out one code per second during your lifetime, you probably would never find out the code being used by your police department before you died. Forget about cracking DVP codes for now. I've heard all the rumors about the hobbyist cracking codes in his basement shack and planning on selling DVP decoders to scanner listeners everywhere. It's all a hoax. The only thing that I can recommend is find something else to listen to. Most serious federal government monitors I know have turned to listening to other things when their favorite agency switches to full-time DVP use. That's the technology of the hobby.

Mark Warrington of North Canton, Ohio, reports in with local Civil Air Patrol frequencies for the Canton, Ohio, area. Aircraft frequencies used by CAP units (AM mode) are 122.900 for training missions and 123.000 for actual emergencies. In addition, formal nets and other activity can be heard on the following FM frequencies: 148.150 and 149.925, repeater outputs; and 143.750 and 143.900, repeater inputs. These frequencies also are used in other areas of the country, so give them a try in your area, too.

Bob Carper of Durham, North Carolina, inquires whether we know of any frequencies used by NASCAR and the various racing teams. Well, we do, but that's only because we're member of the Frequency Fan Club, an organization that publishes a newsletter six times a year and operates a hot line exclusively for its members who like to tune in their scanners at auto races.

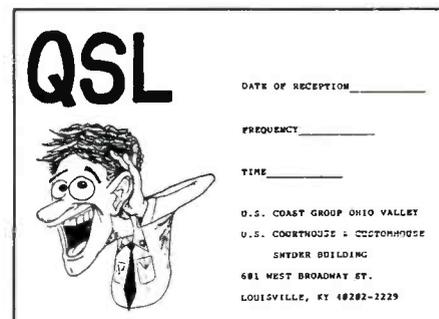
I personally like to listen in at CART races. The FFC covers NASCAR, USAC, CART, Busch GN, IMSA, ARCA, and All Pro races. Members receive the newsletter before the big races, telling them what frequencies are expected to be used by the various teams. It's not perfect, however, as many teams change their frequencies with each race. That's why FFC also operates a telephone hot line with coded information on frequencies found in use during race events. Also, the club is experimenting this year with putting this information out over the air on the club's official frequency. If you'd like more information on the Frequency Fan Club, call them at (800) RACE-FAN, or write to: P.O. Box 991, Mulberry, FL 33860, and tell them POP'COMM sent you. And as for MASCAR's frequencies, check out some of these (subject to change, of course): 464.500, 464.775, 464.900, 469.500, 462.025, and 465.825. The club can fill you in on other channels used by NASCAR.

For our readers up north, Dave Elliston of Huntsville, Ontario, passes along the new frequency setup for the Ontario Provincial Police. After each channel designator, the base frequency is listed first and then the mobile frequency.

Channel 1A, 141.390, 139.470; 1B, 141.195, 139.185; 1C, 141.300, 139.950; 2A, 141.435, 139.155; 2B, 141.690, 139.455; 2C, 143.655, 139.065; 3A, 141.630, 139.260; 3B, 141.405, 139.095; 4A, 141.705, 139.110; 4B, 141.495, 139.290; 5A, 141.360, 139.215; 5B, 141.720, 139.485; 6A, 141.450, 139.200; 6B, 141.540, 139.305; 7A, 141.555, 139.320; 7B, 141.675, 139.350; 8A, 142.365, 138.345; 8B, 142.655, 138.645; 8C, 143.100, 139.080; 9A, 143.190, 139.140; 9B, 143.640, 139.500; 9C, 142.830, 139.395.

When OPP units leave their vehicles, the mobile repeaters for the handheld radios operate on 411.3125. Other frequencies in use include 140.970 for simplex (car-to-car) communications and 142.770, which is the Ontario Common channel for police agencies.

Darrell R. Meacham, KH16BQ, of Honolulu, Hawaii, checks in to report the new frequencies used by the Pearl Harbor Naval Base Police Department and Shore Patrol/Security Force: 142.625, F-1, repeater output (input is 141.925); 142.625, F-2, simplex (car to car); 142.550, F-3, Shore Patrol/Security Force primary; 140.650, F-4, Special Operations rarely used); 138.625, F-5, Naval Base police secondary channel;



The two proposed QSL's designed by CG Group Ohio Valley Radioman.

140.125, F-6, Shore Patrol Bravo piers security; 140.500, F-7, Naval Base police secondary channel.

That's a great update with good usage information, too. In addition, Darrell says that he recently heard Customs on 166.4375 (repeater input) and 165.2375 (repeater output) talking to units in Los Angeles and Long Beach, Calif. He was wondering whether this may have been by satellite or phone lines. Anyone who can help unravel this mystery is invited to write Scanning VHF/UHF.

R.C. Watts of Louisville, Kentucky, reports that the Coast Guard Group Ohio Valley was "born" in November 1989 by consolidation of the Group Ohio River in Owensboro, Kentucky, and Group Tennessee River in Buchanan, Tennessee. R.C. was able to receive a QSL for tuning in the group's marine information broadcasts on marine Channel 22. However, the new Coast Guard group might have QSL's printed up if they start to get enough requests from listeners. Here's your chance POP'COMM readers. The group's radioman has designed two possible QSL cards. The proposed QSL cards are shown in this column. You might want to address your QSL request to the attention of RMC Scott Morris and tell him which QSL card design you like



TO: R.C. Waits

Confirming reception of: USCG Group Ohio Valley

Call letters _____; Frequency 157.1 MHz KHz on

23 Jan 90 at 0300-0309 Z

COMMANDER
U. S. COAST GUARD GROUP OHIO VALLEY
U. S. COURTHOUSE & CUSTOMHOUSE
SNYDER BUILDING
601 WEST BROADWAY ST.
LOUISVILLE, KY 40202-2229

Rue S. Waits, RUC
SIGNATURE

(OFFICIAL STAMP)

best. Write to: U.S. Coast Guard Group Ohio Valley, U.S. Courthouse and Customhouse, Snyder Building, 601 West Broadway Street, Louisville, Kentucky 40202-2229.

And while you are writing, we'd like to hear from you here at POP'COMM, too. Send your comments, QSL cards, questions, frequency lists and updates and photographs to: Chuck Gysi, N2DUP/Ø, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, N.Y. 11801-2909.

PC

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*Shipping charges \$2 per order. Orders processed day received, but please allow 30 days for delivery.

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Many aeronautical stations worldwide can be monitored over HF Radio with RTTY transmissions. Intercepts from these stations are noted nearly every month in our loggings section.

Most of the time these stations, when they're not sending test tapes, transmit weather data which is used, for instance, by airline pilots as they prepare their flight plans. If one monitors these broadcasts at length, it will be noticed that they are occasionally interrupted for transmission of filed flight plans, in what is called Air Traffic Services messages.

Ed Flynn of California is one person who monitors these broadcasts, and he sent us a copy of an actual flight plan to show the format used by airlines around the world (figure 1).

The flight plan tells us that British Airways flight #805 is a Boeing 737 aircraft carrying 103 persons. The jet is departing from Dublin, Ireland (EIDW), at 1100, and is due to arrive at London's Heathrow Airport (EGLL), 50 minutes later. The airport at Birmingham, England (EGBB), is an alternate landing site.

Copies of the flight plan are being sent to the London Air Traffic Control Center (EGTTZQFP), London Heathrow Airport (EGLLZT and EGLLBA), and to Shannon, Ireland (EINNZQ), so they can keep tabs on the flight while it's in the air. This is a scheduled air flight (type of flight: S) flying under instrument flight rules (flight rules: I). The two-engine turbojet is to fly at an altitude of 29,000 feet at a speed of 430 knots.

The aircraft is equipped with standard communications and navigational gear, and LORAN C, as indicated by S/C in box #10. Emergency radio equipment consists of UHF and VHF radio (U and V), and Deca Hi-Fix (E) radio location gear.

Other information includes the maximum takeoff mass for which the aircraft is certificated, in this case, medium, as indicated by the wake turbulence category; the survival equipment being carried, and overflight sites between Dublin and London, as given in the route abbreviations.

RTTY Intercepts (Times are UTC)

3196: Prague Meteo, Czechoslovakia, w/coded wx, 425/50N at 0410 (Dallas Williams, CO).

4002: YRR2, Bucharest Meteo, Romania, w/coded wx, 425/50R at 0208 (Harold Manthey, NY).

4242.5: Y5M, Rügen R., GDR, w/nx in GG at 0141, 170/50R at 0209 (Manthey, NY).

4362.5: CCM, Magallanes Navrad, Chile, w/YRY +: ID, 850/50R at 0209 (Manthey, NY).

4558.5: CCM, Magallanes Navrad, w/YRY to CCS at 0530, 850/50R (Williams, CO).

4570: H2N46, Jeddah Meteo, Saudi Arabia, w/coded wx, 170/100N at 0125 (Manthey, NY).

GEN 106		FLIGHT PLAN			
PRIORITY ← FF →	ADDRESSEE(S) EGTTZQFP EGLLZT EGLLBA EINNZQ				
FILING TIME	ORIGINATOR E I D W Z P				
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR					
3 MESSAGE TYPE ← (FPL)	7 AIRCRAFT IDENTIFICATION - B A 8 0 5	8 FLIGHT RULES - I	TYPE OF FLIGHT S		
9 NUMBER -	TYPE OF AIRCRAFT B 7 3 7	WAKE TURBULENCE CAT. / M	10 EQUIPMENT - S / C		
13 DEPARTURE AERODROME - E I D W		TIME E T O 1 1 0 0			
15 CRUISING SPEED - N 0 4 3 0	LEVEL F 2 9 0	ROUTE UR14 STU UGI WOD DCT OCK			
16 DESTINATION AERODROME - E G L L	TOTAL EET HR MIN 0 0 5 0	ALTN AERODROME → E G B B	2ND ALTN AERODROME →		
18 OTHER INFORMATION - REG/GBGJG STS/HOSP EET/EGTT 0015					
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)					
19 ENDURANCE - E / HR MIN 0 2 3 0	PERSONS ON BOARD → P / 1 0 3		EMERGENCY RADIO UHF VHF ELBA → R / U V E		
SURVIVAL EQUIPMENT POLAR DESERT MARITIME JUNGLE JACKETS LIGHT FLUORES UHF VHF → S / X X M X → J / L F X X					
DINGHIES NUMBER CAPACITY COVER COLOUR → D / 1 0 → 1 5 0 → C → YELLOW					
AIRCRAFT COLOUR AND MARKINGS A / BLUE/GREY					
REMARKS → N /					
PILOT-IN-COMMAND C / YENDLE					
FILED BY BA OPS			SPACE RESERVED FOR ADDITIONAL REQUIREMENTS		

Fig. 1 - Flight plan of British Airways #805, submitted by Ed Flynn of California. See column text for further explanation.

4813: LZA8, Sofia Meteo, Bulgaria, w/coded wx, 425/0N at 0225 (Manthey, NY).

5140: RWW73, Moscow Meteo, USSR, w/coded wx, 850/50R at 0212 (Manthey, NY).

5240: 4OC2, Tanjug, Belgrade, Yugoslavia, w/nx in EE, 425/50R at 2131 (Manthey, NY).

5335: RDM78, Tbilisi Meteo, USSR, w/coded wx, 450/50N at 2136 (Manthey, NY).

6772: TNO, ASECNA, Pointe Noire, Congo, w/YRY and t/c to TNL in Brazzaville, TDM 415/96B at 0040 (Fred Hetherington, FL).

7465: LRO42, NA, Buenos Aires, Argentina, w/nx in SS, 800/75R at 0121 (Williams, CO).

7474: TJK, ASECNA, Douala, Cameroon, w/YRY, 425/50N at 0119 (Williams, CO).

7829: RXFIAC, unknown location (a NATO naval

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

The good propagation conditions we've all been enjoying have brought receptions of British pirate **Radio East Coast Commercial** to some DX'ers. Someone—I don't know who it was—sent me a copy of the station's QSL which shows a schedule of 1100-1400

Sundays on 6815 (and/or?) 11515. There's an address in the US—RECC USA, 553 East Fulton Street, Long Beach, NY 11561-2416.

"How do I hear more pirates?" is a question I get asked quite a bit. A considerable amount of help toward that goal is contained within the covers of **The Pirate Radio Directory**, by George Zeller. The 1990 edition includes a chapter on how to hear 'em and how to QSL 'em, too. It provides profiles on over hundreds of stations active last year, along with their QSL addresses. The book is \$7.95 (plus \$2 shipping and handling) from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. Also available at some SW dealers.

Looks like **Hope Radio 16** is this month's most reported pirate. Lewis Firth in Maryland found the station on 7412 at 2322 with comedy records and readings from this column. He also had them on 7415 to 2223 sign off. Mark Morgan in Ohio had them on 7415 at 0249, giving power at 100 watts. Raymond W. Arritt of Kansas logged them several times on 7415 between 0040 and 0308. Robert Ross in Ontario had them at 0042 on 74134. And Bob Girouard in Massachusetts got them on the unusual frequency of 1714 at 1828, noting that they were trying to get a maildrop. They now have one—Box 628, Slanesville, WV 25444. (Maryanne, please note).

Girouard also heard **WJDI** on 1620 around 2100 with old rock and announcing a New York location.

Chris London in Minnesota had "J-Rock" **WENJ** on 7415 at 0205 to past 0400. Chris says the station said they were no longer using a maildrop. Also heard by Richard E. Draper in SC at 0307.

Secret Society Radio was spotted by Edward Almsay, Jr., in Pennsylvania at 2245 on 7410 announcing P.O. Box 6527, Baltimore, MD 21219. "Pirate Jim" said to listen for them on weekends and holidays between 2200-2300 and 0500-0600 on 7410, 6815, 6850, 7980 or 8650. Also mentioned they sometimes relay the **Voice of Stench**.

WXZR was heard by Mark Morgan on 7435 at 2325 with a program on UFO, landings and an alien's body supposedly kept at Wright's Field, Dayton, Ohio. Gave Slanesville address.

RFM was heard by Arritt on 7415 at 0347. Robert Ross had this one at 0316 on 7415.9.

Ross heard **East Coast Pirate Radio** twice, on 15063 at 2039-2047 sign off and on 15045 at 1919-1930. Baltimore address given.

Bob also hears a new one—**La Voz de Gringo America** in Spanish with 70's rock at 0025 on 7415.5. This is probably what Ray Arritt had around the same hour.

Paul Terlicki in New Jersey had **WHBH** (Hillbilly Heaven) at 2235 on 7415 with an "Amos 'n Andy" program, break-in ID, hillbilly music. Later on they ID'd as **WRFI**.

The **Voice of Free Indiana (WVFI)** was heard by Morgan several times around 0000 on 7415. Plays 70's music, gives power at 50 watts. Gives Slanesville address.

Ross caught the Scottish pirate **Radio Stella** on 6319.4 at 0712 with light pop/rock and mention of 90 watts. Address is 23 South Beechwood, Edinburgh, 12, Scotland.

Bob also heard **Weekend Music Radio**

in Scotland on 6309//14043 at 0501. Frequencies announced as 15043, 6310 and one other, uncopied. Address given as 42 Arran Close, Cambridge, England.

Radio Free Willy was heard by Mark Johnson in Minnesota on 7417 at 0211 with host "Abdul." No address announced and Mark wonders how to get a QSL. This station will sometimes reply to reports it sees in club bulletins, Mark.

Mark Morgan had **Radio USA** on 7413 at 2308 with rock and couple of nights later at 2302 on 7408. Claimed to be off the coast of North America. Station gave the Hilo address, but according to a reply received by Arritt, it's now P.O. Box 452, Wellsville, NY 14895.

WJDI was logged by Lewis Firth on 1620 at 0255-0307 sign off. Format was oldies and humorous commercials. ID as the "clandestine radio network, broadcasting with 1000 clear watts."

Lewis also had **WYOY** on 7414 at 1756 sign off, announcing as "serving the greater New England area." No QSL info given.

Bob Ross had the **Voice of Laryngitis** on 7418.8 at 0155 with barking seal sound effects, ID, funny commercials. Wellsville, NY address given.

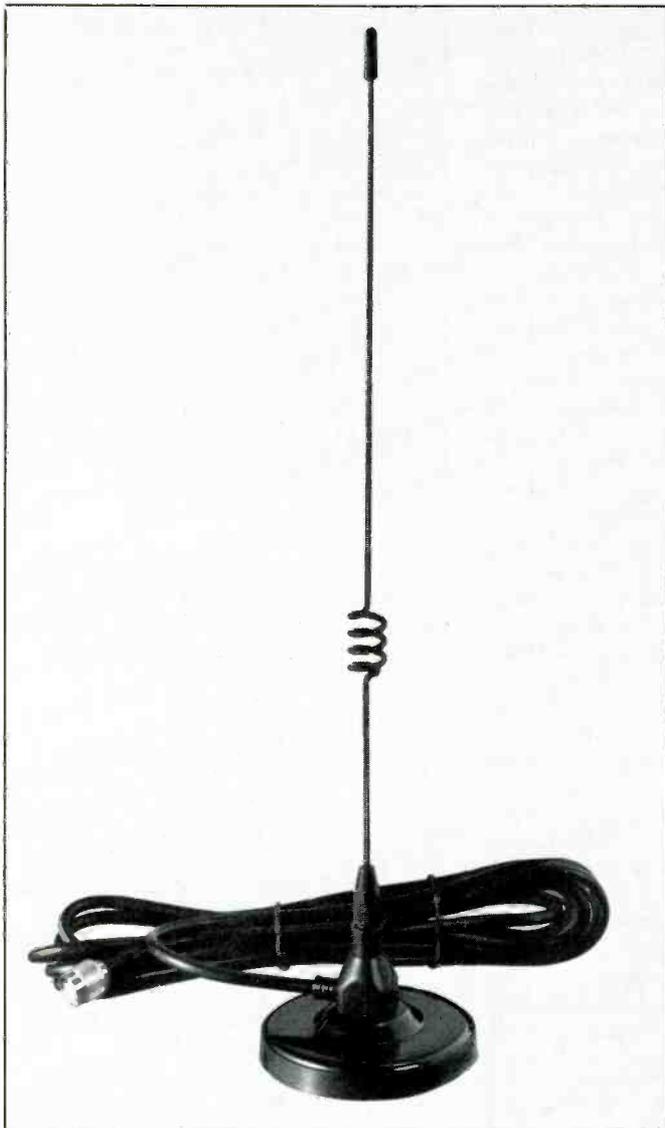
Bob had a good month for QSL's, too, with replies in from KNBS, Secret Mountain laboratory, WYMN, Munchkin Radio and Voice of the Abnormal. Chris London had QSL's from KNBS and the Voice of Tomorrow. Chris notes he logged 6 new pirates last year and QSL'd three.

That will do it for this round. Keep those cards and letters coming into the Den! Pirate activity continues to be very high so let's have your logs, QSL copies and such. Send information about station facilities, programming and plans. Station photos are very welcome!

PC

THIS CONFIRMS that ED ALMASY JR. heard
Secret Society Radio ON Saturday December 9th
1989 At 22:45 to 23:05 (G.M.T) ON 7.410 KHZ
TUNE YOUR RECEIVER CAREFULLY AND LOOK FOR ANOTHER
BROADCAST FROM SECRET SOCIETY RADIO.
ANTENNA: CUT DIPOLE
TRANSMITTER: HALLCRAFTS HT-40 (BOAT ANCHOR)
POWER: 50 WATTS MAX POWER
LOCATION: ??????????????????????
Q.S.L. 7410
Secret Society Radio
Your Rock-N-Roll Connection

Secret Society Radio send this QSL to Ed Almsay, Jr.



New design changes have been made to The Antenna Company's "Eclipse" mag mount antenna.



Motorola's 9800XL system is comprised of a number of compatible components making the transceiver portable, transportable, or suited to permanent installation.

unique identity to respond only to pages intended for that particular subscriber.

Upon receiving proper legal authorization from enforcement agencies, paging carriers will prepare (for police use) pagers that have been cloned to a suspect's distinctive *cap code*. Once in the possession of the police, a cloned pager will receive all of the same paging messages directed to the suspect under surveillance.

Alternate Methods

Some law enforcement agencies own equipment capable of picking up all types of pages. Even with such equipment, the agency would still require the cooperation of the carrier. Unless the carrier provided the suspect's *cap code* to the agency, there would be no way for the agency to pick the suspect's paging messages out from the continuous stream of messages to many subscribers being sent out. Carriers would

cooperate only if presented with appropriate legal authorization.

Customer Records

Police showing proper authorization can obtain from most paging carriers all sorts of valuable information about the suspect, including a record of their messages. One of the most common requests from police is for the name and address of a subscriber registered to a particular pager. This occurs when police confiscate or find pagers at arrest scenes or other locations of suspected criminal activity. Obtaining this information lets police verify or trace ownership or subscribership. Sometimes police aren't aware that the *cap code* of a found or confiscated pager offers a solid link to its owner or the person leasing the device. This information can be very valuable in any investigation.

Most paging carriers undertake extensive credit checking and address verification

steps when an account is opened. This information would also be useful to investigators.

In the U.S., radiopaging to public subscribers is provided by several methods. Wireline carriers (telephone companies) and non-wireline carriers (Radio Common Carriers, better known as RCC's) are allocated channels by the FCC to conduct such activities. RCC's in various locations are permitted to use their channels for voice and non-voice paging, also for providing car phone service. RCC's probably comprise the largest number of paging service suppliers. There is also some radiopaging being sent out on the subcarriers of FM broadcast signals.

Although this was an examination of the ways in which paging privacy might be breached for surveillance purposes, keep in mind that a sharp enforcement agency might also seek legal authorization to re-

HAM RADIO IS FUN!

It's even more fun for beginners now that they can operate voice and link computers just as soon as they obtain their Novice class license. You can talk to hams all over the world when conditions permit, then switch to a repeater for local coverage, perhaps using a transceiver in your car or handheld unit.



Your passport to ham radio adventure is TUNE-IN THE WORLD WITH HAM RADIO. The book tells what you need to know in order to pass your Novice exam. Two cassettes teach the code quickly and easily.

Enclosed is my check or money order for \$19.00 plus \$3.50 for shipping and handling or charge my

() VISA () MasterCard () Am. Express

Signature _____

Acct. No. _____

Good from _____ Expires _____

Name _____

Address _____

City _____ State _____ Zip _____ PC

THE AMERICAN RADIO RELAY LEAGUE
225 MAIN ST.
NEWINGTON, CT 06111

CIRCLE 47 ON READER SERVICE CARD

quest a cellular company to clone a cellular phone so that a suspect driving around placing and receiving calls in his car can have his calls easily monitored from a tailing vehicle. Think about this in relation to the fact that law enforcement agencies have long noted that almost all drug dealers use cellular telephones. Drug dealers like cellular phones because they can't be tapped like landline phones, and because of the common belief that it's virtually impossible for police to zero in on a specific cellular phone nor hear an entire conversation as a vehicle traverses from one cell to another and continually changes frequencies with each new cell.

Police have echoed this complaint, which only serves to reinforce the idea that cellular phones offer some degree of communications privacy even from diligent surveillance efforts. Obviously, this is a bit deliberate misinformation intended to lull these people and continue the misconception. The fact is that cloned cellular phones can be created, legally by or for the police, and illegally by anybody who can find out someone else's car phone number and is technically astute enough to do some minor modification to a car phone. As shown and explained in Bill Cheek's *Scanner Modification Handbook*, there is a way for police to easily follow a channel-hopping cellular call being monitored on a PRO-2004 or PRO-2005 scanner.

Communications privacy when you're a subscriber to a public paging or telephone service remains a matter of how you define

Paging Frequencies

35.22 MHz	43.42 MHz
35.26	43.50
35.30	43.54
35.34	43.58
35.38	43.64
35.42	152.03
35.46	152.06
35.50	152.09
35.54	152.12
35.58	152.15
35.62	152.18
35.66	152.21
43.22	152.24
43.26	152.84
43.30	158.10
43.34	454.025 to 454.35
43.38	931.0 to 932.0

privacy. In any event, those using pagers and cellulars to deal drugs think that they've discovered the ultimate in secure communications. Police probably hope they'll hold that thought!

New Hardware

Motorola tells me that their new 9800XL system offers almost 4½ hours of talk time when used with an optional high-capacity battery. This unit weighs in at just 26 oz. It offers hands-free operation, 3 watts of power, and multi-NAM's so the unit may be registered in several cities.

For more information on the 9800XL system, contact Motorola Cellular Subscriber Group, 1475 West Shore Dr., Arlington Hts, IL 60004, or circle 106 on our Readers' Service.

Rosemary Maher of the Antenna Company advises that they have improved the design of their *Eclipse* mag mount antenna. A rubber boot has been added to prevent the possibility of vehicle scratching and base rusting. The connections from the cable to the connector and base have been ruggedized. Also, a new finish enhances the appearance of the antenna.

For additional information, contact Rosemary Maher, The Antenna Company, 5401 Dansher Rd., Countryside, IL 60525, or circle 107 on our Readers' Service.

Mitsubishi announced a new portable FAX, the Model F10, that can be used with a cellular and yet offers the features of a full-sized unit. The F10 has a acoustic coupler and an optional cigarette lighter adapter. Using the optional clip-on battery enables the unit to be used from a pay phone. The F10 weighs only 6½ lbs.

For more information, contact Mitsubishi International Corp., 879 Supreme Dr., Bensenville, IL 60106, or circle 108 on our Readers' Service.

This column seeks questions and comments relating to car phones, paging, ship/shore radio, and related services. We also seek information from service suppliers, as well as new product information from manufacturers.

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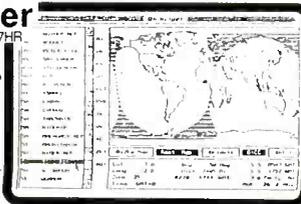
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CIRCLE 62 ON READER SERVICE CARD

GETTING STARTED AS A RADIO AMATEUR

Field Day, Florida Style

Remember the famous word association game—"tell me the first thing that pops into your mind when I say . . . ?" Well, when it comes to hams, when you say "June," you're almost sure to get "Field Day" as a reply.

What is Field Day? In a nutshell, Field Day is an Amateur Radio contest (some call it an operating event) held each June—the fourth full weekend in June to be specific. The idea behind Field Day is to test our operating skills under emergency or adverse conditions. So each June, thousands of hams, individually and in groups, take their equipment into the field (pun intended), set up shop, and operate their portable stations in the weekend-long frenzy. This year's event is held on June 23 and 24, and should pack the HF ham bands with signals.

Is Field Day really as much fun as it's made out to be? I'll let Diane Joerger, KC4BAR, a Florida ham and SWL, answer that question. This month's column features her account of last year's Field Day effort by a local ham club. You'll get the idea.



Peter Brackett, AB4BC, mans one of four operating positions at the 1989 Racal-Milgo Amateur Radio Club Field Day setup. The Sunrise, Florida, gang made nearly 700 QSO's in the June classic.

Please Don't Feed the Alligators

"Z-i-n-g-g, w-h-o-o-m-p-h." Using his trusty home-made slingshot, Peter Brackett, AB4BC, aimed and shot a monofilament line weighted with a two-ounce lead ball over a buttress on one of the Racal-Milgo office buildings in Sunrise, Florida.

The time was 8:00 AM, Saturday, June 24, the first day of Field Day. The Florida sky was gray and threatened a downpour of liquid sunshine, again.

Carl Couric, KB4RLS, and 15 year-old Steve Joerger, N4TQU, the youngest ham participating, anchored the line to a tree limb. "Always have a slingshot and anchor," Peter advised. "If a hurricane blew down the lines, you'd have to use buildings to set up an emergency antenna."

Joe Lowey, KB4FO, shared his insect repellent with Peter, Carl and Steve, who were swatting pesky bugs as they walked through the wet grass to a nearby gazebo. Light rain fell, soaking their T-shirts. Their feet made squishy, wet sounds in their shoes. The gazebo jutted out over a man-made lake known to be inhabited by alligators.

Again, Peter used his trusty slingshot to wrap another monofilament line up and over the gazebo roof. Steve and Carl anchored the line to the gazebo's support for a

second multiband dipole antenna.

Meanwhile, at a nearby gazebo, Rich Joerger, WB4EHG; Rich Erlichman, ND4G; Bob Jarvis, G4JPA; and Monty Harris, soon-to-be licensed, were setting up a gas-powered generator and a solar panel to supply power to the group's four transceivers.

Forget ice-cold beer and sizzling hamburgers; this was no picnic. Drizzling warm rain, mosquitoes, wooden benches, and the unyielding cement floor of the gazebo welcomed these determined hams.

Cables, batteries, and open tool boxes occupied space on the gazebo floor. On the portable tables were rigs, soldering irons, wires, and alligator clips. The area was a study in arranged chaos.

The gazebo had been converted to an open-air ham shack. A sign attached to the railing of the gazebo politely warned the operators: Please Do Not Feed The Alligators.

Sputter, choke, cough, brrrt, wheeez: The generator (you guessed it) blew up. It was only 10:30 AM, but Murphy never sleeps. Blue smoke filled the air with the stench of burned carbon.

Bob, G4JPA, dashed off to buy a new generator. Meanwhile, Rich, WB4EHG,

loaded the "dead thing" into the company van and sped off to trade in the rental generator.

Time was of the essence. The nationwide competition was to begin at 2:00 PM. No way could the Racal-Milgo Radio Club members be without power.

Of all the other activities these hams could be doing on this muggy Saturday morning, why would they give their time so unselfishly for Field Day? A quick interview drew these comments:

"I feel a sense of duty for the club," said Joe, KB4FO, ". . . and I believe in the preparedness."

"This is my first Field Day. You never know when you may need to do this in an emergency," said Carl, KB4RLS.

"I like the camaraderie . . . useful skills . . . and the training for helping in emergency communication. I also like to help young people learn about ham radio," said Peter, AB4BC.

By 11:30 AM, the sweet, reassuring sound of a new generator could be heard. Warm breezes carried the voices and "dits and dahs" across the lake as the rigs launched the radio waves into the ether.

At 2:00 PM, the contest began.

Peter took off his mesh hat, mopped his brow and worked CW for at least three hours before he allowed himself the luxury of a one-minute break. At one point, another operator said that CW really stood for "cramped wrist."

The contacts averaged one-and-a-half per minute, and the list of states worked started getting longer and longer. Bob and Rich worked as spotter and operator, respectively: teamwork was the key.

As the day wore on, relief operators arrived to help: Bob Nelson, N4NOF; Craig Lee, N4NXN; Raul Murciano, W4LOQ; Richard Biernacki, WA1HNR; Stan Easparro, KB4WOG; and Mark Goldberg. Altogether, ten operators and five volunteers participated in the club's Field Day effort.

Night replaced day. A single work light flooded the gazebo. Sandwiches from the local deli sufficed for a Saturday night supper. Cola cans, plastic cups and empty potato chip bags shared the table with headphones, wires and rigs.

"CQ . . . CQ . . . CQ . . . This is ND4G South Florida Field Day calling . . . CQ . . . CQ . . . CQ" The calls seemed unending.

Dawn greeted the sleepy, adrenaline-charged operators. By 2:00 PM Sunday, 277 CW, and 407 SSB contacts had been made from the main station, ND4G, for a total of 684 contacts on 10 band/modes. KB4RLS, manning the Novice/Technician station, made 124 of those contacts. In sum, the dedicated operators worked six countries, four Canadian provinces and 42 of the 50 states.

The Racal-Milgo Amateur Radio Club members and volunteers had operated their rigs in the true spirit of the Field Day exercise: outdoors, under emergency-like conditions. They endured Florida's summer swelter and swatted stinging mosquitoes.

All the while, the hungry alligators kept their vigil. —Diane Joerger, KC4BAR.

Sound like fun? You bet it is. Field Day is the perfect place to get to know members of your local ham club. Your club probably has a Field Day effort in the works, and the Field Day gang is sure to welcome another operator or general all-around helper. So why not check it out?

Complete rules for the 1990 Field Day Contest can be found in the May issue of QST. I'll also be happy to send the rules to you: send an SASE to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. See you on Field Day!

PC



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CIRCLE 55 ON READER SERVICE CARD

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

An anonymous contributor reported that immediately prior to the Panama Operation last December, two stations came up on a US Navy MARS frequency, 14443 kHz, causing a great deal of QRM on the frequency. The stations were "Angry Warrior" and "Viewfinder 2" with the latter identified as Howard AFB, Panama. Phone patches were carried out from GI's in Panama to various locations in the states and judging from the remarks made during the patches, it certainly was not difficult at all to ascertain that something big was in the wind. A heated exchange took place between one of the MARS stations and "Angry Warrior" regarding the QRM being caused to normal MARS transmissions. "Angry Warrior" informed the MARS station "We are a Top Secret Classified US Air Force station and have DOD clearance to use 14443 kHz." Ho boy!

My personal opinion is that it was a serious breach of security to have allowed such phone patches just prior to a major military operation!

How's this for an accomplishment? Perry Crabill, VA, in approximately 8 hours monitoring time spread over just two dates, logged 154 NBD's.

Here is another example of HAM/SWL interaction. There's an SWL net on Sundays at 1500 UTC on 7240 kHz LSB. Since I am not a HAM, I do not participate, but I listen frequency to the proceedings and always hear something of interest. SW Broadcast and Utility loggings are reported during operation of the net as well as an exchange of a variety of SWL related information.

From Alain Charret, France comes an interesting report of a rather strange activity he heard at 1545 on 5847.6 kHz in USB. The OM announcer used the Italian language for numbers and a phonetic alphabet plus using two German words "an" and "schlub". Message texts were given, repeated, and then on to the next message. Have any other readers run across these transmissions? For a breakout of the numbers and letters see Table 1.

John Myers, WA sent in an update to a logging he provided for the April 1989 column. The item concerned a downed pilot off the coast of Hawaii. With the help of the Coast Guard, he obtained the address of the company that owned the ship and wrote for a QSL. The radioman who was on board at the time of the incident responded with a very informative letter. John commented, "What makes this letter so special to me is that he took the time while on another ship to provide me with details of the involvement of his previous duty ship in the rescue effort." John added he does his monitoring with a DX-302 and a Sony 2010.



Andy Gordon, CT took these photos when he visited the USS America, CV66 in N. Y. Harbor and the USS Cayuga, LST1186 in San Diego Harbor. Note the extensive antennas on the CV66.

Simon Mason, England has provided another of his most welcome and informative reports on numbers stations. "A brand new station has just appeared on the bands which I find very interesting because of the identification signal used. The two frequencies are 5420 and 6483 kHz in SSB. The voice is a YL/EE with a British accent. Transmissions are at 1900, 2000, 2100 and 2200. The formats are identical for each transmission. The tune used is an English folk song called 'The Lincolnshire Poacher' which is the county across the river Humber at the other end of the World's longest suspension bridge—The Humber Bridge. I can't imagine who is using this particular tune, but it seems an odd choice. But, on the other hand, the lyrics describe illegal poaching of rabbits, etc. in the dark of night, so perhaps it is appropriate!

Here is the format breakdown: H hour Melody/5F indent (x3) pause 5F ident (x5) Melody. At H hour + 10m 2 tones (x3) and into 5F grps. At H hour + 45m

Table I

NUMBERS USED: (Italian Language)

- | | |
|------------|-----------|
| 1 — UNO | 6 — SEXI |
| 2 — DUE | 7 — SETTE |
| 3 — TRE | 8 — OTTO |
| 4 — CUATRO | 9 — NOVE |
| 5 — CINQUE | 0 — ZERO |

PHONETICAL ALPHABET USED:

- | | |
|--------------|-----------------|
| ANNA | NICOLA |
| BERTA | OLGA/OSCAR |
| CARLO | PIETRO |
| DANIEL | QUASI |
| EMIL | ROSA |
| FELIP/FIGARO | SABOR |
| GUSTA | TEHODOR |
| HYPOLIT | ULRICH |
| IDA | VIKTOR |
| JACOB | X... (Not Used) |
| KILO | YVON |
| LEOPOLD | ZOFI |
| MARIA | |

C6BW5
Ms. NIPPON REEFER
 THIS WILL VERIFY YOUR RECEPTION OF THE "NIPPON REEFER" (C6BW5), 12 FEB 1989 AT 0500 UTC ON A FREQUENCY OF 8204.2 KHZ USD.
 POWER: 1,200 Watts SHIP TYPE: REFRIGERATOR VRSSEL
 TONNAGE: 8,012.02 TONS POSITION: 0820-N 10116-W
 REMARKS: "NIPPON REEFER" is trading on a worldwide route. The Radio TX and RX are all Japanese-made JRC, fully-automatic, with SITOR (Telex).
 GOOD LUCK!!!
 Keep 'em humming!!
 Signature: [Handwritten Signature]
 RADIO OFFICER:
 EDUARDO T. MIRANDA - MANILA, PHILIPPINES

The Nippon Reeper returned this PFC to Patrick O'Connor, NH.

Melody and at h hour +50m off.

Every message has exactly 200 groups and some repeats have occurred.

Simon continued with his report "I have noticed that certain YL/EE stations are being jammed and that the same 'warbler' jammers are used. The previously described 'Poacher' station is always affected (though unsuccessful) and also the 1-0 count 3/2F EE stations are affected sometimes. On the 5413/6780 transmission both frequencies were warbled."

Simon made two additional comments. "I have not heard the Rumanian 'Skylark' station since the revolution there. I will continue to monitor this."

And lastly "I have been monitoring the two YL/GG stations DFC37 and DFC21, which are supposed to be Deutsche Bundespost, on 3370 and 4010 kHz. Schedules run from 1500 to 2200 and since each message is sent again at H hour + 30m, a recipient has numerous opportunities during that time span to receive his traffic.

Again, we thank our friend Simon for his valued reporting.

Tom Humes, AZ tells us "I have been an avid reader of POP'COMM for several years and thoroughly enjoy every issue. I have the best of both worlds; my vocation is in the electronics industry and my hobby is the same. My radio list would be too long to present here, but my most active radio is my Kenwood R-2000. I have been experimenting with a variety of antennas and finally got one up about 15 feet high and about 100 feet long. My favorite bands to monitor are VHF frequencies and the NDB band."

Michael Benedetti, WA says his main receiver is a Sangean ATS 803-A, however, the room he uses for DX'ing is full of radios. His main area of interest is HF military voice communications.

Jim Beatty, OH advises he has been a listener since 1930. Made his own super-regenerative set in 1932. First station heard was VK3ME is Australia. He uses an old Allied Astronaut 6 receiver plus a Sony 2001.

Alan Welch, PA does his receiving with a Sony 2010 and he used a longwire antenna. The loggings he sent in were made from atop a mountain.

Maryanne Kehoe, GA has been listening

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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QSL - RADIO RECEPTION VERIFICATION REPORT

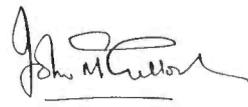
This is to confirm your reception of our radio station

JEDDAH AERADIO - JEDDAH - KINGDOM OF SAUDI ARABIA

on 28 March 1989 at 0332 UTC

frequency 13.752.5 kHz mode Rtty

callsign H2J power ---


 John McCulloch
 Manager
 COMOPS and Procedures
 Air Traffic Services
 JEDDAH
 Kingdom of Saudi Arabia

To: HUGH M. HAWKINS

Please Reply To : خدا بمتون الرد ال :
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 P.O. Box 887 Postal Code 21165 س ب ٨٨٧ الرمز البريدي ٢١١٦٥

Here is a QSL received by Hugh M. Hawkins, MS.

to shortwave for about 15 years. She wrote "I have a special interest in logging pirate activity but I just happened to be looking for some aircraft loggings and boy, did the floodgates open!"

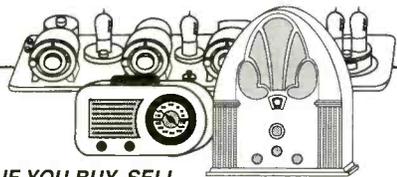
Bill Fernandez, MA described some QRM he has observed caused by the US Air Force Over-the-Horizon Radar B. One day at 1700 he noted the OTHR-B covering up WWV on 20 MHz for more than an hour. Bill worries that when the entire system is fully operational if the SW Bands will be clobbered as with the Russian Woodpecker emissions. The system calls for a transmitter on each coast and at the North/South borders of the U.S. Bill included the address for reporting OTHR-B interference as: HQ ESD/SCU-4, Hanscomb Air Force Base, MA 01731.

Tom Norris, TN works for the State of Tennessee Wildlife Resources Agency in the Communications Division and as a technician has worked closely with the Tenn. Emergency Management Agency. he also

works with other State Agencies as the need arises. In his off time he enjoys scanning VHF and HF his listening includes CW and RTTY and Ham. He added "I have been a Ham for 10 years—KA4RKT. I'm also an active on Army MARS as AAV4AK. My station consists of a Kenwood R2000 and TS-430S for HF and a BC 950XLT scanner plus a 128 ch. VHF Phoenix. Have been a reader for several months now and really enjoy the magazine."

Bjorn Bjortorp, Norway uses mainly a ICOM R71E and ICOM R7000. For HF he uses a 100' longwire with a MFJ 16010 antenna tuner. "The receivers are borrowed at the moment, but I intend to buy the same equipment with an added VLF converter to get way down low."

And now, for the US Navy report forwarded by Andy Gordon, CT. "Due to the military action against Panama, US Navy MARS went to 'Condition 3 Emergency Alert' which means shore stations must monitor at all possible times for emergency



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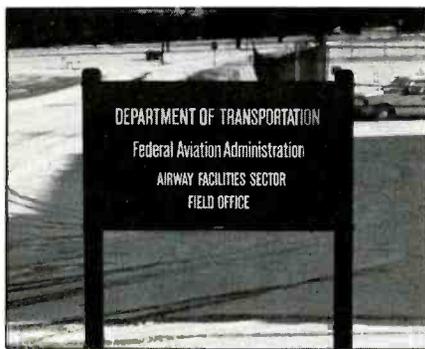
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DEALER INQUIRIES, PLEASE CALL



New antenna at Martinsburg, WV Regional Airport. Photos furnished by Charlie McAtee, WV.



MARS traffic. All ships in the Caribbean and S. Atlantic were not permitted to make phone patches during combat situations. There was quite a bit of activity on 11246 kHz when several USN Aircraft and USAF Aircraft were making phone patches.

With his latest QSL's, Andy now has a total of 295 QSL's with 412 US Navy units heard! Nice going!

Let's see what loggings the mailbag brings this month. All times in UTC.

- 198:** Beacon DIW, Dixon, NC at 0800. (Norris, TN)
- 302:** Beacon L. Loma LS, CA at 0947. Beacon V, ? at 09048. (Humes, A) There are three V Beacons on this freq. You most likely hrd Point Viente Light, CA.
- 311:** Beacon BFE, Brownsfield, TX at 0910. Beacon MVI, Monte Vista, CO at 0936. (Humes, AZ)
- 316:** Beacon M, S. Pass W. Jetty LS, LA at 0127. (Crabill, VA)
- 339:** Beacon UCU, Santiago, Cuba at 0102. (Crabill, VA)
- 344:** Beacon JA, Jacksonville, FL at 0057. Beacon PIX, Williamsport, PA at 1229. (Crabill, VA)
- 350:** Beacon NY, Enderby, BC, Canada at 0850. Beacon NID, ? at 0904. (Humes, AZ) Wonder if this could be Beacon NUD, Adak NAS, AK on 347 kHz?
- 356:** Beacon AY, St. Anthony, NFLD at 0441. Beacon MBV, South Hill, VA at 0442. (Crabill, VA)
- 360:** Beacon KIN, Kingston, Jamaica at 0438. Beacon PN, Port Menier, PQ, Canada at 0437. (Crabill, VA)
- 370:** Beacon UCM, Camaguey, Cuba at 0420. (Crabill, WA)
- 375:** Beacon HPL, Nucla, CO at 0926. (Humes, AZ)
- 380:** Beacon UCY, Cayojabo Cuba at 0410. (Crabill, VA)
- 382:** Beacon BHU, Latrobe, PA at 1240. Beacon UPA, Camaguey, Cuba at 0404. (Crabill, VA)
- 388:** Beacon DT, Romulus, MI at 0515. Beacon AM, Tampa, FL at 0520. (Symington, OH)
- 390:** Beacon UCA, Ciego de Avila, Cuba at 0354. (Brabill, VA)
- 391:** Beacon CM, Columbus, OH at 2108. Beacon OO, Oshawa, Ont., Canada. (Crabill, VA)
- 400:** Beacon SLW, Wooster, OH at 0603. (Warrington, OH)
- 408:** Beacon HBD, Youngston, OH at 2251. (Warrington, OH)
- 413:** Beacon TAM, Tampico, Mexico at 0804. (Humes, AZ)
- 417:** Beacon RGB, Rifle, CO at 0811. (Humes, AZ)
- 515:** Beacon PKV, Port Lavaca, TX at 0600. Beason OS, Ohio State Univ AP, Columbus, OH at 0801. (Symington, OH)
- 2716:** Range Rover and Research Vessel Deer Island, YAG62, making hourly rdo checks w/ Autec Ops

and Snapper Base at 1100; NUCU, USS Barnstable County, LST-1197 clg NSQV, USS Hunley, AS-31 at 1025, when Hunley responded both stns went Green; HMCS Sageunay, DDH-206 clg Shelburne Military at 1140; NDFQ, USS John King, DDG-3 clg Norfolk Port Control at 1125 w/request for tugs & pilot; NPCD, USS Blakely, FF-1072 clg Charleston Navy Tug Control at 0230. Blakely had no joy because Charleston not guarding HF; NJLK, USS Kauffman, FFG-59, clg New York Harbor Control at 1000, no joy as NAVSTANY has no HF capabilities yet; US Navy Tug YTB-771, 'Keokuk' clg Portsmouth Tug Control at 1030; NIDC, USS Valdez, FF-1096 wkg Newport Port Control Secondary at 0300 re permission for Valdez to get under way & energize surface search radar. (Gordon, CT)

3076.5: Three boats in USB net w/XXX language re fishing ops. Used first names as ID's. Another net on 3096 kHz w/same garbage—both nets are on military aero band. Hrd at 0805. (Fernandez, MA)

3100: Raspy signal of 5 dots and 1 dash. Hrd at 2302. (Ed.)

3240: Rapid series of pips 2200-2205, then YL/RR w/269 until 2210 then '59' and into 5F grps. At 2214'28' and into more 5F grps. Ended at 2216 w/'Konet'. (Mason, England)

3262: Unid CW stn at 2259 w/5L grps w/pause at end of each 10 grps. Upon completion of msg, a high speed transmission came up, brief silence, then what appeared to be repeat of high speed xmsn at 2302 and 2303. At 23120 another 51 grp msg commenced. (Ed.)

3310: From 2000-2005 VVV 387/80672/05 18003/10 00050/12 in CW. Then AR, 30 dots and into 5F grps. (Mason, England)

3378: Unid CW stn at 1221 in 3F/L tfc. (D.P., NC) Probably FEMA which listed for 3379.

4030: UL/RR in AM at 2000 w/5F grps. Xmsn starts w/5 tone melody rptd for 2 min. Nbrs in callup rptd (said twice i.e. 58379 20 58379 20 then 58379 63 (new code nbr) 20 and into 20 5F grps. At end of msg 63 20 and into next hdng. (Bjortorp, Norway)

Abbreviations Used For Intercepts

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



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Mr Vince Reh

19 MAR 1975

U.S.A.

Dear Mr Reh

CONFIRMATION OF ZUO RECEPTION REPORT

Thank you for your report of 1975 January 10 on your reception of ZUO 5000 kHz at 04h25 GMT.

I confirm that ZUO was transmitting at that time and enclose an operation schedule.

Yours sincerely

R. LAKE

PRECISE PHYSICAL MEASUREMENTS DIVISION

w/position report (20 miles south of central southern coast of Cuba) & comms re being in search pattern w/CG fixed wing a/c. At 0204 AFR 830 reports elec problems in cockpit and returning to FL base. Data marker buoy deployed at rescue scene (its nature not disclosed by several days later it disclosed on news that fighter went down after 2 crew members ejected and later rescued) and Omaha 13 was on way to scene while CG Rescue 1476 remained on scene. USCGC Escape also on way to scene. AFR 830 instead of landing at Holmstead AFB landed safely at Key West. Down at 0300. (Fernandez, MA)

5875: YL/GG w/647 (x3) 1 then Achtung 974997 49 & into 5F grps and ended w/000. (Mason, England)

6395: IDQ/2/3/6, Rome Naval Rdo, Italy in CW at 0130 w/5L grps. Finished t/c and into call tpe at 0135. (D.P., NC)

6504: NMN, Portsmouth, VA in USB w/wx at 2340. (Warrington, OH)

6577: YL/SS in AM at 0450 w/5F grps, voices in bkgrnd. (Norris, TN)

6607: Grandeur rdo in LSB at 0256, OM/EE w/wx. (Warrington, OH)

6649: A/c in USB at 0140 talking to Bogota requesting wx info. (D.P., NC)

6660: YL/EE w/468 00000 from 2100-05 then off. (Mason, England)

6673: At 2000 YL/Chinese rptng 3F x3 5F x3 2F x2 then at 2005 into 4F grps, ended at 2010. 3F indent was San Si Ling (34). (Mason, England)

6720: 9 Echo Juliett in USB at 0455 clg "any stn this net for rdo check." At 0457 4 November Hotel clg Yankee 0 Lima. Later hrd statement "this is part of the battle plan." (Watts, KY)

6736: Two u/i OMs in USB w/discussion of trip to South America and arranging drop time; much colorful language used in cursing out QRM which forced move to new freq at 0213. (Hamlin, NY)

6750: MacDill, FL w/EAM's in USB at 0338. (Balogh, OH., Canada)

6753: St. Johns Military in USB w/Canadian aero wx at 0144. (Hamlin, NY)

6757: RAF Ops. Leedshead, B8L and A8D in USB at 0139 w/comms re tactical authenticators and IDs, reference made to Architect. (Hamlin, NY)

6761: SAC channel.)520-0535 a/c ABN04 contacted "Apointee" fro ; thru to destination base "Pacecar" to inform of landing gear stuck in down position. Malfunction declared IFE (in-flight emergency). Planned to burn down fuel in the pattern at destination base in case of crash. (Morton, NY)

6768: YL/SS in AM at 0700 w/5F grps. (Balogh, ON, Canada)

6773: YL/GG w/774 x3 000 2000-05 rptd on 5775 kHz 2010-15. (Mason, England)

6775: 2000-05 YL/GG rptng 774 x3 1 then 'Achtung' 985 192 985 192 and into 5F grps. Rptd 30 mins later on 5775 kHz. (Mason, England)

6785-5413: YL/EE w/1-0 count and 182. After ten tones at 2210 Count 151 and into 3/2F grps. Both freq affected by warble jammers. (Mason, England)

6788: Walkover (in flight) in USB at 0212 in link w/Hershey for 5.3 hours and Gangster for 4.8 hours. Made mention of Alligator up on Delta 1. (Willmer, MI)

6840: YL/SS w/5F grps but hrd German 8 (acht) many times as well as Spanish 8 (Ocho) at 0300. At 0201 next night, YL/EE w/5L grps w/strong reverb sound jamming over voice. Smilar sound on 9222 kHz at same time. (Grubbs, NY)

6855: YL/EE w/152 between 2000-05 then 782 x2 129 x2 and into 5F grps. Ended w/0000. Same voice on 5640 but slower paced. (Mason, England)

7404: YL rptng Golf Zulu from 2100-05. Then 5F grps in GG for 628 and 803. AM mode. (Mason, England)

7480: U/I stn in LSB at 0234 in contact w/Snow Dog. Talk of antenna and equipment setup and this is freeband radio. (Willmer, MI)

7535: NHSN, USS Richard E. Byrd, DDG-23 wkg Norfolk SESEF at 1915 re QSY to UHF freq for testing at 1930; NOUD, USS Inchon LPH-12 wkg Norfolk SESEF at 1900 testing several emitters in all modes. (Gordon, CT)

7605.1: YL/EE in USB at 0233 rptng 2 Victor Lima Bravo, Mossad. (Welch, PA)

7680: YL/SS in AM at 1210 w/nbrs. (Norris, TN)

7763.1: YL/EE in USB at 0132 w/4F grps, suddenly ended at 0140. (Welch, PA)

7775: Two OM/EE in USB at 0150 w/talk of "worry of splitting shipment. Better to bring it all in at once. Price

Vince Reh, NY said he heard ZUO with very strong signals behind WVW. Another QSL from his collection.

4058: NNN in CW from 200-05. YL/GG or Yiddish w/Gruppen 28 and into 5F grps. Usual deadpan voice. (Mason, England)

4063: GBTT, Queen Elizabeth II in USB at 0643 wkg KMI, Dixon, CQ (on 4357.4 kHz) w/pp. (Symington, OH)

4066.1: NKID, USS Kidd, DDG-993 clg Norfolk ICSB at 0130. No joy as Kidd's emitter not functioning properly, USS Princeton, CG-59 wkg San Diego CSS1 at 0050 re call to Long Beach Naval Hospital concerning ailing crewman to be medivaced by Helo as Princeton was 15 nm from shore; NENH, USS Pyro, AE-24 clg San Diego CSS1 at 1050; N2GW, USS Sumter, LST-1181 clg Norfolk ICSB at 0115. No joy initially but finally stns able to communicate. ICSB had contacted Sumter by Satellite advising them a USCG CommSta wanted to make phone interphase with them. Sumter had picked up a new looking life raft. Possibly from missing lobster boat? (Gordon, CT)

4373: 8VP wkg Giant Killer in USB at 0349. (Hamlin, NY)

4521: U/I CW stn at 1238 w/5L grps sent in strings of 10 grps at 15gpm. S/oo at 1242 "AR YA". (D.P., NC)

4625: Time Stn VEB2 (unlocated) in AM at 0236 w/pp every 3 1/2 secs. (Fernandez, MA)

4740: 2200-04 YL/EE w/45690 then 'Ready' x2 23 23 and into 5F grps. YL/EE w/45260 in Am between 2200-04 'Ready Ready' 27 27 and into 5F grps. (Mason, England)

4600: Blackhawk 234, 448, 743, 224, 304 in USB net at 2142. (Warrington, OH) This prob CAP, Ohio. \$\$

4742: Architect in USB at 0657 clg Lima 1407 (a/c) for wx report that a/c had requested but no joy. At 0700 Architect gave the best of altimeter settings for terminals across England, ending at 0701. (Fernandez, MA)

4881.8: YL/Bulgarian in AM at 0700. Announced callup for 5 min. but no t/c. Recently also hrd Bulgarian stn on 4882.5 kHz w/5F grps, each grp x2. (Fernandez, MA)

5045: YL/EE in AM at 2325 w/3-2F grps. (Watts, KY)

5091: YL/EE in AM at 1942. Mossad. (Charret, France)

5171: Noise bursts at 0327 - 5 dots, 1 dash. (Grubbs, NY)

5181.5: YUL/GG in USB at 2312 w/5F grps (each grp rptd). (Ed.)

5264: U/I CW stn at 0037 sending 7740 0792 in slow cut nbrs. Stopped at 0040. Nil hrd 0045 & drop. (D.P., NC)

5284: Rapid CW pips 0930-35 then 555 (x3) 140 (x3) 695 (x3) 23. At 0940 into rapid 5F grps. (Mason, England)

5320: New Orleans ComSta in USB at 0255 to USCGC Liberty (WPB 1334) re contact overdue vessel on VHF ch. 16. Unable contact them on HF (Willmer, MI)

5390: USAF OTH-B Radar signal (10 kHz wide) appears be going through testing program, several short shifts in sweep speeds w/whole sequence rptd every 3 min, low pitched warbling burst at end and beginning of each program. Appears to final testing stages of OTH-B xmtng site in Maine. Hrd 0731. (Fernandez, MA)

5420: YL/SS at 0702 w/Attencion 834 25 & into 5F grps. Finale Finale at 0706. (Warrington, OH)

5500: YL/GG at 2100 w/883 stish zero zero w/Czech 'Last Post' trumpet in background. (Mason, England)

5598: Luftansa 2423 wkg Gander, Nfld w/flt status in USB at 0216. (Hamlin, NY)

5600: 2R2 rptd x10 foll by 71 28 in CW from 2200-05. Rapid dots then GR72 and into 5F grps. (Mason, England)

5693: YL/EE at 2200/04 w/17399 then Ready (x2) 41 41 & into 5F grps. (Mason, England)

5696: AF Rescue 95830 in USB at 0227 wkg CommSta Portsmouth w/pp to Rescue NY. (Symington, OH) AF Rescue 830 wkg Miami CommSta in USB at 2302

of 330 or 385. Need money to work on rdo equipment. (Willmer, MI)

7858.1: YL/GG in USB at 0141 w/5F grps, announced 'end' in GG at 0148. (Welch, PA)

7886: YL/SS w/attencion 866 05 (x 7) 05 43 (x 6) then into 5F grps and Finale (x 2) at 0606. (Warrington, ON)

7887: YL/SS in AM at 0503 w/5F grps. (Balogh, ON, Canada)

8000: JJY, Tokyo w/time signal at 0510. (Humes, AZ)

8095: YL/SS in AM at 0600 w/5F grps. This recording had tpe trouble. (Balogh, ON, Canada)

8170: YL/GG rptng Whiskey Papa w/elec. tones 0100.05. then 989 Gruppen and 716 61 and into 5F grps. (Mason, England)

8172: 2000-06 Full carrier Am Morse w/1-0 count foll by rapid pips and carrier off at 2007. (Mason, England)

8291: Several vessels (tugs, freighters) in USB at 0640 clg shore stn Jacksonville, FL w/shipping data (positions, wx, engine RPMs, distance to go, etc). All were in the Panama, St. Croix, Caribbean area. (Fernandez, MA)

8719: NKXR, USNS Powhatan, T-ATF-166 clg COMSUPRON-8 at 2115, no joy as QRM, bleeding over from 8722 kHz caused severe problems; NCFR, USS Adroit, MSO-509 trying raise COMSUPRON-8. Later Adroit up on 7535 kHz at 1500 to test their equipment through Norfolk SESEF. (Gordon, CT)

8855: Porto Velho, Brazil ATC in USB at 0720 wkg u/i a/c re flight data. (Fernandez, MA)

8888: Two OM/EE but the EE is horrible, extremely difficult to understand. Did catch one complete phrase which sounded like "bring all the materials." LSB,

0305-0318.

8902: Two OM/EE in USB at 0320. u/i clg Luanda but no answer. 1st stn advises other that he can't raise Luanda & other stn says something about his departure from Luanda. (Ed.)

8910: Fisherman in USB at 2326 w/talk of surprise Coast Guard raid and ticketing of five boats. (Willmer, MI)

8927.2: OM & YL/EE in USB at 2254. YL worried about getting into trouble; OM replied that saving cost of phone call worth the risk. (Hamlin, NY)

8984: CG & Chevron oil tanker in USB at 0730 re efforts to keep distressed Greek freighter afloat. Ship was heading for South Korea from Los Angeles and had sprung a leak from an undetermined cause. Pumps were dropped to the ship to help keep the water out but apparently they weren't doing enough. A later news report indicated that the ship had sunk but all crew were safe.

8993: Hitsong in USB at 2328 wkg McClellan w/comm check. (Symington, OH)

9023: Sweeping jammer on a SS/BC station on 9022 at 2135. Appears be a constant source of QRM to NORAD exercises during past year. (Fernandez, MA)

9040: YL/GG in USB at 2236 and 0145 w/ 3 + 2F grps. (Hamlin, NY)

9043: SLHFB "K" at 1200. (Norris, TN)

9465: YL/EE w/count & 888 in USB at 0500. (Balogh, ON, Canada)

10125: YL in USB at 0147 rptng C102 until 0150 then silent. Monitored until 0203, signal did not come back. (D.P., NC)

10236: YL/SS in AM at 0920 w/nbrs. (Norris, TN)

10740: YL/GG in USB at 1745 finishing up a 5F grps text w/each grp x 2. (Fernandez, MA)

11055: SAM 231 wkg Andrews AFB in USB at 0152

w/pp to Pentagon re appearances of u/i individual on two TV news shows. (Hamlin, NY)

11108: YL/GG in USB at 0130 under hvy RTTY QRM. (D.P., NC)

11125: YL/SS in AM at 0316 w/5F grps. (Willmer, MI)

11200: West Drayton, England in USB at 0142 giving wx for various British airports. (D.P., NC)

11239: MAC 00445 in USB at 0504 wkg McClellan w/pp to Kelly AFB CP. (Symington, OH)

11243: Ridgefox clg Acid Rain in USB for rdo check. On freq W-105 at 1825, North 21 wkg MATPAC in USB w/pp to Grand Slam Control at 1851. (Hamlin, NY)

11246: Teal 36 (a/c, 815th Weather Recon, Keesler AFB) wkg MacDill AFB w/pp in USB at 0100. (Hamlin, NY)

11390: Continental 619 at 2146 w/position report to NY; American 1180 at 2135 w/position report to NY; American 1298 at 2137 w/request for NY check frequency Kilo Bravo, flight is from San Juan to Philadelphia; United 46 at 2133 gives flight level data but NY sez they can't read & told a/c to go to secondary freq. (Kehoe, GA)

11531: TS FR TY (both u/i) in CW at 0040 sending 5L grps w/comma between each grp. Into another msg at 0049 this one w/SS text & nbrs. Sent too fast & sloppy to copy. Dropped 0030. (D.P., NC)

12315: 1600-05 New YL/GG stn rptng Mike Hotel w/elec tones. At 1605 5F grps for 013 and 255. TASS RTTY in background. (Mason, England)

13116.3: WOM, Pennsuco, FL in USB at 0220 w/pp to Panama for Vessel Victorian Empress. Interesting exchange re changes in passing through canal, curfew & other conditions. This was two weeks after Panama Operation. (Watts, KY)

13241: SAC stas Hibernate and Classroom w/phonetics in USB at 0342. (Hamlin, NY)

13306: Speedbird 259 in USB at 2330 enroute to St. Lucia wkg NY. (Hamlin, NY)

13575.8: OM/EE in USB at 2008 rptng 1-0 count 348 x 3. At 2010 tones and Count 52 x 2 then into 3/2F grps until 2020 when said End. (Watts, KY)

14383.5: NHXDM USS Lynde McCormick. DDG-8 (NNNOCQL) wkg NNN0ANH (Philippines) at 1115 for rdo check; NIQM, USS Enterprise, CVN-65 (NNNOCOG) wkg NCOB. USS Cape Cod, AD-43 (NNNOCOH), both stns trying raise a shore stn. (Gordon, CT)

14402: Unk Panama unit in USB at 0015 wkg AAT4RY, Army MARS pp's. (Symington, OH)

14441.5: USNS Vanguard T-AG-194 (NNNOCMM, new callign) wkg NNN0PRS at 0030; NBTM, USCGC Polar Star WAGB-10 (NNN0NZX) clg Ang Stadiesie MARS stn at 0250, Polar Star is at McMurdo Sound, Antarctica; NSBR, USS Samuel B. Roberts FFG-56 (NNNOCBG) wkg NNN0USN at 1500, this was first time Roberts had been up since their encounter w/mine in Persian Gulf 2 years ago. (Gordon, CT)

14448: UL/EE in RCS at 2324 w/3 + 2 grps. (Willmer, MI)

14461: CIW301, (Canadian Forces Amateur Radio) w/pp's in USB at 1745. (Symington, OH)

14487: 5UXE (in Panama) in USB at 2310 wkg AAV4DS (Tennessee) w/Army MARS pp's. (Symington, OH)

14496: OM/EE in USB at 1505 w/announcement 420 x 3 and Count 1-0. (Ed.)

14851: U/I CW stn at 0010 w/5L grps. Upon completion of msg sent AR AR AR pause SK SK SK and down. (Ed.)

15843: OM/? in LSB at 1816 completing 5F grps text. Off at 1817. (Warrington, OH)

16340: V8T DE Q2 in CW at 1513. Passing 5F grps (no cut nbrs). Then into FF plaintet which appeared to be Diplomatic text from French Ambassador, Prague, Down at 1531. Then possible Piccolo type xmsn. Dropped at 1555.

16449: U/I auto CW stn at 1554 w/5F grps, cuts zero as T. (Ed.)

17485: Station clg Norway?? in SS at 1900 then into 5F grps. (Beatty, OH)

19715: YL/EE at 1640 w/5F grps. (Norris, TN)

20185.8: NASA, Houston Control, TX w/post-launch reports on Space Shuttle Discovery in USB from 0024-0032. (Hamlin, NY)

22537: FUF, Fort de France, Martinique in CW at 1955 w/call marker. (Beatty, OH)

HOW I GOT STARTED

Popular Communications invites readers to submit, in not more than 125 words, how they got started in the communications hobby. Each month, we'll select one and run it, and award its sender with a one year's subscription or subscription extension. We'll accept them (preferable) typewritten, or otherwise easily legible. If you have a photo of yourself taken recently, or when you got started, please include it with your story. We can't return or acknowledge material whether we use it or not. you need submit you story only once, we'll keep it on file and consider it for future issues. All submissions become the property of Popular Communications.

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Address all entries to: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801

Winner - June, 1990

Our winner for the June issue is R.D. Duracka, of Palatine, IL. He told us:

"My interest in scanning began on Friday, May 25, 1979. The date is easy to remember because it's when, at 3 p.m., an American Airlines DC-10 went down at Chicago's O'Hare Airport. There were 279 people aboard; none survived.

"I was working in Rolling Meadows at Western Electric (now AT&T). My boss' brother was a Mt. Prospect police officer. He called to tell us what had happened, and my boss told me to come out into the parking lot with him so we could listen in on the scanner in his car. He had a number of channels going, but what we heard on the Chicago fire and NIFERN (Northern Illinois Fire Emergency Network) was incredible. There was more action than anyone would imagine. That was the day I became sold on scanning.

"Since then, I have had several scanners. At present, I use a Bearcat BC-300 and an AOR-900."

PC

PC

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Unlicensed West Virginia Broadcast Station Shut-Down

The FCC's Field Operations Bureau, in a coordinated effort with its monitoring network and engineers from the Baltimore and Detroit offices, shut-down an unlicensed West Virginia pirate broadcast station at 2:45 a.m. on January 30, 1990. Mark R. Leavitt of Beach Bottom, West Virginia, was fined \$1,000 for illegally operating on 3820 kHz which is allocated for the Amateur Radio Service. The unlicensed station was identified as *Experimental Radio* (ERP) and broadcast a music and talk show format.

Unlicensed Virginia Broadcast Station Busted

The FCC's Field Operations Bureau, in a coordinated effort with its monitoring network and enforcement staff from the Norfolk office, shut-down an unlicensed "pirate" broadcast station in rural Floyd County, Virginia at 7:00 p.m. on Saturday, February 17, 1990. Conrad Clark Dalton of Floyd, Virginia, was fined \$1,000 for illegally operating a broadcast station on 6850 kHz, a shortwave frequency allocated to the Aeronautical Fixed Radio Service. The unlicensed had been identifying as *Secret Society Radio*. Dalton uses the air name of "Pirate Jim." The station had been broadcasting music and talk.

Amateur Operator Fined \$1,000 For Operating A Pirate Radio Station

Amateur radio operator Frederick K. Stark (KA2YLZ) of West Taghkanic, New York, was fined \$1,000 for operating a pirate radio station. After receiving a complaint from the New York State Broadcasters Association, staff from the FCC's New York Office, using mobile radio direction-finding equipment, located the illegal radio station at Stark's residence.

The unauthorized station, using the call-sign WNYS, had been causing interference to the reception of a licensed station, WINS-AM, on 1010 kHz in New York City.

Unlicensed Pennsylvania Broadcast Station Closed

The FCC's Field Operation Bureau, in a coordinated effort with its monitoring network and engineers from the Philadelphia office, shut-down an unlicensed Pennsylvania pirate broadcast station on February 1, 1990. Gary Mathews of Pittsburgh, PA was fined \$1,000 for illegally operating on 1620 kHz. Mathews used various program formats including music and talk. He identi-

fied the station by the call-sign WKND, which is assigned to an AM radio station in Windsor, Connecticut. Mathews had previously been observed broadcasting on frequencies in the 6 and 7 MHz bands.

Broadcasters may operate *only* licensed stations. Unauthorized operation of a radio transmitter is a violation of Section 301 of the Communications Act, as amended. Sanctions may include administrative fines of up to \$10,000 and/or criminal penalties of up to \$100,000 and/or imprisonment for up to one year. Such misuse of radio frequencies is a serious offense because of its potential for interfering with safety-of-life services such as aviation, marine and law enforcement.

Indiana Men Fined \$1,000 Each For Unauthorized Use Of A Marine Radio Frequency

Norman Putt of Francesville, Indiana, and Marshall Putt of West Lafayette, Indiana, were each fined \$1,000 by the FCC for the unauthorized and unlicensed operation of a radio transmitter. They were illegally operating on frequencies allocated to the Maritime Radio Service (156.25-157.25 MHz).

During the past year, investigators from the FCC's Allegan, Michigan Office observed illegal radio transmissions on frequencies 156.935 MHz and 156.865 MHz. Using mobile direction-finding equipment, the illegal transmissions were traced to the farm of Norman Putt and the business of Marshall Putt.

Texas And Florida Men Fined \$750 For Unlicensed Radio Operation

Gerald A. Kawelec of Fulton, Texas, and Roger H. Moore of Stuart, Florida, were each fined \$750 by the FCC for the unlicensed operation of a radio transmitter. They were illegally operating on 16.198 kHz.

During the past several months, investigators from the FCC's Allegan, Michigan Office, monitored the illegal transmissions. In coordination with offices in Kingsville, Texas and Vero Beach, Florida, investigators, using mobile and long-range direction finding equipment, located the unlicensed stations. The signals were traced to the vessel MARGARET HANNAH owned by Mr. Kawelec and the vessel FAIRWINDS owned by Mr. Moore.

Citations Issued To Over 240 Hams

The Commission issued over 240 notices



of violation to amateur stations for transmitting phone emissions on frequencies not authorized to the control operator for phone emissions. These transmissions violate Section 97.305(c) of the Commission's Rules, 47 C.F.R. & 97.305(c), thereby creating interference to an amateur station on Bouvet Island. Amateur service stations were cited for these violations during the period between January 2, 1990 and January 13, 1990.

Section 97305(c) partitions various high frequency amateur service bands into a digital segment used for data (including international Morse Code) and radio teletype (RTTY) emissions and an analog voice segment used for phone and image emissions as defined in Section 97.3(c) of the Commission's Rules, 47 C.F.R. & 97.3(c). Partitioning the amateur service bands in this manner facilitates amateur service stations from using inharmonious emissions within a given band. Voice and data emissions are inharmonious because voice emissions tend to dominate the spectrum when the two emissions share spectrum. The unauthorized use of the amateur service band in this manner disturbs the carefully arranged balance between frequencies for analog and digital emissions. The FCC said that even though these violations appear to have resulted from misuse of increasingly complex amateur service equipment rather than any willful action, the station licensee is responsible for the proper operation of the station and will be held responsible for the transmission of an unauthorized emission under Section 97.103 of the Commission's Rules 47 C.F.R. & 97.103.

PC

27 MHz COMMUNICATIONS ACTIVITIES

All low-power walkie-talkies used to be considered to be toys. Manufacturers used to put them all on CB Channel 14, which made that channel the gathering place for a lot of kiddies. Anybody over the age of 15 found operating on Channel 14 was often the target of many barbed comments. To all concerned, it was the kids' channel, and given up for all other purposes. An odd loophole in the FCC regulations made matters even worse.

Low-powered walkie-talkies didn't need to be licensed. Even though they operated on CB channels, the hardware wasn't considered CB equipment. It was permitted to be used under the FCC's Part 15 ("Incidental Radiation Devices") rules. That meant that full-powered CB, licensed (under FCC Part 19) stations weren't allowed to communicate with the walkie-talkies. For some unfathomable reason, this really annoyed the FCC. We're dealing with 5 watt stations contacting stations using 1/10th of a watt! In the early 1970's it became so irritating to the FCC that the Part 15 units were all moved off of 27 MHz and up to newly created allocations at 49 MHz. All of the toys moved and permitted Channel 14 to be used for regular communications (although the stigma remained for years).

Eventually, some 49 MHz equipment was developed that was intended for those persons seeking dependable short-range communications equipment in a small package. These were a far cry from devices that could be described as "toys." This market has continued to develop on its own, however it has always been closely tied to CB radio.

The latest innovation in this equipment is a 5-channel 49 MHz walkie-talkie from Midland International. You can clip this right to your belt. You talk "hands free" using a combo headset/microphone. It even has a VOX (that can be switched on or off) so you don't have to press a button to talk.

This set is known as the Model 75-108. It even has a dual conversion receiver, a low-battery indicator, mike sensitivity control, and a jack to allow remote PTT operation. These units have many applications for boating, camping, hiking, hunting, cycling, jogging, and other recreational activities. In business and industry, they are suitable for use on construction sites, in warehouses and factories, at airports, in law enforcement, firefighting, EMS, commercial fishing and many other areas.

More information on the Model 75-108 from Midland Consumer Communications Division, Midland International Corp., 1690 N. Topping, Kansas City, MO 64120, or circle 109 on our Readers' Service.



This little 49 MHz short-range FM transceiver from Midland International features operation on five channels, VOX, dual conversion receiver, lots more.

Mail Sack

One of the tried and true traditions on 27 MHz is that of exchanging ("swapping") QSL's. One reader who casts a vote for this column devoting more space to this topic is Fred Noakes, SSB Network member SSB-2829, 60 Park Ave., #109, Georgetown, Ontario, Canada L7G-4Y9. Fred has been active on the band for a number of years and he'd even like to see a regular listing presented of card swappers. What do our readers think?

Speaking of QSL's, a good looking one came in from Norm, SSB Network member

BOOTLEGGERS 1975 JAMBOREE

Write for more information

73s & 88s
from the
Baby Food
City

The Guitar Picker & Nashville Kitten

Wendy & Jim Wilkinson
P O Box 281
Fremont, Mich. 49412

Fifteen years ago this month they held the Bootleggers 1975 Jamboree. This is the official jamboree QSL used to summon the faithful.

SSB-2829
CANADA

73's
88's

FRED NOAKES
60 PARK AVE. #109
GEORGETOWN ONTARIO
L7G-4Y9

Fred Noakes, SSB-2829, would like to swap QSL's.

BASE MON. - 37 LSB

**ELMER
FUDD**

MOBILE
MON. - 33 AM

S.S.I. 22
CANADA

Norm, in Calgary, has a bright QSL featuring Elmer Fudd.

SSB-22D, also SSI-22, of P.O. Box 542, Station G, Calgary, Alberta, Canada. Norm's QSL shows Elmer Fudd in his full glory. Hey, Norm, just recently we visited that gigantic mall and amusement park in Calgary. Nothing beats it!

Larry Flegle, N4TMW, of Woodstock, GA dug up some CB history for us. How 'bout a genuine QSL from the "Bootleggers 1975 Jamboree" held in June of 1975 at the Ludington Fair Grounds, Ludington, MI? This was a major event fifteen years ago. Attracted lots of attention.

Our featured DX QSL for June was submitted by Bert, SSB Network Member SSB-35F, of the Lone Star State. Bert passed along a QSL from Austrian CB'er Romeo Papa for us to share with you.

Caught On Film

We like to think that all truck CB comms are on CB Channel 19. A photo submitted by Pat Griffith, Denver, CO reminds us that this isn't a universal truth. About 26 miles west of Denver, near the Colorado State Truck Weigh Station, is a large sign that distinctly points out that trucker info is to be found on CB Channel 18. This is on Interstate 70. Pat is a Communications Specialist with the Police Department in Federal Heights, CO.

Overseas News

A letter arrived from Norly F. Ignacio,

Take Bob's Advice

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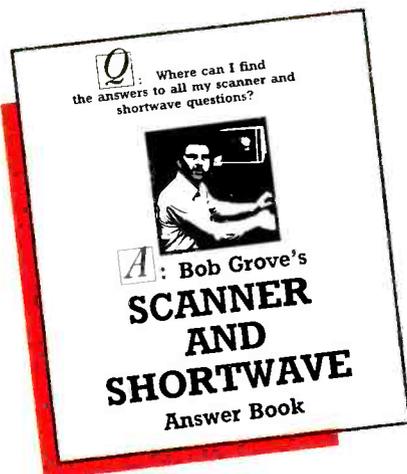
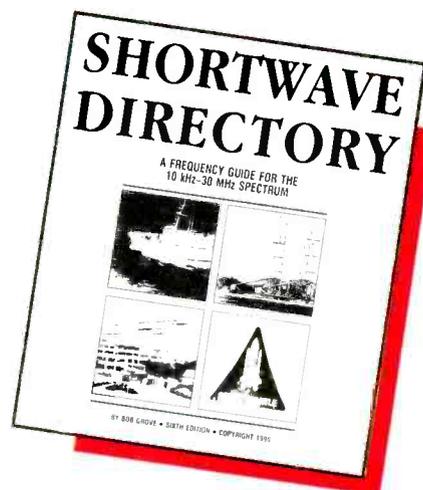
Shortwave Directory

Extensively revised, the new 1990 Shortwave Directory is the consummate DXer's bible for the first 30 MHz of the radio spectrum, including accurate, up-to-date VLF information.

Listings include U.S. and foreign Air Force, Navy, Coast Guard, Army, Energy and State Departments, FBI and FCC networks, scientific installations, spies and smugglers, pirates and clandestines, emergency communications networks, aircraft and ships, NASA Space Shuttle Tracking systems, English language broadcasts worldwide and much more.

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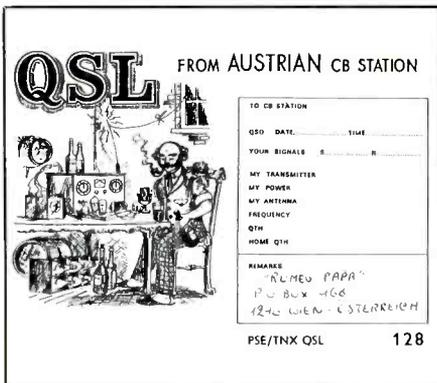
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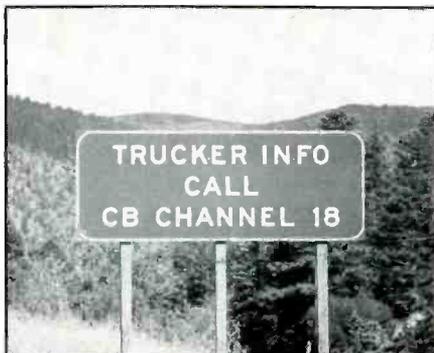
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Austrian CB'er "Romeo Papa" sends out this QSL.



Very unusual. This sign along the Interstate near Dumont, CO asks truckers to tune to Channel 18. Wha happen to Channel 19?

The following day, Gen Noriega took asylum in the Vatican Embassy. His command surrendered to the DEA. It made Larry wonder if perhaps he had somehow played a small part in these newsworthy events.

Regional Net

The Triangle Area CB Network, 4115 Lake Boone Trail, Raleigh, NC 27607 is a regional AM-mode network operating mostly from Virginia to southern North Carolina. There are 163 members, and the net meets twice a week on Channel 35. Every second week there is an in-person meeting in Raleigh. Those interested in further information on this group can contact Ray Wilkinson III, SSB-819C, at the address for the TACBN given here.

Car Plug-In For Walkie-Talkies

Many WT's rated at a power of 1 watt or higher are generally equipped with 12-volt batteries, or they may be powered directly from a car's electrical system. In the smaller 100-milliwatt category the 49 MHz transceiver is frequently powered by a 9-volt battery. This makes it impractical to eliminate the battery and run the unit directly from the car. This would apply excessive voltage to the transceiver circuits and possibly burn them out.

The device described here is designed to overcome this limitation and make it practical to operate the small 9-volt transceiver with a plug inserted into the car's cigarette lighter or through a wire attached to a 12-volt power lead (the one running to the regular car radio, for example). The device is easily and inexpensively constructed using the diagram. It is based on a zener diode in a voltage-regulator circuit.

DX-1, of 34 Malaya Street, Mandalay, Marinka Metro Manila, Philippines. He has two Realistic Navajo base units (TRC-431 and TRC-459). Both are broken. Norly needs schematics of these units in order to get them working again. Any aid our readers can offer would be appreciated.

An operator in Florida who identified himself only as "Sierra 27" reports that on 27540 kHz there is an RTTY station supposedly in South America that has been noted communicating with North American stations, except that the North American stations were using voice! The RTTY station operates with 850 kHz shift, 60 baud. Says he uses a C-64 with an interface. Sounded odd to hear a voice station in contact with an RTTY station.

Larry, "Agent 595," in Louisiana reports that one day last December he was sitting in his truck tuning around on the radio. On 27555 kHz LSB he heard a station claiming to be in Panama and saying that he had "a very important message for the DEA in Washington." He was attempting to raise any stateside station with his urgent message.

Larry took a chance that the call was legit and went back to the other station. To his surprise, the other station answered and begged him to make a landline call to the DEA, even giving the phone number. He said that all of the local landline phones in Panama City were out because of the invasion. While Larry's friend kept the circuit open to Panama, Larry went to a nearby business and asked to use their phone for an important call.

Sure enough, the number given over the air was the DEA in Washington. Larry gave these people all the information he had, telling them that he was a CB operator. They asked what frequency this was on, and when he said 27555 kHz, they said it wasn't a CB frequency. After Larry gave the DEA agent a quick explanation of illegal operations above Channel 40, the DEA said they didn't have any capabilities to operate there. But they did want to know what the important message was and also the name of the operator in Panama. Larry said that the op-

DX1

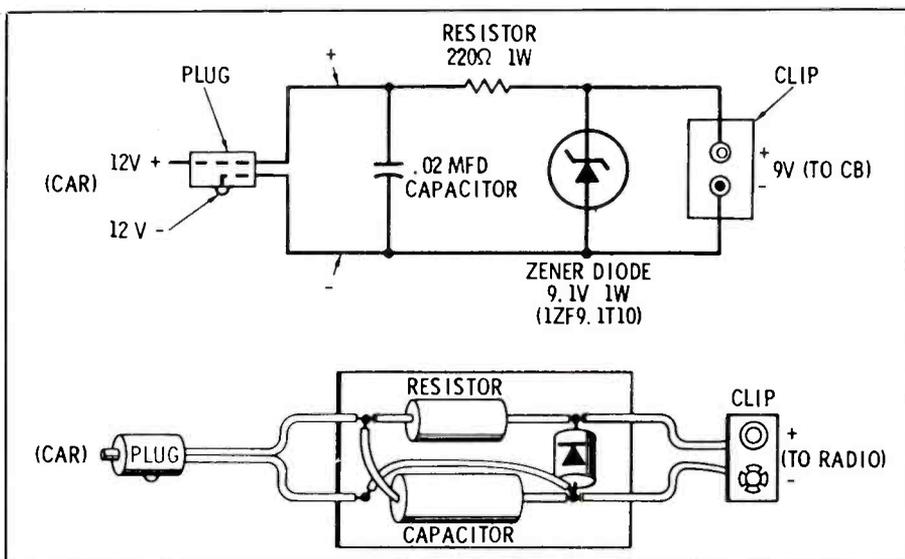
Norly F. Ignacio

34 MALAYA ST.
MALANDAY, MARIKINA
METRO MANILA
PHILIPPINES. 1800
TEL. NO. 947 • 35 • 94

"CALLING ALL OVER THE WORLD"

Norly, in the Philippines, sent along this QSL when he requested some schematics he needed to fire up a couple of Navajo rigs. Can you help him?

erator had refused to identify himself, and that he hadn't yet pressed him for the actual message. When Larry told the agent that the Panamanian station was using the call-sign "Unit 283," that information seemed to get a reaction—a distinct silence. Larry finally asked if he should try to press the other station for the text of his message. The agent replied, "Disregard. I think we'd better turn this over to Military Intelligence. Thank you for your call and your assistance."



Schematic and diagram for vehicle plug-in adapter to reduce the vehicles's 12 VDC to the 9 VDC needed by some handheld units.

The circuit fulfills several requirements. It drops car voltage from 12 volts to 9 volts to power the transceiver. It smooths out variations in voltage to the set; the car's electrical system can swing from about 12 to 16 volts during normal operation. Finally, the device overcomes the shifting electrical current drawn by the transceiver.

Here are the required parts needed for construction:

Plug—This is a plug designed to fit into the car's cigarette lighter socket. It is available from either automotive or radio supply outlets. These plugs have two wires emerging from a plastic body. You must identify which wire runs to the tip contact of the plug. This is done by measuring with an ohmmeter, or simply by hooking a battery and lamp or buzzer to check which wire runs to the tip. Once it is found, mark it as the positive lead. The other wire, the negative connection, is at the side of the plug. Proper polarity must be observed or the zener diode and radio will be affected.

Capacitor—This component can be any capacitor—paper, tubular or ceramic—rated at 0.02 mfd and with a voltage rating of at least 100. Purpose of this component is to help filter out noise from the car's electrical system which might reach the radio. If the capacitor has a dark ring or band at one end, connect this end to the negative side of the circuit.

Zener diode—This is the solid-state regulator. Its specifications are 9.1 volts at 1 watt. A typical unit is the 1ZF9.1T10 made by IR. The important consideration is hooking it into the circuit properly. If you closely examine the diode leads, you will note that one lead is insulated from the metal case. This lead connects to the negative side of the circuit. If there is a symbol imprinted on the diode, the negative side is the arrow-head side; the bar marking goes to the positive side.

Resistor—This is a 220-ohm resistor, rated at 1 watt.

Clip—The output voltage of the circuit (9 volts) is most conveniently introduced into the WT by a matching clip that attaches to the battery clip already in the radio. This can be done by removing the clip end from an old 9-volt battery and soldering it to the + and - wires from the device. Carefully check to see that polarity is correct; that the + side of circuit does, in fact, connect to the + battery connection in the transceiver. Use the original 9-volt battery as a reference. It should indicate which side of the clip is +.

The complete circuit is just a few inches square and can be conveniently built into a small plastic or other type of nonmetallic box.

We are always looking for CB QSL's from here or overseas, station photos, news of coffee breaks and jamborees, stories about activities of interest to 27 MHz operators, also questions, opinions, and whatever relating to 27 MHz operations.

PC

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CIRCLE 51 ON READER SERVICE CARD

RADAR REFLECTIONS

BY JANICE LEE

RADAR DETECTORS AND THEIR USE

New York Troopers Go Undercover Out In The Sun

Maybe New York motorists have caught on to the radar traps set up in dump trucks and apparently abandoned cars. Or perhaps troopers just wanted to work on their tans before the sun slipped away until next spring.

Whatever the motivation, state troopers used radar-equipped beach chairs over last Labor Day weekend to nab speeders along New York's Interstate 87, the Adirondack Northway.

"You're coming down the highway and you see some guy sitting in a beach chair with a cooler at his side. It doesn't occur to you that he's going to pull you off the road," explained state police spokesman Robert Armet.

At least four of the sun worshipping troopers were in place along the 187-mile expressway that connects Albany with the Canadian border. They were equipped with radar, police radios, soft drinks and tanning lotion, dispatching a squad of hidden patrol cars.

And if you see a riding lawn mower puttering along a New York interstate, take our advice and glance at your speedometer!

Motorists Successfully Challenge Pasadena Photo Radar

If justice is blind, at least it isn't color blind in Pasadena, California. Because the vehicle used with the city's photo radar system was painted the wrong color, Municipal Judge Samuel Laidig ruled September 8 that evidence gathered with the system is inadmissible.

Under the California Vehicle Code, traffic enforcement vehicles must be painted white or white with a sharply contrasting color (usually black) to alert motorists. The Pasadena Police Department's photo radar vehicle was white and gold, a color combination unlike any of its other vehicles.

Joseph Logsdon of Arcadia said he spent \$1,000 in attorney fees to beat the \$68.50 ticket, adding "I only wish they would have kicked the whole thing out of the city."

He was the first motorist to seriously challenge Pasadena's camera radar, which has been in operation since June. In preparation for that case, the court in late August began allowing drivers to plea bargain over tickets generated by the system.

When the first three photo radar challenges had their court date August 23, City Prosecutor Christopher Smith reduced two speeding charges to parking tickets with



fines equivalent to the speeding penalty. The third ticket was dismissed because Smith said the photo was unclear, making it difficult to positively identify the driver.

The dozen police officers and expert witnesses present in the courtroom were startled by the move, saying they were sure the defendants could have been convicted.

Between June and the trial date for the August challenges, the photo radar system generated 1,344 tickets. Of those citations, only 10 people asked for court trials.

By the time Logsdon's trial came up in September, there were 900 tickets that had not yet been paid. In light of the decision, Smith said the city may drop charges against those drivers, but he left open the possibility of prosecuting another case before a different judge. Smith also said drivers who paid their fines won't be getting them back.

Though Logsdon's attorney, Thomas Hogue, argued that photo radar deprives an individual his right to due process because there is no traffic stop, the case was won more on a technicality than the merits of the technology.

Hogue complained that the white and gold photo radar car looks like "what a den mother uses to take the Boy Scout troop to the beach."

The police department planned to have

the vehicle painted black and white and get it back on the street within a week.

AAA Names All Of Mississippi A "Strict Enforcement Area"

Not since Virginia and New Mexico earned the designation in 1976 has the American Automobile Association named an entire state a "strict enforcement area." Because of the state's intensified enforcement of traffic laws, Mississippi recently earned that AAA distinction.

The association defines a strict enforcement area as one where traffic laws are vigorously enforced for valid safety reasons rather than for boosting municipal revenue.

As proof it deserves the honor, the Mississippi Highway Patrol issued 44 percent more traffic tickets during the first half of this year than during the same period in 1987.

Other areas under the AAA category include Interstate 10 from U.S. Route 287 to Beaumont, Texas; U.S. 220 in Virginia, from Roanoke to the Franklin County line; and U.S. 19 in Summersville, West Virginia, and Tannersville, Pennsylvania.

The only place on the AAA's list of traffic traps—those designed to snare unsuspecting travelers—is U.S. 52 bypassing Hanging Rock, Ohio.

PC

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Advertising Rates: SCAN members and POP'COMM subscribers are entitled to one FREE 30-word, non-commercial classified ad per year. Enclose subscription name label with ad copy. For those people not in the previously mentioned groups, non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge \$6.00 per issue. Ads from firms offering commercial products or services are \$1.00 per word; minimum charge \$20.00 per issue. Boldface words are \$1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads must be prepaid in full at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be typewritten double spaced.

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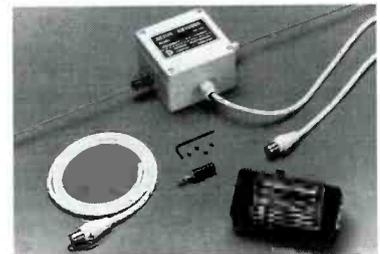
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Manual and demo disk \$15

Requires ICOM receiver and IBM PC with 512K and serial port. The R71A version also requires an ICOM UX-14.

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AR1000 **\$499**

1000 Channels. 8-600MHz, 805-1300MHz

Standard Features:

- Extremely compact size.
- Continuous coverage (except UHF TV 600-805)
- Antenna attenuator switch, 10db.
- Manual tuning knob.
- Earphone jack, 3.5mm.
- AM, FM and wide band FM tuning modes.
- Backlighted LCD display.
- 10 Scan Banks, 10 Search Banks.
- Selectable Priority Channel.
- Delay, Hold Features.
- Selectable Search Increments, 5-955KHz.
- Permanent memory backup.
- 4 AA Ni Cad batteries included.
- AC adaptor/charger.
- Carry Case.
- Cigarette Lighter Charger.
- Belt Clip.
- Earphone.

Options:

- External Speaker. Mobile Mount. MS190 \$19.50
- Extended Warranty. 2/3 yrs \$45/\$55

Specifications:

- Coverage: 8-600, 805,1300MHz
- Sensitivity: .35uV NFM, 1.0uV WFM, 1.0AM
- Speed: 20 ch/sec. scan. 40 ch/sec. search
- IF: 561.225, 58.075, 455KHz or 10.7MHz
- Increments: 5 to 955KHz selectable/ 5 or 12.5 steps.
- Audio: .4 Watts
- Power: Input 9 - 13.8 V. DC
- Antenna: BNC
- Display: LCD
- Dimensions: 6 7/8H x 1 3/4D x 2 1/2W. 12oz wt.

AR950 **\$239**



100 Channels. Low, Air, High, UHF & 800MHz.

Standard Features:

- Extremely compact size.
- Unrestricted 800MHz coverage.
- 100 channels permanent memory.
- Earphone Jack & Attenuator.
- Delay, Hold features.
- Channel 1 Priority.
- 5 Scan Banks, 5 Search Banks.
- Telescopic and Flexible Antennas w/ BNC connector.
- AC & DC Power cords w/ mtng hardware.
- One Year Limited Warranty.

Options:

- Base type antenna
25 to 1000MHz w 50' coax. AS300 \$59.95
- Mag Mnt Mobile Antenna. 15' coax. MA100 \$25.00
- Cigarette Lighter power adaptor. CP100 \$4.00
- External Speaker
with mobile mount. MS100 \$19.50
- Extended Warranty. 2/3 yrs \$40/\$55

Specifications:

- Coverage: 27-54, 108-174, 406-512, 830-950MHz
- Sensitivity: .4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
- Scan Speed: 15 ch/sec.
- IF: 21.4MHz, 455KHz
- Increments: 10,12.5,25,30
- Audio: 1W
- Power: 12.8VDC, 200MA
- Antenna: BNC
- Display: LCD w/backlight
- Dimensions: 2 1/4H x 5 5/8W x 6 1/2D. 14oz wt.

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AR900

\$259



100 Channels. Low, Air, High, UHF & 800MHz.

Standard Features:

- Extremely compact size.
- Unrestricted 800MHz coverage.
- 100 channels permanent memory.
- Earphone Jack & Display Backlight.
- Delay, Hold features.
- Channel 1 Priority.
- 5 Scan Banks, 5 Search Banks.
- Two Flexible Antennas w/ BNC connector.
- Rechargeable battery set w/ charger.
- One Year Limited Warranty.

Options:

Heavy Leather Carry Case.	CC880	\$28.00
Earphone.	EP200	\$2.00
External Speaker. Mobile Mount.	MS190	\$19.50
Extra Rechargeable battery	EB900	\$19.50
Extended Warranty. 2/3 yrs extra.		\$40/\$55
Mag Mnt Mobile Antenna. 15' coax.	MA100	\$25.00
Cigarette Lighter power adaptor.	DC900	\$14.00
Extended Warranty. 2/3 yrs		\$40/\$55

Specifications:

Coverage: 27-54, 108-174, 406-512, 830-950MHz
 Sensitivity: .4uV Lo.Hi. .8uV Air. .5uV UHF. 1.0uV 800
 Scan Speed: 15 ch/sec.
 IF: 21.4MHz, 455KHz
 Increments: 10,12.5,25,30
 Audio: 200MW
 Power: 6VDC, 65MA
 Antenna: BNC
 Display: LCD, backlighted
 Dimensions: 5 3/4H x 2D x 1 1/2W. 12oz wt.

AR2515

\$695



2016 Channels. 5-1500 MHz.

Standard Features:

- Extremely compact size.
- Continuous coverage.
- 2016 channels permanent memory.
- AM, FM wide and narrow modes.
- Signal strength meter & Tuning Knob.
- Bank 1 Priority.
- 62 Scan Banks, 16 Search Banks.
- Telescopic antenna w/ BNC connector for >25MHz.
- AC & DC Power.
- One Year Limited Warranty.

Options:

RS232 cable to DB25 connector.	BW-1.	\$24.95
RS232 cable & software for MS DOS.	EG-1.	\$39.95
BFO for SSB listening.	BFO-1.	\$159.00
Base type antenna		
25 to 1000MHz w 50'coax.	AS300	\$59.95
Mag Mnt Mobile Antenna. 15' coax.	MA100	\$25.00
Cigarette Lighter power adaptor.	CP100	\$4.00
External Speaker		
with mobile mount.	MS100	\$19.50
Extended Warranty. 2/3 yrs		\$30/\$45
Mobile Mtng Bracket.	MM1	\$14.90
Cigarette Lighter power adaptor.	CP100	\$4.00

Specifications:

Coverage: 5 - 1500MHz
 Sensitivity: .35uV NFM, 1.0uV WFM, 1.0uV AM >3.0uV SW AM
 Scan Speed: <=36 ch/sec.
 IF: 750MHz, 45.03MHz, 5.5MHz, 455MHz.
 Increments: 5,12.5,25KHz
 Audio: 1W
 Power: 12VDC, 200MA
 Antenna: BNC
 Display: LCD, backlighted
 Dimensions: 3 1/7H x 7 7/8D x 5 2/5W. 2lb 10oz wt.

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(The VHF converter options must be used in the R-5000 and R-2000.)

R-5000

The R-5000 is a high performance, top-of-the-line receiver, with 100 memory channels, and direct keyboard or main dial tuning—makes station selection



R-2000

The R-2000 is an all band, all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front-mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit), and 118-174 MHz VHF capability with VC-10 option.

Optional Accessories

R-2000:

- VC-10 VHF converter
- DCK-1 DC cable kit for 12 volt DC use.

R-5000:

- VC-20 VHF converter
- VS-1 Voice module
- DCK-2 for 12 volt DC operation
- YK-88A-1 AM filter
- YK-88SN SSB filter
- YK-88C CW filter
- MB-430 Mounting bracket.

Other Accessories:

- SP-430 External speaker
- SP-41 Compact mobile speaker
- SP-50B Mobile speaker
- HS-5 Deluxe headphones
- HS-6 Lightweight headphones
- HS-7 Mini-headphones.

super easy! Other useful features include programmable scanning, large, built-in speaker, 110 volt AC or 12 volt DC operation (with optional DCK-2 cable), VHF capability (108-174 MHz) with the VC-20 option, dual 24-hour clocks with timer, and even voice frequency readout with the VS-1 option.

RZ-1 Wide-band scanning receiver



The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening

easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, switchable AGC, squelch for narrow FM, illuminated keys, and a "beeper" to confirm keyboard operation.

Optional Accessory
• PG-2N Extra DC cable

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